

JIC 2014

Joint International Conference

January 10-12, 2014

In association with

American Association
of Physicians of
Indian Origin (AAPI)

Association of
Physicians of
Ahmedabad



Abstract Book

Organized by

GMERS
Medical College,
Sola, Ahmedabad



Care Institute
Medical Society
for Research
and Education

Sponsored by CIMS Hospital

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Conference Chairman



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Dr. Vineet Sankhla



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Dr. Urmil Shah



Dr. Hemang Baxi



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Dr. Hemang Ambani



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USA



Dr. Vinayak Bapat
USA



Dr. Vipin Bhavsar
USA



Dr. Rahul Doshi
USA



Dr. Philip Hirst
UK



Dr. Sridhara Iyengar
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Dr. Ashit Jain
USA



Dr. Kaj Johansen
USA



Dr. Rajni Kanabar
Tanzania



Dr. Dharam Kumbhani
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Dr. Raj Makkar
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Dr. Luca Marega
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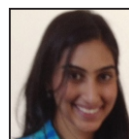
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Dr. Ramesh Venkataraman	India
Dr. S. Vijayshankar	India

Cardiology Track

January 10, 2014, Friday, Venue : Tagore Hall

Introduction Session

8:00 AM	Introduction - Dr. Keyur Parikh
8:15 AM	Patients: 'Difficult,' 'Tough' or 'Just Misunderstood' ? - Dr. Keyur Parikh
8:35 AM	A new Approach to LDL Management : Modulating PCSK9 and the LDL Receptor: Tipping the Balance of Power - Dr. Keyur Parikh
8:50 AM	Plenary Lecture - I: Use technology and Web 2.0 to stay "up to date" ! - Dr. Neil Mehta
9:10 AM	Trials of 2013 which Changed my Clinical Practice: Part-I - Dr. Milan Chag
9:30 AM	Panel Discussion & Question-Answer
9:40 AM	Plenary Lecture - II: Therapeutic Hypothermia in Sudden Cardiac Arrest - Dr. Sridhara Iyengar
9:55 AM	DM and CAD- A Volcano! (Issues, Challenges and Management) - Dr. Anish Chandarana
10:10 AM	DES or BVS (Bioabsorbable Scaffolds) - Where are we now and What is the future? - Dr. Keyur Parikh
10:25 AM	FFR, OCT, IVUS : Why is it Worth Spending Extra Cost? - Dr. Urmil Shah
10:35 AM	How shall I Manage Multivessel CAD? - Dr. Milan Chag
10:50 AM	Panel Discussion & Question-Answer
11:00 AM	CACS and CT Angiography: Can we Rationalize its Use? - Dr. Satya Gupta
11:12 AM	Newer Biomarkers in Cardiology: Worth Spending Extra? - Dr. Hemang Baxi
11:24 AM	Pre Interventional Pharmacology Management of STEMI by Physicians - Dr. Vineet Sankhla
11:35 AM	Plenary Lecture - III: Role of Imaging for Detection of Subclinical Atherosclerosis - Dr. P. K. Shah
11:50 AM	Plenary Lecture - IV: Role of Intensive Lipid Lowering Therapy Post-PCI for ACS - Dr. Subhash Banerjee
12:10 PM	Panel Discussion & Question-Answer
12:20 PM	The Way to Future With ECMO - What All Physicians Should Know? - Dr. Keyur Parikh
12:35 PM	ECMO Demonstration - ALL CIMS Doctors
12:50 PM	Cultural Bridge Award - Dr. Sudhir Parikh, USA Dr. Keyur Parikh / Dr. Anish Chandarana / Dr. Mahendra Vegad
01:00 PM	LUNCH
1:50 PM	Cryptogenic Stroke: Did you Look for PFO ? - Dr. Satya Gupta

2:00 PM	Acute Ischemic Stroke: An Update - Dr. Anish Chandarana
2:10 PM	Pulmonary Hypertension: Newer Therapies - Dr. Hemang Baxi
2:20 PM	Hype or Hope?: Renal Denervation hits the Headlines - Dr. Urmil Shah
2:30 PM	Left Main ! PCI or Bypass Surgery - Best Way to Go ! - Dr. Urmil Shah
2:45 PM	Panel Discussion & Question-Answer
2:55 PM	Plenary Lecture - V: Carotid Artery Stenting: Class I Indication in Suitable Cases - Dr. Ashit Jain
3:10 PM	Plenary Lecture - VI: Peripheral Arterial Disease : A Missed Opportunity for CV Intervention - Dr. Subhash Banerjee
3:25 PM	Plenary Lecture - VII: CABG vs. PCI: Where & What Does Evidence Support ? - Dr. Raj Makkar
3:40 PM	Tea Break
3:50 PM	Home Monitoring of Arrhythmias and HF via Devices - Dr. Ajay Naik
4:05 PM	How I Treat AF in Current Era - Dr. Rahul Doshi
4:20 PM	Adult Congenital Heart Disease - An Update for Physicians - Dr. Rajesh Shenoy
4:35 PM	Panel Discussion & Question-Answer
4:45 PM	Aortic Valve Surgery : When Not to Do - Dr. Dhiren Shah
4:55 PM	Plenary Lecture - VIII: Aortic Valve Repair: Is It Possible and Its Long Term Results - Dr. Meong Gun Song

DEBATE-1

5:10 PM	Which Valve will I Choose for My Dear-One? Mechanical for All! - Dr. Dhiren Shah/Dr. Dhaval Naik
5:20 PM	Bioprosthesis for All! - Dr. Dhiren Shah/Dr. Dhaval Naik

5:30 PM Rebuttal and Conclusion

DEBATE-2

5:40 PM	New ACC-AHA Lipid guideline-2013 : I'll Adopt in My Clinical Practice : Yes - Dr. Anish Chandarana
5:50 PM	New ACC-AHA Lipid guideline-2013 : I'll Adopt in My Clinical Practice : No - Dr. Vineet Sankhla
6:00 PM	Rebuttal and Conclusion

Satellite Session : January 10, 2014, Friday (8:00 PM - 10:00 PM) Venue : Hotel Park Plaza/Hotel Four Points by Sheraton

1. An Evening of Pharmacology & Therapeutics - I

Venue : Hotel Four Points by Sheraton (Hall Name - Nuevo-1)

- 8:00 PM Guidelines for Management of Heart Failure : 2014
Updated : 15 Points to Remember for Physicians
- Dr. Keyur Parikh
-
- 8:20 PM Strategies of Handling Resistant Hypertension
- Dr. Keyur Parikh
-
- 8:40 PM HDL : A Fallen Angel ? - **Dr. P. K. Shah**
-
- 9:00 PM Using Smart Phone (and iPad) to Optimize my Patient
Therapeutics : How & Where to Go ? - **Dr. Neil Mehta**
-
- 9:20 PM Advances in ICD Therapy - **Dr. Ajay Naik**
-
- 9:40 PM Ticagrelor More Cardioprotective Than Clopidogrel ?
- Dr. Anish Chandarana
-
- 10:00 PM Panel Discussion & Question-Answer

2. An Evening of Pharmacology & Therapeutics - II

Venue : Hotel Park Plaza (Hall - Senate - 2)

- 8:00 PM Newer Anticoagulants : 2014 Update - **Dr. Ajay Naik**
-
- 8:20 PM When Should We Use Beta-Blockers ?
- Dr. Hemang Baxi
-
- 8:40 PM Pharmacodynamics of Prasugrel vs Clopidogrel in
Elderly - **Dr. M. Chandra Sekar**
-
- 9:00 PM Efficacy of CRT Therapy in Current Era
- Dr. Rahul Doshi
-
- 9:20 PM Vitamin D & Hypertension - **Dr. M. Chandra Sekar**
-
- 9:40 PM Management of Hypertension Post JNC-8 / ASH-ICH
2013 - **Dr. Urmil Shah**
-
- 10:00 PM Panel Discussion & Question-Answer

3. Interactive Echocardiography- An Evening with

Dr. Navin Nanda, Dr. S. K. Kaushik, Dr. Satya Gupta, Dr. Milan Chag

Venue : Hotel Park Plaza (Hall - Senate - 3)

- 8:00 PM Interactive Session
-
- 8:20 PM Interactive Session
-
- 8:40 PM Interactive Session
-
- 9:00 PM Interactive Session
-
- 9:20 PM Interactive Session
-
- 9:40 PM Panel Discussion & Question-Answer

4. An Evening of Treatment Guidelines

(15 Points to Remember for Physicians)

Venue : Hotel Four Points by Sheraton (Hall Name - Nuevo-2)

- 8:00 PM Guidelines for Management of STEMI Patients : 2014
Update : 15 Points to Remember for Physicians
- Dr. Vineet Sankhla
-
- 8:20 PM New Guidelines for Lipid Management: Hot off The
Press : 2014 Update : 15 Points to Remember for
Physicians - **Dr. Urmil Shah**
-
- 8:40 PM Guidelines for Secondary Prevention for Patients With
Atherosclerosis: 2014 Update : 15 Points to
Remember for Physicians - **Dr. Anish Chandarana**
-
- 9:00 PM Guidelines for Management of ACS(Non-STEMI) :
2014 Update : 15 Points to Remember for Physicians
- Dr. Raj Makkar
-
- 9:20 PM Guidelines for the Diagnosis and Treatment of
Endocarditis : 2014 Update : 15 Points to Remember
for Physicians - **Dr. Vineet Sankhla**
-
- 9:40 PM Panel Discussion & Question-Answer

5. Peripheral / Endovascular / Diabetic Foot for Physicians

Venue : Hotel Park Plaza (Hall - Senate - 1)

- 8:00 PM An Update on Aortic Dissection - **Dr. P. K. Shah**
-
- 8:20 PM An Update on Treatment of Peripheral Arterial
Disease - **Dr. Subhash Banerjee**
-
- 8:40 PM Management of Aortic Aneurysms - **Dr. Kaj Johansen**
-
- 9:00 PM An Update on Stroke Management - **Dr. Ashit Jain**
-
- 9:20 PM Resistant Hypertension with Interactive Cases: What
All Physicians Should Know ? - **Dr. Keyur Parikh**
-
- 9:40 PM An Update on Venous Disease - **Dr. Srujal Shah**
-
- 10:00 PM Panel Discussion & Question-Answer

Cardiology Track

January 11, 2014, Saturday, Venue : Tagore Hall

Introduction Session

7:30 AM	Early Morning Tea with "The Masters" - Interactive ECGs. - Dr. Ajay Naik / Dr. Rahul Doshi / Dr. Maully Shah / Dr. Rajesh Shenoy / Dr. Vineet Sankhla
8:15 AM	Newer Algorithms and Advances in CRT Therapy - Dr. Rahul Doshi
8:30 AM	VT: Substrate Determines Therapy and Outcomes - Dr. Ajay Naik
8:45 AM	SVT: Intervention and Outcomes - Dr. Ajay Naik
9:00 AM	Causes of Sudden Cardiac Arrest in Young - Dr. Maully Shah
9:15 AM	Trials of 2013 which changed my Clinical Practice: Part-II - Dr. Milan Chag
9:35 AM	Panel Discussion & Question-Answer
9:45 AM	Tea Break
9:55 AM	Resistant Hypertension - Dr. Dharam Kumbhani
10:10 AM	Case Based Management of CHF in 2014 - Dr. Keyur Parikh
10:25 AM	Management of Massive and Submassive Pulmonary Embolism - Dr. Sanjiv Parikh
10:40 AM	Understanding Lipids: Classroom to Clinic and Future... - Dr. Milan Chag
10:55 AM	Clinical Case-1: 60 year old with severe HT, DM and CKD: My Choice, My Goals ... - Dr. Anish Chandarana
11:10 AM	Clinical Case-2: 45 years old Asymptomatic Chronic Severe MR - Dr. Urmil Shah
11:25 AM	Clinical Case-3: 50 years Male with Strong Family History of MI : Can we Detect Vulnerable Plaque - Dr. Vineet Sankhla
11:40 AM	Panel Discussion & Question-Answer
11:50 AM	Introduction : Life Time Achievement Award & CIMSCON Oration - Dr. Keyur Parikh / Dr. Milan Chag / Dr. Ajay Naik Dr. Mahendra Vegad / Dr. Ajesh Desai
11:55 AM	Lifetime Achievement Award & Father of Echocardiography Award: Newer Developments in Echocardiography - Dr. Navin Nanda
12:15 PM	CIMSCON Oration: New Lipid Modifying Therapies for Atherosclerosis - Dr. P. K. Shah

12:35 PM	Create Miracles through Selfless Service - Dr. Rajni Kanabar
12:50 PM	Panel Discussion & Question-Answer
01:00 PM	LUNCH
1:50 PM	Clinical Case-4: - Dr. Hemang Baxi
2:02 PM	Clinical Case-5: 45 yr Asymptomatic Male, no DM,HT,Angina, FH+, Stress and Sedentary Life+, C:190, LDL: 95, HDL: 32, TG: 180. How to Approach? - Dr. Vineet Sankhla
2:14 PM	Clinical Case-6: LA Myxoma-An unusual presentation - Dr. Satya Gupta
2:25 PM	Plenary Lecture - IX: Acute Aortic Dissection: What Physicians Should Know? - Dr. Anil Bhan
2:40 PM	Cryptogenic Strokes : Past, Present & Future - Dr. Tanmay Swadia
2:55 PM	Duration of Dual Antiplatelet Therapy in PCI - Dr. Anish Chandarana
3:10 PM	Diabetic Foot - Dr. Kaj Johansen
Clinical Case CD Reviews	
3:25 PM	Case-1 : Stents, Stents Everywhere and Not a "Stent" to See ! (52 yr male with critical lesions) - Dr. Keyur Parikh
3:40 PM	Case-2 : Alcohol: I Don't Drink but Keep it in My Locker! - Dr. Milan Chag
3:55 PM	Case-3 : Extensive Anti-wall MI with Left Main Thrombosis - Dr. Urmil Shah
4:10 PM	Case-4 : - Dr. Hemang Baxi
4:25 PM	Case-5 : Percutaneous Intervention Treatment for LAD Bifurcation Lesion - Dr. Anish Chandarana
4:40 PM	Case-6 : Long Term Survival on ICD in Young Lady with Peripartum Cardiomyopathy, VT and aborted SCA - Dr. Ajay Naik
4:55 PM	Case-7 : Resistance Hypertension-Did you look for unusual cause? - Dr. Satya Gupta
5:10 PM	Case-8 : Hypertension Crisis: Unmasked by Beta Blockers - Dr. Vineet Sankhla
5:25 PM	Case-9 : Left Main PCI: Not a Taboo, But Acceptable Treatment in 2014 - Dr. Raj Makkar
5:40 PM	Case-10 : Percutaneous Interventions for Pulmonary Embolism and DVT - Dr. Dharam Kumbhani

Joint Replacement Track

January 11, 2014, Saturday, Venue : The Grand Bhagwati - Memories Hall

8:30 AM Inaugural Address - **Dr. Amir Sanghavi**

8:35 AM Doctors : A Way to The Future - **Dr. Keyur Parikh**

8:45 AM Introduction Speech

- **Dr. Pankaj Patel / Dr. M. M. Prabhakar**

CASE 1: PRIMARY VALGUS KNEE

Panelists: Dr. Philip Hirst, Dr. Pankaj Patel, Dr. M. M. Prabhakar

9:00 AM Pre-Op X-ray, History, Discussion

9:15 AM Surgery

CASE 2: POST TRAUMATIC HIP ARTHRITIS

Panelists: Dr. Vijay Bose, Dr. Satish Patel, Dr. Prakash Amin

10:00 AM Preop X-ray, History, Discussion

10:15 AM Surgery

CASE 3: POST HTO ARTHRITIC KNEE

Panelists: Dr. S.K.S. Marya, Dr. Bhavesh Sachde

11:15 AM Preop X-ray, History, Discussion

11:30 AM Surgery

DISCUSSION OF CASE 1,2,3

Panelists: Dr. Luca Marega

12:15 PM Case 1 - **Dr. S.K.S. Marya**

Panelist: Dr. Vijay Bose

12:30 PM Case 2 - **Dr. Luca Marega**

Panelist: Dr. S.K.S. Marya

12:45 PM Case 3 - **Dr. Philip Hirst**

01:00 PM LUNCH

01:45 PM Post Management Strategies in Joint Replacement

- **Dr. Shruti Shah**

Case 4: POST TRAUMATIC UNSTABLE KNEE

Panelists: Dr. Luca Marega, Dr. J. P. Pandit

02:00 PM Preop X-ray, History, Discussion

02:15 PM Surgery - **Dr. Philip Hirst**

Case 5: OPERATED THR WITH LOOSENING

Panelists: Dr. Luca Marega, Dr. Sarvang Desai,
Dr. Bhavesh Sachde

03:30 PM Preop X-ray, History, Discussion

03:45 PM Surgery - **Dr. Vijay Bose**

DISCUSSION OF CASE 4,5

Panelist: Dr. S.K.S. Marya

5:45 PM Case 4 - **Dr. Philip Hirst**

Panelist: Dr. Luca Marega

6:00 PM Case 5 - **Dr. Vijay Bose**

06:15 PM to 7:00 PM

WORKSHOP 1: EXTENDED TROCHANTERIC OSTEOTOMY

WORKSHOP 2: PRIMARY KNEE REPLACEMENT



Cardiovascular Thoracic Surgery (CVTS) Track

In Association with Gujarat Cardiothoracic Surgeon Club

January 11, 2014, Saturday
Venue : CIMS Hospital

Aortic Workshop

8:30 AM	Applied Anatomy of Aortic Valve / Root - Dr. D. K. Satsangi
8:50 AM	Comprehensive Aortic Valve Repair - Dr. Meong Gun Song
9:15 AM	Live Case on Aortic Valve Repair in Aortic Stenosis - Dr. Meong Gun Song
12:00 PM	When is it too late for Aortic Valve Surgery -Dr. Dhiren Shah
12:20 PM	Principles of Aortic Valve Repair Starting Aortic Valve Repair Programme - Dr. Meong Gun Song
12:40 PM	Long Term Results of Homograft and How to Setup Homograft Bank - Dr. Sridhara Iyengar
1:00 PM	LUNCH
1:20 PM	Live Case : Aortic Valve Repair in Aortic Regurgitation - Dr. Meong Gun Song
3:30 PM	Debate - Aortic Root Enlargement : Is it necessary For : Dr. Nirmal Gupta Against : Dr. Sukumar Mehta
4:30 PM	Video Case Presentation : Sutureless Aortic Valve Replacement Tips & Tricks - Dr. Vinayak Bapat
4:50 PM	Tavi Update - Dr. Vinayak Bapat

Wet Lab : 03:00 PM to 07:00 PM

Dr. D. K. Satsangi / Dr. V. V. Bashi /
Dr. Nirmal Gupta / Dr. V. M. Kurian

3:00 PM	Bentall Procedure - Dr. V. V. Bashi
5:00 PM	Aortic Root Enlargement - Dr. D. K. Satsangi, Dr. Nirmal Gupta, Dr. V. M. Kurian

January 12, 2014, Sunday
Venue : CIMS Hospital

7:30 AM REGISTRATION & BREAKFAST

8:30 AM	Natural history of Aortic Aneurysm and dissection - Dr. S. Vijayshankar
9:00 AM	Aortic Aneurysm and Dissection Surgery Update - Dr. Anil Bhan
9:20 AM	Live Case : Bentall Procedure with Bioprosthetic Valve - Dr. Anil Bhan
11:40 AM	Arterial Cannulation in Type A Dissection - Dr. V. M. Kurian
12:00 PM	Aortic Root Replacement : Safeguard and Pitfalls - Dr. V. V. Bashi
12:20 PM	Bicuspid Aortic Valve with Dilated Ascending Aorta - Dr. Rajesh Desai
12:40 PM	Life After Bentall Procedure in Type A Dissection - Dr. Anil Bhan
1:00 PM	LUNCH
1:30 PM	Echocardiography of Aortic Root from Surgeon's Perspective - Dr. K. Sivakumar
1:50 PM	Imaging in Aortic Root and Ascending Aorta Pathology - Dr. Sanjiv Sharma
2:10 PM	Sealants, Glues, Adhesive - Dr. Tushar Shah
2:30 PM	Arch Debranching : Tips and Tricks - Dr. V. V. Bashi
2:50 PM	Thoraco Abdominal Aortic Aneurysm : Is Surgery Still the Gold Standard ? - Dr. M. Unnikrishnan
3:10 PM	Meet the Experts : Interesting Case Discussion on Aortic Surgery (7-10 Cases to be Discussed) Panelist : Dr. Meong Gun Song / Dr. Anil Bhan / Dr. V. V. Bashi / Dr. Vinayak Bapat / Dr. M. Unnikrishnan / Dr. Bhupesh Shah
5:00 PM	Vote of Thanks - Dr. Dhiren Shah



Critical Care / Pulmonary Track

January 11, 2014, Saturday

Venue : The Grand Bhagwati - Ambience Hall

PFT

9:00 AM Introduction to CRF - **Dr. Komalkirti Apte**

9:15 AM PEFR - **Dr. Sunayana Shinde**

9:35 AM Spirometry (Principles + Procedure)

- **Dr. Komalkirti Apte**

10:15 AM Spirometry (Interpretation + QA)

- **Dr. Sunayana Shinde**

10:55 AM Tea Break

11:05 AM Body Box Plethysmography - **Dr. Rahul Kodgule**

11:20 AM DLCO - **Dr. Rahul Kodgule**

11:40 AM IOS - **Dr. Komalkirti Apte**

11:55 AM Case Studies (Spirometry + APFT)

- **Dr. Komalkirti Apte**

12:20 PM Hands on Spirometry + DLCO

1:00 PM LUNCH

Interventional Bronchoscopy

2:00 PM What Pulmonologist know about Interventional

Pulmonology - **Dr. Atul Mehta**

2:30 PM EBUS - **Dr. Prashant Chhajed**

2:50 PM Management of Benign and Malignant Stricture

- **Dr. Atul Mehta**

3:10 PM Endoscopic Debulking of Tumor

- **Dr. Prashant Chhajed**

3:30 PM Interesting Cases Video Clip

- **Dr. Atul Mehta / Dr. Prashant Chhajed**

4:00 PM Hands on Training on Mannequin

January 12, 2014, Sunday

Venue : The Grand Bhagwati - Ambience Hall

Session - I

8:30 AM Management of Severe COPD - Optimizing Therapy

- **Dr. Amit Patel**

8:45 AM Bronchial Thermoplasty - **Dr. Atul Mehta**

9:00 AM Functional Echocardiography in ICU

- **Dr. Niren Bhavsar**

9:15 AM Functional Hemodynamics in ICU - **Dr. Chintan Sheth**

9:30 AM Panel Discussion & Question-Answer

Session - II

9:40 AM Difficult Asthma - **Dr. Prabhu Desai**

9:55 AM Infection Control in ICU - **Dr. Dhanashri Atre Singh**

10:10 AM ILD - Clinical Approach - **Dr. Nitesh Shah**

10:25 AM ABG Interpretation - **Dr. Hiren Dholakia**

10:40 AM Panel Discussion & Question-Answer

10:50 AM TEA BREAK

11:00 AM Bronchoscopic Management of Airway Stricture

- **Dr. Prashant Chhajed**

11:15 AM Hepatopulmonary Syndrome - **Dr. James Stoller**

11:30 AM Thrombolytic in Stroke - ED Protocol

- **Dr. Sandeep Diwan**

11:45 AM Decortication in Empyema - Indication Timing and

Role of Video Assisted Techniques - **Dr. Pranav Modi**

12:00 PM Panel Discussion & Question-Answer

12:10 PM Interactive Session - Pleural Effusion - **Dr. Atul Mehta**

12:40 PM Panel Discussion: Multi Drugs Resistant TB?

- **Dr. Nitesh Shah / Dr. Surabhi Madan /
Dr. R. N. Solanki / Dr. Mitesh Patel**

1:10 PM LUNCH

2:00 PM Panel Discussion: Refractory Hypoxia - An Update in ECMO

Panelist: Dr. Atul Mehta / Dr. Ramesh Venkataraman / Dr. Amit Patel / Dr. Harshal Thaker

2:30 PM Acute Kidney Injury in ICU - Looking Beyond Convention - **Dr. Ramesh Venkataraman**

2:45 PM Pills & the Air Passages - **Dr. Atul Mehta**

3:00 PM Year in Review - Critical Care Medicine

- **Dr. Ashit Hegde**

3:10 PM Panel Discussion & Question-Answer

3:20 PM TEA BREAK

3:30 PM Anticoagulant in ICU - **Dr. Bhagyesh Shah**

3:45 PM Robotics in Chest Conditions - Myth or Magic ?

- **Dr. Ali Zamir Khan**

4:00 PM Transport of Critically ill - **Dr. Vipul Thakkar**

4:15 PM Practical Use of Supplemental Oxygen

- **Dr. James Stoller**

4:30 PM Diagnosis of Brain Death - **Dr. Harshal Thaker**

Internal Medicine Track

January 12, 2014, Sunday, Venue : Tagore Hall

Cardiology & Internal Medicine

8:30 AM How to use Tablets & Smartphones to Enhance Patient Care - **Dr. Neil Mehta**

8:45 AM The Aging Physician - Impact on Patient Care - **Dr. Kaj Johansen**

9:00 AM ECLS (ECMO) - A Primer For Physicians - **Dr. Bhagyesh Shah / Dr. Dhaval Naik**

9:15 AM Management Learnt 'Medically' - **Dr. Dhiren Joshi**

9:30 AM Panel Discussion & Question-Answer

Cardiology & Internal Medicine

9:40 AM Practical use of Supplemental Oxygen - **Dr. James Stoller**

9:55 AM Pills & the Air Passages - **Dr. Atul Mehta**

10:10 AM Chest X-Ray - Revisited - **Dr. Milan Chag**

10:30 AM Update in HIV & Seropositive Status - **Dr. Kaushik Ramaiya**

10:45 AM Cardiac Stem Cell Therapy: Fact or Fiction? - **Dr. Raj Makkar**

11:00 AM Panel Discussion & Question-Answer

Cardiology & Internal Medicine

11:10 AM Spiritual Dimensions of Medical Management - **Dr. Rajesh Teli**

11:25 AM Arrhythmias Requiring Intervention - **Dr. Ajay Naik**

11:40 AM A Case of Chest Pain in Emergency Room - **Dr. Urmil Shah**

11:55 AM ECG Changes in Heart Failure: Bench to Bedside - **Dr. Vineet Sankhla**

12:10 PM Rational Medical Diagnosis & Therapy - **Dr. Y. K. Oza**

12:25 PM What Should A Physician Do and Not Do in Early CKD Patients - **Dr. Manthan Kansara**

12:40 PM Panel Discussion & Question-Answer

12:50 PM LUNCH

Cardiology & Internal Medicine

1:20 PM Acute Ischemic Stroke ! - **Dr. Keyur Patel**

1:35 PM Newer Techniques in Radio Therapy- What all Physicians Should Know ? - **Dr. Devang Bhavsar / Dr. Kinjal Jani**

1:50 PM Chronic Renal Insufficiency and ACS - **Dr. Dharam Kumbhani**

2:05 PM A Case Based Standard Prescription of T2DM - **Dr. Parag Shah**

2:20 PM The Spectrum of MENINGITIS - Case based discussion - **Dr. Surabhi Madan**

2:35 PM Panel Discussion & Question-Answer

Cardiology & Diabetes Mellitus

2:45 PM Role of Interventional Radiology - What all Physicians Should Know ? - **Dr. Sanjiv Parikh**

3:00 PM Panel Discussion: Which Patients Benefit most from Gliptins? - **Dr. Sanjeev Phatak / Dr. Banshi Saboo / Dr. Mayur Patel / Dr. Tiven Marwah**

3:20 PM Predictors of SCD in Adolescents and Athletes - **Dr. Rajesh Shenoy**

3:35 PM Panel Discussion & Question-Answer

Cardiology & Internal Medicine

3:45 PM Upper GI Bleed - Causes & Management - **Dr. Bhavesh Thakkar**

4:00 PM Thiazides vs Chlorthalidone for HTN: Is the Fight Over? - **Dr. Satya Gupta**

4:15 PM Case based ABG Report Interpretation : 5 Clinical Scenarios - **Dr. Nitesh Shah / Dr. Amit Patel / Dr. Bhagyesh Shah / Dr. Vipul Thakkar / Dr. Harshal Thaker**

Life & Humor (Supper/Dinner with Family)

4:30 PM Real Humour in Clinical Practice - **Dr. Sunil Mehta**

4:45 PM Regain The Sparkle - **Dr. Paras Shah**

5:00 PM Exercise, Fitness, Mind and Body - 2014 Update - **Dr. Anish Chandarana**

5:15 PM Investment Strategy for Doctors - How, Where & Why - 2014 - **Dr. Keyur Parikh**

6:30 PM Panel Discussion & Question-Answer

Trauma Care Track

January 12, 2014, Sunday, The Grand Bhagwati - Memories Hall

8.00 AM REGISTRATION & BREAKFAST

9.00 AM Trauma Radiology : In Abdominal Injury

- **Dr. Hemant Patel**

9.15 AM NOM-Blunt Solid Organ Injury - **Dr. Madhuri Gore**

9.30 AM Abdominal Compartment Syndrome

- **Dr. Satish Dharap**

9.45 AM Point-counterpoint: Nonoperative / Operative MX of Blunt Pancreatic Injury - **Dr. Meena Kumar**

10.00 AM Panel Discussion

10.15 AM Mx of Life Threatening Thoracic Injury

- **Dr. Sandeep Jain**

10.30 AM Vascular Trauma of Neck & Its MX - **Dr. Srujal Shah**

10.45 AM Missed Injuries in Polytrauma - **Dr. Vineet Kumar**

11.00 AM Science of Tissue Management - **Dr. Sandip Murli**

11.15 AM Panel Discussion

11.30 AM Massive Transfusion Protocols - **Dr. Kaushik Patel**

11.45 AM Fluid Resuscitation in Trauma : Controversies and Consensus - **TBA**

12.00 PM Video Demonstration: Trauma Resuscitation / ICD / Tracheostomy / Cricothy - **Dr. Mohit Joshi**

12.20 PM Panel Discussion

12.40 PM LUNCH

1.30 PM Mx of Acute Pain in Trauma & Regional Anaesthesia - **Dr. P. N. Jain**

1.45 PM Panel Discussion - **Dr. Shruti Shah / Dr. Dipak Desai**

2.00 PM Wound Management in Trauma

- **Dr. Jayesh Shah (USA)**

2.15 PM Interesting Trauma Case Discussions - **Dr. Sanjay Shah**

3.00 PM Management of Pelvic Injuries - Surgical Perspective

- **Dr. Winston Noronha**

3.15 PM Compound Extremity Injury-Mangled Extremity

- **Dr. Shailendra Singh**

3.30 PM Paper Presentation

Neonatal & Pediatric Critical Care Symposia

January 5, 2014, Sunday, The Grand Bhagwati

8:30 AM Introduction to Course

Stabilise them Before they come to you

8:40 AM Stabilization & Transport of a Sick Kid !

- **Dr. Amruta Kanjani**

9:00 AM Perinatal Brain Injury ->Cooling ? No Cooling?

Where are we ? Where do we go ?

- **Dr. Vipin Bhavsar**

Something New To Offer

9:20 AM Chronic Diarrhea! From Usual to Unusual

Suspects..as Tummy matters - **Dr. Manoj Shah**

9:40 AM Handling Chronic Lung Disease Tactfully

- **Dr. Rita Raman**

Neonatal Symposia

10:00 AM Design of an NICU ! Solve your Problems , Right from beginning - **Dr. SomShekhar Nimbalkar**

10:20 AM NEC: Blame Bad Bugs? or Our Feeding Policies - Let's Review - **Dr. Amit Chitaliya**

10:40 AM Follow up of ELBW Babies: Say hello to Premise in OPD! - **Dr. Preetha Joshi**

Panel Discussion - Ask the experts

11:00 AM Panelist: Dr. Vipin Bhavsar, Dr. Mohit Sahni, Dr. SomShekhar Nimbalkar, Dr. Manoj Shah, Dr. Rita Raman, Dr. Preetha Joshi

Dilemmas - Experts Solving Queries

11:40 AM Law & Ethics : Are they on Our Side??

- **Dr. Rita Raman**

12:00 PM Selection of antibiotics in NICU - **Dr. Mohit Sahni**

12:20 PM LUNCH

Pediatric Cardiology

1:00 PM Case Studies in Pediatric cardiology : New Approach to Old Problem - **Dr. Kashyap Sheth**

1:20 PM Cardiac Surgery in Neonates: Outcomes in Today's era - **Dr. Shaunak Shah**

1:40 PM Let's Gear up for ECMO-Role in Pediatric Practice - **Dr. Rajesh Hegde**

2:00 PM **Panel discussion:** Managing Congenital heart disease: From office practice to ECMO: let's Ask the experts
Panelist: Dr. Rajesh Hegde / Dr. Kashyap Sheth / Dr. Milan Chag / Dr. Shaunak Shah / Dr. Mukesh Singh

3:00 PM Challenging Scenarios or Diagnostic Dilemma :Case Presentation by Delegates - 4 cases of 10 min each

3:40 PM Award to the best case presentation from delegates

Patients: 'Difficult,' 'Tough' or Just Misunderstood?

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It has been a subject to ponder the concept of "difficult" or "tough" patients; trying to identify what defines such patients. There is a difference in the way a physician would most effectively deal with patients. It depends whether they're difficult or merely in a difficult situation in life; whether they're noncompliant; or whether their behavior is unacceptable to the practice. Many patients' concerns cannot be easily addressed by standard procedures. With these patients, the doctor needs to have a different perspective and use a different kind of interaction than she or he would with other patients.



Having the privilege of knowing my patients and their extended families very well; interacting with them for many years under a great variety of conditions helps relate addressing behaviors related to the patients' situations. At times consistent and intense behaviors move the patients from the “tough” to the “more difficult” end of the spectrum.

According to me, behaviors that associate with difficult patients leading to firing a patient, include:

- ◆ Recurrent no-shows, late cancellations, or chronic lateness for appointments;
- ◆ Nonpayment;
- ◆ Recurrent, inappropriate after-hours calls despite addressing that issue;
- ◆ Drug-seeking;
- ◆ Consistently belligerent or hostile, or otherwise inappropriate, behavior towards office staff.

These behaviors differ from the undesirable behaviors we all encounter that are typically related to compliance with our recommendations including medications, lifestyle and behavioral changes, follow-up appointments, and appropriately informing us of salient information.

Many a times physicians fire patients if they do not stop smoking, lose weight, or make lifestyle changes. However, I have never been tempted to do this. Since in my opinion-humans err. Their imperfections manifest in a variety of ways, and we as physicians are tasked to use our tools appropriately to address them.

Pruning noncompliant patients out of one's practice has its benefits, but more so for the medical provider than for the patients, their families, and the community in which the provider is working.

Some Reasons for Patient's Difficult Behavior

- ◆ Medical cause. These include substance use, such as alcohol; psychiatric illness; hearing loss (which isolates people and can make them distrustful); cognitive impairment; toxins (elevated lead and carbon monoxide levels); medication side effects; and central nervous system disease.
- ◆ "Nonmedical" interventions. For example, for anxious, clingy patients with never-ending concerns. To such patients I often say something like, "You have so many concerns that we cannot do justice to them and to you in today's visit. Let's schedule visits every 2 weeks. (I usually start at every 2 weeks); we will work through your list of problems, starting with the most important. By scheduling visits, you overcome the concern of making an appointment. Dialogues like "If you are doing well and feel that you do not need to see me, cancel that next appointment, knowing that you have the following appointments scheduled ". Usually, getting the support and concern (validation) that they need during the scheduled visit, the patients with time taper and drop the scheduled appointments, appropriately coming only as they need to.
- ◆ Plan to decrease the frequency of the visits (with supportive comments about getting through the patient's own problem list) when reasonable, if the patient has not decreased or stopped them.
- ◆ Turn persistent noncompliance into a positive conversation. I would politely review the record of noncompliance, and then say that I might be misunderstanding what role the patient would like me to take, because all my suggestions were declined in one way or another. I would ask what they would like me to do about the issues they are raising. This avoids a compliance power struggle and often results in enlightening conversations. I emphatically believe that ultimately patients own their decisions about compliance and its consequences. I put in effort to make sure they have enough information and understanding about their conditions and treatments to be comfortable with their decisions. I let them know that I would continue to see them as patients even if they do not comply with my recommendations, and we will deal with whatever comes along (I often added the comment, "I'll still respect you in the morning"). If a patient doesn't take a medication because his sister says that it does not work, I respond that my (fictional) sister says it does work. I usually get a look like I'm crazy, and then we laugh.

More Extreme Situations

- ◆ Rarely, some patients do have personality issues that make dealing with them difficult or impossible. If your staff has strong reservations about or a strong negative reaction to a particular patient, talk with your staff and validate and address their concerns. Supportively inquire about difficult staff interactions with the patient, on the phone and in person.
- ◆ Support your staff. If you are told that the patient was profane and abusive, inform the patient

that such behavior will not be tolerated. Often, I've informed such patients about their effect on the staff and how inappropriate the behavior was and have gotten sincere apologies, which is conveyed to the staff. On a couple of occasions, the patient has also apologized to the staff members when checking out. Encourage your staff also to give the patient the benefit of doubt. Tape a Q-tip® under each reception window, where the staff member sees it but the patient does not.

- ◆ Over 20 years, I have fired very few patients. Because I have practiced in a rural area where the next closest practices were 10-15 miles away, there was motivation on both sides to work things out. In most cases with patients in tough situations who had undesirable behaviors, we eventually crafted reasonably healthy relationships; many of these developed into very warm relationships, and we would laugh about our early interactions.

Conclusions

Here are responses that can work successfully for undesirable behaviors that do not place patients on the "difficult" end of the spectrum (which would call for more significant consequences).

Know yourself. Know your hot buttons, your style of dealing with patients, and your tolerance for various behaviors. Be honest in this assessment, and be willing to consult with another medical provider if you feel your own issues might be complicating interactions with a patient. Step back, do a gut check, and see your feelings as a diagnostic tool. Your response to the patient is likely to be similar to the responses of others in the patient's world; find out what is driving the behavior that prompts your feelings and address it, if possible.

When reacting to a patient, consider the melody, not the lyrics. What is the overall tone of the patient's presentation (eg, anxiety, persecution, loss and depression; manipulation; abandonment; delusion; entitlement; narcissism)? By paying attention to the overall mood, rather than focusing on the patient's words or statements, you're likely to get a better picture of what he or she is really trying to communicate.

A new approach to LDL management: Modulating PCSK9 and the LDL Receptor: Tipping the Balance of Power

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Since 25 years statins have been approved for treatment of dyslipidemia. This class of anti hyperlipidemics has demonstrated substantial and consistent reduction of cardiovascular events with an acceptable safety profile. However, despite its widespread use patients continue to experience residual risk. Till date, attempts to reduce that risk with additional lipid therapies have failed. Is statin therapy as good as it gets in treating dyslipidemia? If not, what will be the next lipid modifier with clinical benefit incremental to that of statins? The answer may lie in understanding how statins work. By inhibiting the rate-limiting step in hepatic cholesterol synthesis, statins decrease intracellular cholesterol, resulting in increased expression of hepatic low-density lipoprotein (LDL) receptors and increased hepatic clearance of circulating atherogenic particles including LDL.

Less well recognized is that statins increase the expression of proprotein convertase subtilisin kexin 9 (PCSK9). PCSK9 promotes hepatic LDL receptor degradation, thereby reducing LDL receptor density and clearance of LDL particles. This negative feedback response attenuates statins' lipid effects. Conversely, blocking PCSK9 might be expected to increase the clearance of atherogenic lipoproteins and enhance the efficacy of statins. Thus, PCSK9 offers a novel approach to lipid management. PCSK9's role in lipid metabolism was suggested by 3 observations.

- I) A specific heterozygous PCSK9 missense mutation caused autosomal dominant hypercholesterolemia. Because loss of a single allele is usually functionally inconsequential, a gain-of-function mechanism was hypothesized.
- II) PCSK9 messenger ribonucleic acid levels were found to be responsive to intracellular cholesterol. In the hepatocyte, PCSK9 undergoes obligatory autocatalytic cleavage, but its catalytic activity is independent of its affinity for the LDL receptor. This spatial and functional separation has important pharmacological implications. PCSK9 binds to the receptor and channels internally toward the lysosomal compartment for degradation. In doing so, it inhibits the normal recycling of the LDL receptor back to the hepatic cell surface.
- III) Perhaps most important clue was that nonsense mutations in PCSK9 were associated with 15% to 30% reductions in LDL cholesterol, with significant reductions in cardiovascular risk.

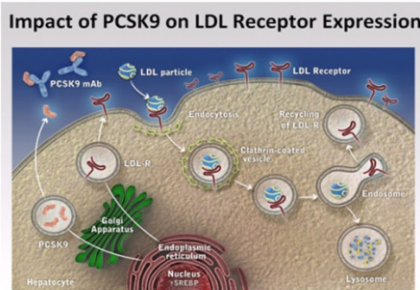


Figure: 1

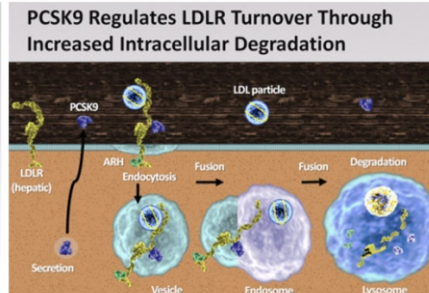


Figure: 2

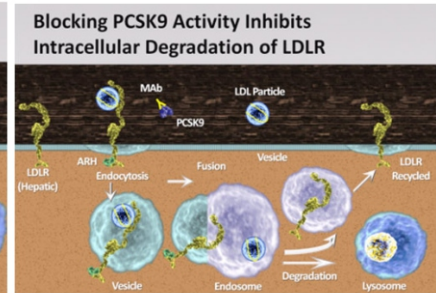


Figure: 3

Conversely, maximally increasing LDL receptors may have synergistic advantages. By reversing statin-induced PCSK9 up-regulation, PCSK9 inhibition increases the statin's effectiveness on LDL cholesterol lowering. Moreover, LDL receptors contribute to the clearance of atherogenic lipoproteins other than LDL, such as intermediate-density lipoproteins and remnant particles, the latter via apolipoprotein E affinity. Increased intermediate density lipoproteins and remnant particle clearance may have real therapeutic benefit beyond that provided by LDL reduction.

When there is a gain of function in that protein, the phenotype is essentially a form of FH, much accelerated atherosclerosis, When the protein loses its function, we have very low LDL-C levels and marked protection against the development of atherosclerosis

Genetically determined low LDL-C level for life really conferred tremendous protection against cardiovascular disease later in life

Conclusive Message: Large Unmet Medical Need

- ◆ We are talking about treating something that kills more Indians than any other disease.
- ◆ Many patients fail to achieve adequate LDL-C reduction despite maximally tolerated statin treatment.
- ◆ We have had add-ons to statins but they are relatively weak. With ezetimibe, there is maybe a 16% additional LDL-C reduction which is not enough. It has not been proven to have a morbidity and mortality benefit.
- ◆ It was beyond imagination 10 years ago that something would come along that was even more powerful than statins at lowering LDL-C.
- ◆ There is going to be an amazing amount of data coming in the next 3 to 5 years and I am looking forward to it. This is a very promising development for CV medicine.

Using Technology and Web 2.0 to Stay Up To Date!

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Today's physicians are facing a dual threat of information overload and shrinking half-life of knowledge. How can a busy practitioner stay up to date with current medical evidence in his or her area of interest? It is apparent that the human brain has limitations in processing this vast amount of information in a manner that is easy to retrieve at a time of need. You can feel like Karna in the epic Mahabharata when his memory fails him at a time he needs it the most.

In this session we will explore a model using technology tools that can assist you in staying current with literature in your area of interest or expertise. This model works on any web-enabled device and can be applied at the point-of-care. We will see a stepwise approach that will allow you to easily adopt this model in your own practice.

Medical practitioners need to be lifelong learners. A vast majority of the information we need to practice medicine today, we learned "on the job", not in medical school. Medications and diseases and ways of treating them are constantly evolving. We are faced with SARS, Chikungunya, Dengue, Influenza Pandemics and the like and we will see more of these as the world become flatter and smaller. But there is a silver lining - we are also increasing hyper connected and able to form global knowledge communities that can work together to develop and share approaches for treating and managing these. While Facebook, Twitter and Google Plus can seem like frivolous time sinks, they can also provide a framework for building virtual personal learning networks. We will explore how we can leverage social media tools to help us become lifelong learners.

Trials of 2013 which changed my clinical Practice: Part – I

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I. Edoxaban versus Warfarin in Patients with Atrial Fibrillation:

ENGAGE AF-TIMI 48 Investigators

N Engl J Med 2013; 369:2093-104.

ABSTRACT

BACKGROUND:

Edoxaban is a direct oral factor Xa inhibitor with proven antithrombotic effects. The long-term efficacy and safety of edoxaban as compared with warfarin in patients with atrial fibrillation is not known.

METHODS

We conducted a randomized, double-blind, double-dummy trial comparing two once-daily regimens of edoxaban with warfarin in 21,105 patients with moderate to high-risk atrial fibrillation (median follow-up, 2.8 years). The primary efficacy end point was stroke or systemic embolism. Each edoxaban regimen was tested for noninferiority to warfarin during the treatment period. The principal safety end point was major bleeding.

RESULTS

The annualized rate of the primary end point during treatment was 1.50% with warfarin (median time in the therapeutic range, 68.4%), as compared with 1.18% with high-dose edoxaban (hazard ratio, 0.79; 97.5% confidence interval [CI], 0.63 to 0.99; $P < 0.001$ for noninferiority) and 1.61% with low-dose edoxaban (hazard ratio, 1.07; 97.5% CI, 0.87 to 1.31; $P = 0.005$ for noninferiority). In the intention-to-treat analysis, there was a trend favoring high-dose edoxaban versus warfarin (hazard ratio, 0.87; 97.5% CI, 0.73 to 1.04; $P = 0.08$) and an unfavorable trend with low-dose edoxaban versus warfarin (hazard ratio, 1.13; 97.5% CI, 0.96 to 1.34; $P = 0.10$). The annualized rate of major bleeding was 3.43% with warfarin versus 2.75% with high dose edoxaban (hazard ratio, 0.80; 95% CI, 0.71 to 0.91; $P < 0.001$) and 1.61% with low-dose edoxaban (hazard ratio, 0.47; 95% CI, 0.41 to 0.55; $P < 0.001$). The corresponding annualized rates of death from cardiovascular causes were 3.17% versus 2.74% (hazard ratio, 0.86; 95% CI, 0.77 to 0.97; $P = 0.01$), and 2.71% (hazard ratio, 0.85; 95% CI, 0.76 to 0.96; $P = 0.008$), and the corresponding rates of the key secondary end point (a composite of stroke, systemic embolism, or death from cardiovascular causes) were 4.43% versus 3.85% (hazard ratio, 0.87; 95% CI, 0.78 to 0.96; $P = 0.005$), and 4.23% (hazard ratio, 0.95; 95% CI, 0.86 to 1.05; $P = 0.32$).

CONCLUSIONS

Both once-daily regimens of edoxaban were noninferior to warfarin with respect to the prevention of stroke or systemic embolism and were associated with significantly lower rates of bleeding and death from cardiovascular causes.

II. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet:

PREDIMED Study Investigators

N Engl J Med 2013; 368:1279-90.

Abstract

Background

Observational cohort studies and a secondary prevention trial have shown an inverse association between adherence to the Mediterranean diet and cardiovascular risk. We conducted a randomized trial of this diet pattern for the primary prevention of cardiovascular events.

Methods

In a multicenter trial in Spain, we randomly assigned participants who were at high cardiovascular risk, but with no cardiovascular disease at enrollment, to one of three diets: a Mediterranean diet supplemented with extra-virgin olive oil, a Mediterranean diet supplemented with mixed nuts, or a control diet (advice to reduce dietary fat). Participants received quarterly individual and group educational sessions and, depending on group assignment, free provision of extra-virgin olive oil, mixed nuts, or small nonfood gifts. The primary end point was the rate of major cardiovascular events (myocardial infarction, stroke, or death from cardiovascular causes). On the basis of the results of an interim analysis, the trial was stopped after a median follow-up of 4.8 years.

Results

A total of 7447 persons were enrolled (age range, 55 to 80 years); 57% were women. The two Mediterranean-diet groups had good adherence to the intervention, according to self-reported intake and biomarker analyses. A primary end-point event occurred in 288 participants. The multivariable-adjusted hazard ratios were 0.70 (95% confidence interval [CI], 0.54 to 0.92) and 0.72 (95% CI, 0.54 to 0.96) for the group assigned to a Mediterranean diet with extra-virgin olive oil (96 events) and the group assigned to a Mediterranean diet with nuts (83 events), respectively, versus the control group (109 events). No diet-related adverse effects were reported.

Conclusions

Among persons at high cardiovascular risk, a Mediterranean diet supplemented with extra-virgin olive oil or nuts reduced the incidence of major cardiovascular events.

III. Percutaneous Renal Denervation In Patients With Treatment Resistant Hypertension: Final 3-year Report of The Symplicity Htn-1 Study:

Henry Krum, Markus P Schlaich, Michael Böhm, Felix Mahfoud, Krishna Rocha-Singh, Richard Katholi, Murray D Esler

Lancet online, Nov 7, 2013

Summary

Background Renal denervation (RDN) with radiofrequency ablation substantially reduces blood pressure in patients with treatment-resistant hypertension. We assessed the long-term antihypertensive effects and safety.

Methods Symplicity HTN-1 is an open-label study that enrolled 153 patients, of whom 111 consented to follow-up for 36 months. Eligible patients had a systolic blood pressure of at least 160 mm Hg and were taking at least three antihypertensive drugs, including a diuretic, at the optimum doses. Changes in office systolic blood pressure and safety were assessed every 6 months and reported every 12 months.

Findings 88 patients had complete data at 36 months. At baseline the mean age was 57 (SD 11) years, 37 (42%) patients were women, 25 (28%) had type 2 diabetes mellitus, the mean estimated glomerular filtration rate was 85 (SD 19) mL/min per 1.73 m², and mean blood pressure was 175/98 (SD 16/14) mm Hg. At 36 months significant changes were seen in systolic (−32.0 mm Hg, 95% CI −35.7 to −28.2) and diastolic blood pressure (−14.4 mm Hg, −16.9 to −11.9). Drops of 10 mm Hg or more in systolic blood pressure were seen in 69% of patients at 1 month, 81% at 6 months, 85% at 12 months, 83% at 24 months, and 93% at 36 months. One new renal artery stenosis requiring stenting and three deaths unrelated to RDN occurred during follow-up.

Interpretation Changes in blood pressure after RDN persist long term in patients with treatment-resistant hypertension, with good safety.

IV. Riociguat for the Treatment of Chronic Thromboembolic Pulmonary Hypertension:

CHEST-1 Study Group

N Engl J Med 2013; 369:319-29.

ABSTRACT

BACKGROUND

Riociguat, a member of a new class of compounds (soluble guanylate cyclase stimulators), has been shown in previous clinical studies to be beneficial in the treatment of chronic thromboembolic pulmonary hypertension.

METHODS

In this phase 3, multicenter, randomized, double-blind, placebo-controlled study, we randomly assigned 261 patients with inoperable chronic thromboembolic pulmonary hypertension or persistent or recurrent pulmonary hypertension after pulmonary endarterectomy to receive placebo or riociguat. The primary end point was the change from baseline to the end of week 16 in the distance walked in 6 minutes. Secondary end points included changes from baseline in pulmonary vascular resistance, N-terminal pro-brain natriuretic peptide (NT-proBNP) level, World Health Organization (WHO) functional class, time to clinical worsening, Borg dyspnea score, quality-of-life variables, and safety.

RESULTS

By week 16, the 6-minute walk distance had increased by a mean of 39 m in the riociguat group, as compared with a mean decrease of 6 m in the placebo group (least-squares mean difference, 46 m; 95% confidence interval [CI], 25 to 67; $P < 0.001$). Pulmonary vascular resistance decreased by 226 dyn · sec · cm⁻⁵ in the riociguat group and increased by 23 dyn · sec · cm⁻⁵ in the placebo group (least-squares mean difference, -246 dyn · sec · cm⁻⁵; 95% CI, -303 to -190; $P < 0.001$). Riociguat was also associated with significant improvements in the NT-proBNP level ($P < 0.001$) and WHO functional class ($P = 0.003$). The most common serious adverse events were right ventricular failure (in 3% of patients in each group) and syncope (in 2% of the riociguat group and in 3% of the placebo group).

CONCLUSIONS

Riociguat significantly improved exercise capacity and pulmonary vascular resistance in patients with chronic thromboembolic pulmonary hypertension.

V. Macitentan and Morbidity and Mortality in Pulmonary Arterial Hypertension:
SERAPHIN Investigators
N Engl J Med 2013; 369:809-18.

ABSTRACT

BACKGROUND

Current therapies for pulmonary arterial hypertension have been adopted on the basis of short-term trials with exercise capacity as the primary end point. We assessed the efficacy of macitentan, a new dual endothelin-receptor antagonist, using a primary end point of morbidity and mortality in a long-term trial.

METHODS

We randomly assigned patients with symptomatic pulmonary arterial hypertension to receive placebo once daily, macitentan at a once-daily dose of 3 mg, or macitentan at a once-daily dose of 10 mg. Stable

[illegible]

Diabetes and Coronary Artery Diseases- A Volcano! (Issues, Challenges and Management)

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India, considered as capital of diabetes, with continuously increasing number of people suffering from diabetes and its subsequent cardiovascular, renal and other complications has been facing huge challenges for prevention, detection, management and optimum control of diabetes. We all know, it is the insulin resistance which ultimately conglomerates variety of pathophysiologic derangements like dyslipidemia, impaired fibrinolysis, hypertension, impaired glucose tolerance, obesity, endothelial dysfunction, systemic inflammation and atherosclerosis. Risk of mortality in patients with diabetes is 2-4 times that of persons without diabetes and 55% of this has cardiovascular disease as a primary cause.

Through we know management of diabetes is much beyond control of sugar, we should not miss the paramount importance of achieving optimum values of GHb1AC to minimize micro vascular and macro vascular complications on intermediates and long term. Though the debate about what is desirable – more aggressive or less aggressive approach to control sugar, high blood pressure and dyslipidemia in patients with diabetes has attracted huge attention in western/developed countries, the real concern in Indian subcontinent is detection of diabetes and getting parameters at moderately controlled level.

Management strategies for ischemic heart disease in diabetes (which is responsible more than 40% death in these patients) need a close attention. It is very well established that in properly selected and indicated patients, percutaneous interventions and coronary artery bypass surgeries do help a lot, overall results of these two procedures are always inferior in patients with diabetes than patients without diabetes. Similarly heart failure and chronic kidney disease in patients with diabetes do pose greater challenges.

Though medicines with great benefits have been invented for diabetes dyslipidemia, high blood pressure, various presentations of ischemic heart diseases and stroke, their use across the population suffering from diabetes with these complications is far from optimum. Needless to say that most cost effective efforts to prevent and help treatment of diabetes syndrome is adoption of healthy lifestyle/ therapeutic lifestyle changes including avoidance of tobacco; healthy eating habits of avoiding excess of fats (particularly SAFA) and carbohydrates and optimizing use of fruits, vegetables, fish, green tea, grains, unsaturated fats etc.; regular physical activities and exercises; stress management through yoga, pranayama and meditation and moderation of alcohol.

Continuous, sincere effort for next 20 years by government, other non-government organizations and medical fraternity would be required to prevent/minimize wide spread damage due to this volcano.

Drug Eluting Stent or Bioabsorbable Scaffolds (BVS) : Where are we now and what is the future?

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Absorb, the 4th Revolution in Interventional Cardiology

Absorb is made of polylactide (PLA), which has been successfully used in numerous medical applications. PLA is resorbed by a natural metabolic process in the body.

Absorb comprises of four key design elements: a bioresorbable scaffold, a bioresorbable coating, everolimus and the XIENCE V delivery system. Absorb defines a new paradigm - Vascular Reparative Therapy (VRT). VRT is designed to restore the vessel to a more natural state, making natural vascular function possible.

The concept of “regenerative therapy of coronary vessels” using the ABSORB™ scaffold provides 1) a mechanical support for the coronary artery wall after the percutaneous coronary intervention (PCI) procedure, 2) its biodegradation leads to attenuation of a chronic inflammatory reaction in the vascular wall, 3) may facilitate repeated percutaneous or surgical revascularization in case of atherosclerosis progression and 4) permits noninvasive control of patients with the use of imaging modalities such as MSCT or magnetic resonance imaging (MRI) without the risk of artifacts.

Absorb was designed with the premise of working in three phases to deliver VRT (Vascular Reparative Therapy):

- ◆ Revascularisation (good deliverability, excellent conformability, a minimum of acute recoil, high radial strength, and controlled release of the anti-proliferative drug everolimus to minimise neointimal growth)
- ◆ Restoration and Resorption (to enable natural vessel function for improved long-term outcomes. Absorb gradually ceases providing luminal support and evolves from an intact scaffold to a discontinuous structure embedded within neointimal tissue. As the scaffold degrades, the polymer is converted into lactic acid which is metabolised through the Krebs cycle and is ultimately converted into benign by-products of carbon dioxide and water.)

Absorb Clinical Overview:

To date, the ABSORB Cohort A, ABSORB Cohort B and ABSORB EXTEND clinical trials have provided acute and preliminary long-term data on the safety and effectiveness of Absorb. Through October 2013, long-term data reported during major conferences includes 5 year data from ABSORB Cohort A, 3 year data from ABSORB Cohort B and 2 year data from the first 250 patients enrolled in ABSORB EXTEND (presented at the recently concluded TCT conference).

We studied the 30-day outcomes in 26 such patients who were implanted with multiple ABSORB BVS at CIMS hospital. At 30 days, Bioabsorbable scaffolds show good results in patients with multi-lesion CAD. It is a novel approach, without limitations of metallic drug eluting stents like long-term dual anti-platelet therapy, metal jackets from multiple metallic stents, and after 1 year the artery being in natural state future intervention including Re-PCI or bypass surgery is easier. However, long term efficacy and safety still needs to be assessed.

Absorb trials, current and future:

The clinical program for Absorb is expansive and targets not just global product approval but also prospective data capturing long term clinical outcomes to 5 years, and novel endpoints for Absorb, such as restoration of vasomotion.

The ABSORB family of trials assesses the safety and efficacy of Absorb. Several trials, including ABSORB II, are focused on capturing the innovative features associated with Absorb treatment through both invasive and non-invasive imaging techniques such as:

- ◆ Angiography
- ◆ Intravascular ultrasound (IVUS- Not applicable in INDIA)
- ◆ Multi-slice spiral computed tomography (MSCT)

Many of the clinical trials within the ABSORB clinical trial program (ABSORB Cohort A and B, ABSORB II, ABSORB III, and ABSORB Japan) are also designed to capture prospective data for the innovative features and benefits associated with the use of Absorb treatment, through the use of the novel clinical endpoints, including:

- ◆ Assessment of vasomotion restoration
- ◆ Changes in either minimum or mean lumen diameter (assessed through descriptive vascular analyses at various follow-up time points).

The polymeric material as an implantation medium in BVS potentially has numerous advantages compared to DES. The main challenges faced by the ABSORB (BVS) are its limited distensibility, and therefore its suitability for implantation in appropriately sized vessels. Consequently, at present Quantitative coronary angiography (QCA) guidance is mandatory for implantation of the device.

FFR, OCT, IVUS : Why is it Worth Spending Extra Cost ?

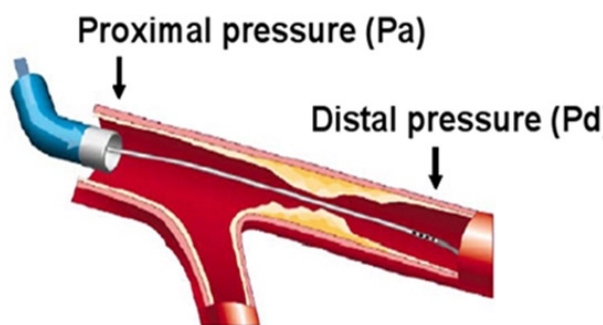
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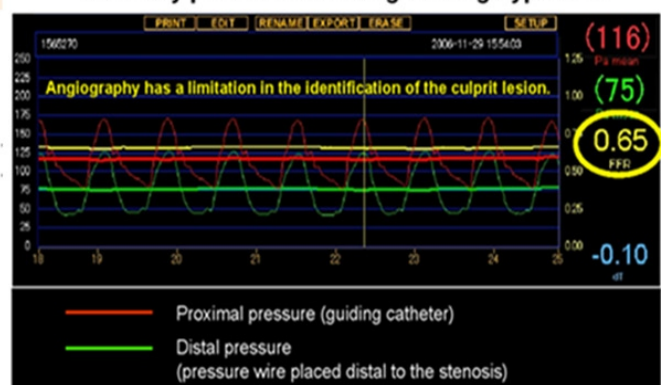
Though coronary angiography (CAG) is considered to be gold standard for diagnosis and management of Coronary Artery Disease over years, there are several definite limitation. In patients with acute coronary syndrome coronary angiography still can give definitive line of management as far as intervention is concerned where symptoms, ECG and bio marker can be very helpful. But in stable angina patient there are many doubts controversy and discrepancy regarding definitive interventional management with help of only coronary angiography as it gives more of a anatomical information and not physiological information. Non invasive test like thallium scan, stress test, stress echo done to know evidence of ischemia in patient with stable angina especially with left main disease, multi vessel disease, lesion of intermediate severity (50 to 70 %), LBBB, with LV dysfunction has several limitations . One has to be reasonably sure leaving this kind of patient on medical management, at the same time one should not be not doing intervention on patients which is not going to benefit the patient. Physiological assessment of lesion especially of intermediate severity (50 to 70 %) and left main with the help of FFR (simple pressure wire which measures pressure difference across the lesion) has been found to be very helpful in decision making along with coronary angiography inside Cath Lab. (Figure-1)

Fractional Flow Reserve (FFR)



A 0.014-inch pressure sensor-tipped coronary angioplasty guide wire is advanced across a stenosis, and the absolute distal pressure is recorded at rest and at maximal hyperemia induced with intracoronary or intravenous infusion of adenosine.

Coronary pressure recordings during hyperemia

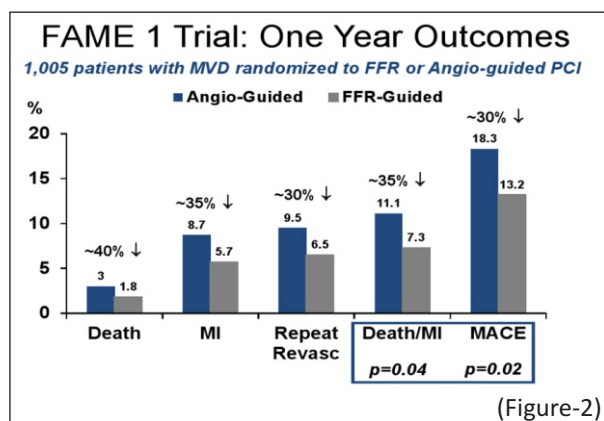


The FFR is defined as the ratio of maximal blood flow achievable in a stenotic coronary artery relative to the maximal flow in the same vessel if it were normal.

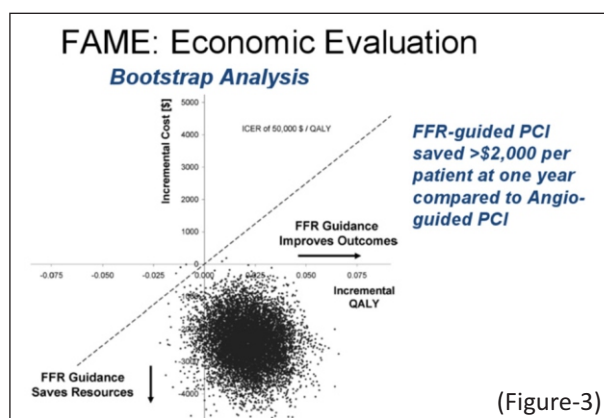
Figure-1 : FFR is a technique to assess the functional significance of a coronary stenosis. FFR is independent of changes in heart rate, blood pressure or prior infarction, and takes into account the amount of viable myocardium and the contribution of collateral blood flow.

DEFFER study showed that deferring angioplasty in a patient with insignificant lesion (FFR more than 0.8) has same incidence of MI and death at the end of 5 year so can be considered safe on long run. Deferring angioplasty with the help of FFR does reduce the cost to the patient and reducing extra risk of the intervention. FAME-1 study of 1000 patient with multi vessel disease only those lesion with FFR < 0.8 were stented compared with only angiography guided angioplasty were studied. FFR guided intervention was associated with 39 % less incidence of death MI and repeat procedure with less need of stent, hardware, dye (Figure-2). Thus FFR guided therapy was helpful to improve outcome at the same time cost effective and cost saving (Figure-3).

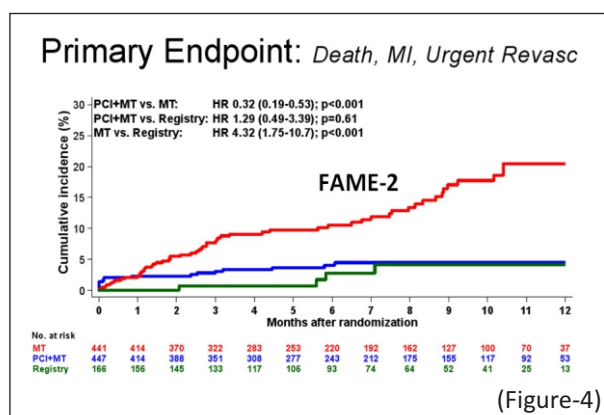
Recently published FAME-2 (Figure-4) study clearly demonstrated that patient with FFR < 0.8 (physiologically significant lesion) doing angioplasty is better than medical arm in long run as it reduces the future urgent need of revascularization. In patient with multi vessel disease decision regarding which vessel should be stented is best done with FFR where stress thallium and stress echo is of limited value. This is the reason why FFR is class-II indication according to AHA/ACC 2011 guideline in patient with intermediate lesion (50 to 70 %) instable angina not having symptom and positive non invasive imaging. European PCI guideline 2013 classified FFR as class-I A indication for detection of ischemia related to lesion where objective evidence of ischemia is not available.



(Figure-2)



(Figure-3)



(Figure-4)

FFR guided angioplasty called functional angioplasty as shown in various trials (DEFFER, FAME-1, FAME-2) and guideline may be the way to go in deciding intervention in future. Patient with stable angina especially with intermediate lesion (50 to 70 % severity) and left main disease where there is no evidence of ischemia and in multi vessel disease who improve outcome of intervention and reduce the cost.

CACS and CT Angiography: Can we Rationalize its Use?

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Coronary artery disease is unfortunately a leading cause of morbidity and mortality in the world. There are a number of ways to predict a patient's risk of a cardiac event, the most well known being the Framingham Risk Score. Unfortunately such scores do not identify all "at risk" patients. The provision of an additional non-invasive method of determining coronary disease at an early stage may help us combat some of these problems.

Coronary artery disease results from the development of atherosclerotic plaques. These plaques consist of abnormal macrophages that accumulate lipids and abnormalities of the endothelium. These plaques can become calcified - which is a common finding. Cardiac risk factors and insulin resistance lead to progression of coronary artery calcification - this may help in deciding who should be investigated with this methodology.

The CACS is a measure of the calcium in the coronary arteries. The calcium is detected by computerized tomography scanning. The presence of calcium in the coronary tree is diagnostic of the presence of coronary atherosclerosis. The CACS is measured using CT scanning. This is non-invasive and can be of two types: Electron Beam CT scan (EBCT) and Multidetector CT scan (MDCT). EBCT is the commonest technology currently used to measure CACS. The amount of calcium detected in the coronary arteries is converted to a calcium score which correlates with the severity of the blockage. The results are reported on a numerical scale.

CT Angiography is again a non invasive tool which reveals the presence of stenosis lesions but it's a good tool to rule out presence of coronary stenosis. Negative predictive value of CT angiography is very high. It is not advisable in high risk or patient with ACS. Again, therapeutic procedure cannot be done in the same sitting. CT angiography is good tool to follow up and reassure the patient after intervention (PCI or CABG).

Gold standard investigation of choice for those who have high suspicion of coronary artery disease is conventional angiography. It is highly recommended in patient with intermediate to high risk group.

Role of Intensive Lipid Lowering Therapy Post-PCI for ACS

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All patients with an acute coronary syndrome (ACS), including ST elevation myocardial infarction (STEMI), non-ST elevation myocardial infarction (NSTEMI), or unstable angina (UA), should receive long-term lipid-lowering therapy with a statin. This topic will discuss when to initiate statin therapy, how to manage patients already on statin, the choice of statin, and how to manage patients with low baseline low-density lipoprotein cholesterol. It will also explore how low can we drive LDL levels? The presentation will provide an update on novel lipid lowering therapies and their potential role in ACS

Cryptogenic Stroke:-Did you Look for PFO?

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Stroke is a leading cause of death and long-term disability worldwide. Most strokes (85%) are ischaemic in origin and tend to occur in persons over 65 years of age. A minority of ischaemic strokes affects younger adults and the cause remains undefined in up to 40% of these younger adults with acute ischaemic stroke. Up to 40% of acute ischaemic strokes in young adults are cryptogenic in nature, that is, no cause is determined. In more than half of these patients, patent foramen ovale (PFO) is seen along with an increased incidence of atrial septal aneurysm. PFO is a haemodynamically insignificant interatrial communication present in about 27% of unselected adults. It is detected in more than half of young patients undergoing evaluation for so-called cryptogenic ischaemic stroke.

During fetal life the lungs do not receive blood flow. Thus blood returning to the right atrium is shunted through a PFO to the left atrium. Postnatally, the PFO spontaneously closes in about 75% of the population. However, in a proportion of adults PFO maintains a direct communication between the right and left sided circulation. Given that PFO can be a tunnel-like structure with a possibly stagnant area of blood flow in situ, thrombus formation can occur. Patients with PFO may be susceptible to atrial arrhythmias with possible atrial thrombus formation and PFO can serve as a conduit for paradoxical embolisation. The commonest method of investigation is echocardiography (preferably transoesophageal echocardiography). With the use of echocardiography, a strong association between cryptogenic stroke and PFO has become evident in young patients with stroke.

On the basis of available evidence, low risk patients are treated with antiplatelet agents and high risk patients with warfarin. There are inconclusive data on the efficacy of PFO closure to prevent stroke recurrence. However, if there is recurrent stroke or intolerance to medical therapy, percutaneous closure is carried out.

Hype or Hope : Renal Denervation (RDN) Hits the Headlines

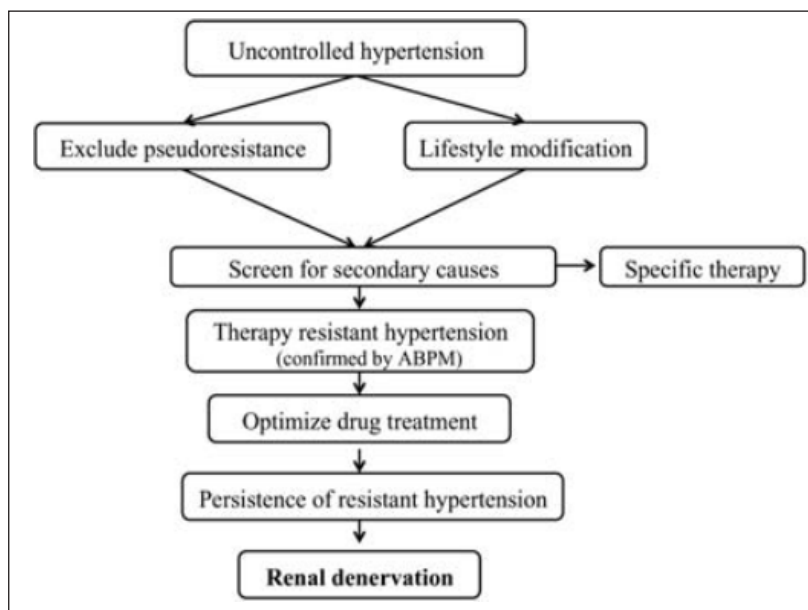
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Is RDN Hope !

Hypertension is a significant and global disease burden. Overall, approximately 20-40% of patients around the world have high blood pressure (BP). Hypertension is also a major risk factor for the occurrence of cardiovascular disease in India and contributes to increase cardiovascular mortality. Hypertension prevalence is not only increasing steadily in India but is responsible for excessive mortality.



Resistance Hypertension

True resistance hypertension which exclude non adherence and white coat hypertension (Pseudo Hypertension) which may be confirmed on 24 hours ambulatory BP monitoring, is a fraction (10%) of uncontrolled hypertension. Hypertension is said to be resistant when, at a minimum, the patient has uncontrolled BP despite the use of 3 or more antihypertensive drugs at optimal doses, including a diuretic. Resistant hypertension prevalence is 12 to 15 % and has been shown to high mortality and morbidity.

Physiological Rational of RDN

Between brain and kidney sympathetic nerve fibers will effects renal blood flow plasma renin activity, sodium and volume retention contributes to resistance hypertension.

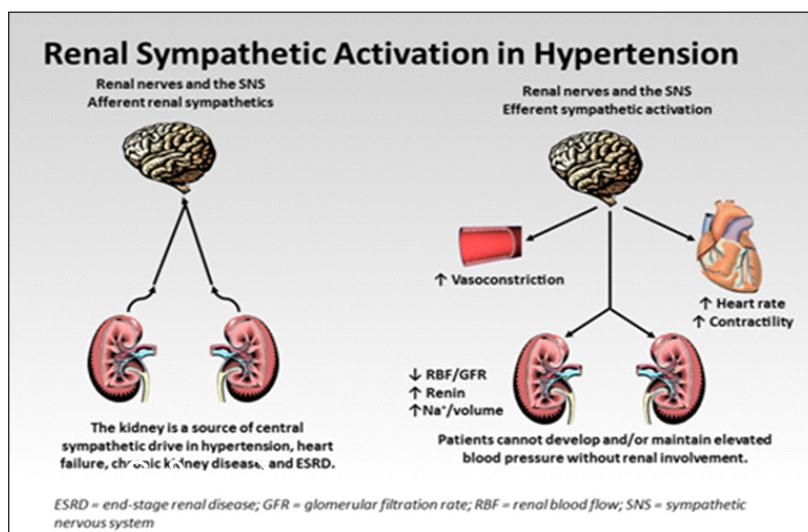


Figure 1. Efferent and afferent renal sympathetic nerves.

HR, heart rate; RBF, renal blood flow; GFR, glomerular filtration rate

Renal denervation (RDN) therapy is being studied and widely applied as an experimental tool for managing resistant hypertension.

Surgical sympathectomy started in 1970 which reduced blood pressure significantly but had increased mortality and morbidity especially postural hypotension. So was abandoned.

The procedure

Radiofrequency energy is used to denervate renal sympathetic system under fluroscopy guidance in anatomically suitable renal artery (renal artery length is ideally .20 mm with a diameter of.4 mm) without visible stenosis. Procedures is done from femoral artery under local anesthesia with mild sedation and it takes about 45 minutes.

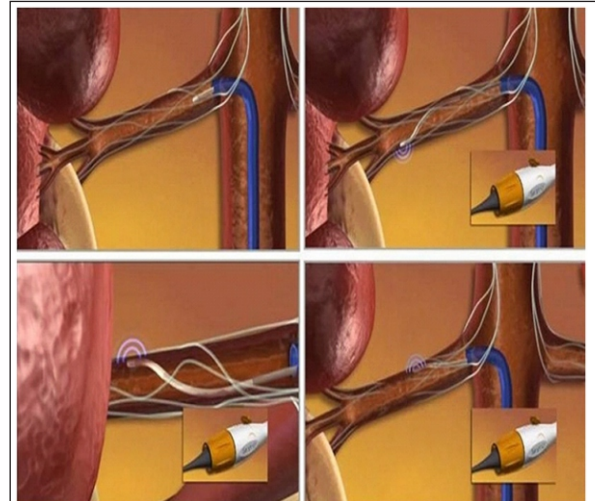


Figure 2. Renal Denervation (RDN) Procedure Overview

Simplicity HTN-1 Trial

Symplicity HTN-1 was a small pilot study which reported a -22/-10 mm Hg change in systolic BP from baseline at 6

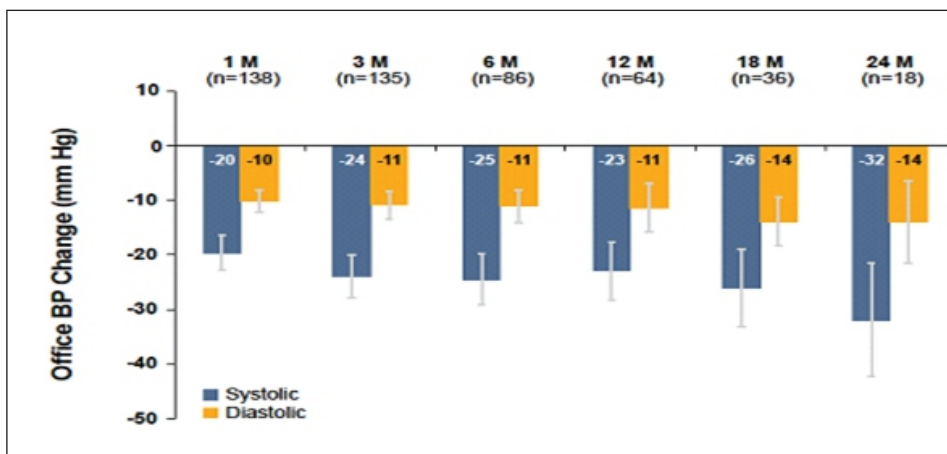


Figure 3. Symplicity HTN-1 Mean Systolic and Diastolic BP Changes Through 24 Months. Error bars display 95% confidence intervals. Adapted from reference 30 by permission.

months and was also maintained at 36 months.

Symplicity HTN-2 Trial

The Symplicity HTN-2 randomized RDN to conventional medical therapy and showed -32/-12 mmHg change in office systolic BP without significant adverse effect. The beneficial effect sustained at the end of 2 years.

Various studies are design and are ongoing to show potential benefit in following conditions and may widen the indication of RDN in future:

- ◆ Moderate Resistant Hypertension (Baseline SBP 140-160

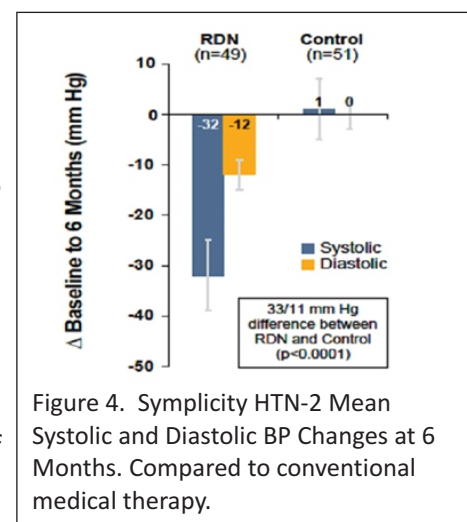


Figure 4. Symplicity HTN-2 Mean Systolic and Diastolic BP Changes at 6 Months. Compared to conventional medical therapy.

mmHg)

- ◆ RDN and Chronic kidney disease (CKD)
- ◆ Systolic as well as Diastolic Heart Failure
- ◆ Metabolic Parameters and Glycemic Control
- ◆ Obstructive Sleep Apnea (OSA)
- ◆ Cardiac Arrhythmia – AF
- ◆ Long term data on reducing CV mortality

Could RDN be a Hype!

Though RDN is a new hope for management patient with hypertension. At present still there is long way to go. There are several limitations of RDN at present.

Major challenges is how to monitor the success of the procedure. There are no easily deployed tests to determine whether the denervation procedure has been wholly or partially effective or ineffective. The degree of renal denervation after the procedure can not be measured on table. Further more not all patient respond to blood pressure lowering and there is no way to know which patient will respond and which will not. Significant number of patient do not respond to RDN at all.

No on table BP reduction is seen which makes it difficult to know success of procedure. Centrally acting sympatholytic drug acts on sympathetic system – same system on which RDN works but there is no co-relation between this two therapy.

We do not know at present the effectiveness of RDN beyond the time span currently documented (36 months). Animal studies and transplant experiments have demonstrated that sympathetic renal nerves have the capacity to re-grow and/or regenerate over time. We do not know how regeneration of sympathetic nerve to affect long term result. Whether a repeated intervention with RDN could be performed in patients with inadequate response to a first procedure is also not known. Exact mechanisms by which renal denervation results in a blood pressure reduction are not yet fully established, whole-body sympathetic nerve activity is reduced following the procedure However, one published study reported in a small group of 12 patients no significant overall blood pressure-lowering effect and no changes in muscle sympathetic nerve activity after renal denervation (RDN).

Information about the impact of renal denervation on daytime, night-time, and average blood pressure is available from the Symplicity HTN-2 trial⁷ and from that data it has been argued that renal denervation might not reduce ambulatory blood pressure equally as effectively as office blood pressure. Reduction in office BP is usually much higher then reduction in ambulatory blood pressure as shown in various study.

Symplicity Trial shown ambulatory blood pressure reduction in the range of 8 to 10 mm in comparison with office BP reduction of 25 to 30 mm. Advantage of measuring ambulatory BP monitoring is that it reduces inter individual variation in BP measurement and is more predictable of CV mortality. All the studies done uptill now are relatively small study one may really need to look at very large study. Like antihypertensive drug regimen, renal denervation has not been shown to reduce cardiovascular morbidity and mortality. Although outcome improvement is very likely no data at present. So at present it is not included in even the latest hypertension management ESC/ESH Guideline at present recommend RDN as class-I C indication.

Criteria patients should comply with before renal denervation is considered

- ◆ Office-based systolic BP ≥ 160 mmHg (≥ 150 mmHg diabetes type 2)
- ◆ ≥ 3 antihypertensive drugs in adequate dosage and combination (incl. diuretic)
- ◆ Lifestyle modification
- ◆ Exclusion of secondary hypertension
- ◆ Exclusion of pseudo-resistance using ABPM (average BP.130 mmHg or mean daytime BP.135 mmHg)
- ◆ Preserved renal function (GFR ≥ 45 ml/min/1.73 m²)
- ◆ Eligible renal arteries: no polar or accessory arteries, no renal artery stenosis, no prior revascularization

For large number of patient with resistant hypertension in whom there is risk of increase cardiovascular problem, one can say that RDN can be a good hope as non pharmacological option for treatment of hypertension. At present it is definitely an evolving management option and time will tell weather this is hype or hope for millions of patient of hypertension.

Left Main ! PCI or Bypass Surgery – Best Way to Go !

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3rd case of Angioplasty in the world done by Dr. Andreas Gruentzig in 1977 was left main stenting. Patient died after 4 month of procedure. CASS study shown significant better outcome of CABG compare to medical arm in patient with left main disease. Since then for many years CABG has been main stay for treatment of left main disease. Due to improvement in technology and availability of new generation drug eluting stent many of the patients of left main disease can be managed with good mid-term outcome. Patients with left main disease already underwent CABG with one graft patent (Protected left Main) is always managed with intervention. Management of stable angina patient with unprotected left main disease (without previous CABG) will be discussed in this article. Left main disease can be classified in to isolated left main disease (approximately 15%), left main with 1vessel, 2 vessel and 3 vessel disease. Left main disease can also be classified according to location of lesion to ostial, mid and distal left main disease.

There is great limitation of conventional angiography for diagnosis and managing left main disease. Intra Vascular Ultra sound (IVUS) and Fractional flow Reserve (FFR) are very important in deciding severity of lesion. IVUS is mandatory pre and post to decide stent size and post stents opposition to vessel wall.

Aim of any intervention including left main intervention should be good immediate success with acceptable risk as well as good long term outcome. Many factors are important both clinical and anatomical like presentation, age of the patients, LV function, risk of bleeding, long term outcome data, cost, patients preference, availability of skilled operator and well equipped center to recommend line of management. For choosing CABG and angioplasty syntax score based on Angiography is very helpful. With syntax score less than 33 mid term outcome (5 to 6 years) for CABG and stenting with first generation drug eluting stent is same as shown in syntax study and also in meta-analysis, so angioplasty should be offered. For >33 syntax score CABG is better than angioplasty and should be offered (Figure - 1). Clinical syntax score and global risk score which includes clinical and biochemical parameters can be of additional value in deciding line of management. New ongoing trial EXCEL study with new third generation DES (Xience) with syntax score <33 may give better

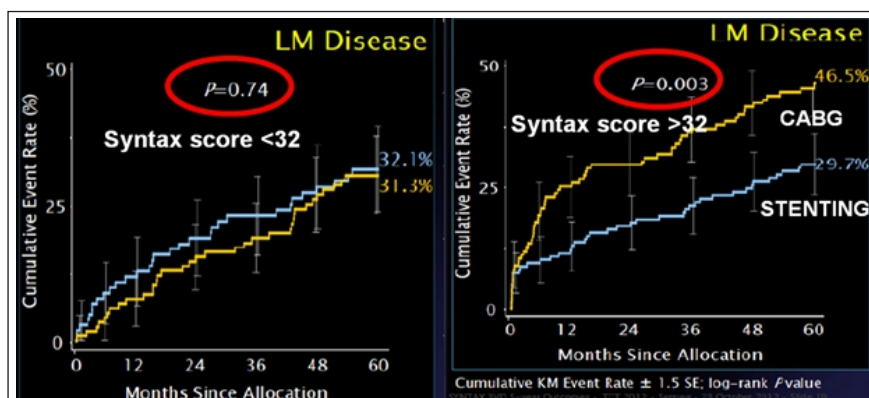
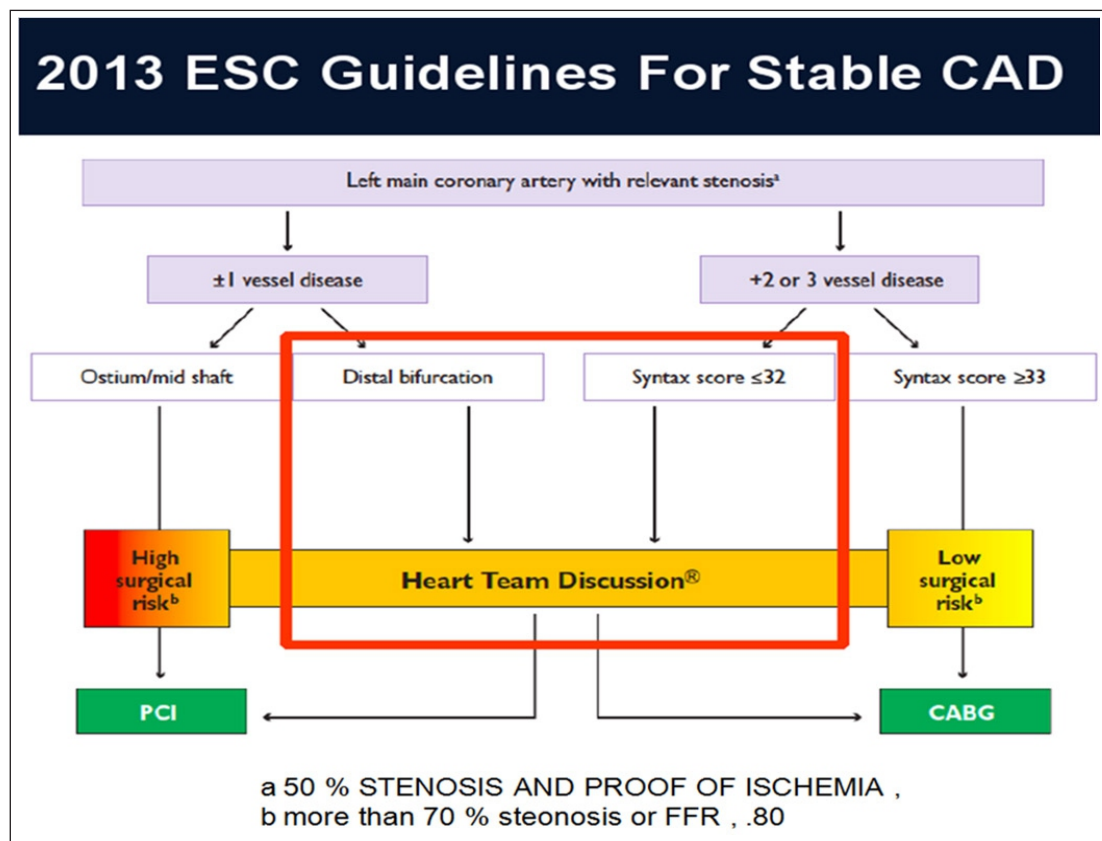
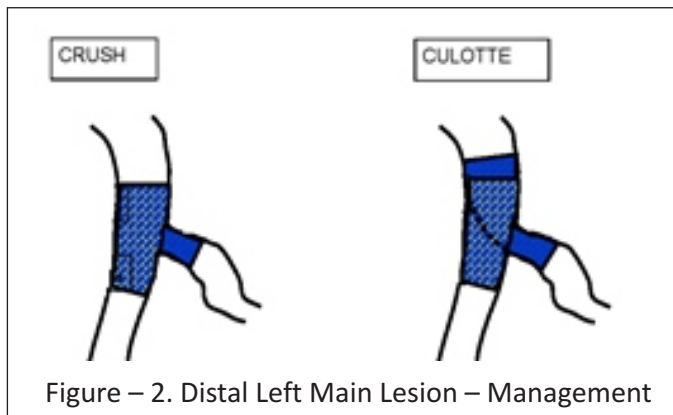


Figure 1

guidance for choosing between CABG Vs. Angioplasty.

Ostial or mid left main disease is managed with single drug eluting stents of main vessel with provisional stenting of other branch, where as distal bifurcation lesion is managed with two stents using either mini CRUSH or CULOTTE (Figure - 2). Plasty is done through femoral route and pre and post angioplasty VUS by experienced person is pre requisite in left main intervention.



European guide line published in 2013 is shown in figure below will give clear idea managing for stable left main disease (Figure - 3).

It is advocated to discuss all left main cases with multi vessel disease with heart surgical team and surgical risk should also be taken into account before recommending patient with left main disease. In conclusion my current opinion in decision making would be CABG for left main disease with syntax score >33 if CABG is not contraindicated or predicted risk of CABG <10 %. With syntax score <33 Angioplasty with drug eluting stent with IVUS is recommended except technically difficult lesion CRF, diabetes.

Peripheral Arterial Disease : A Missed Opportunity for CV Intervention

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Peripheral arterial disease (PAD) is extremely prevalent worldwide, especially in India, which is in the midst of a diabetes epidemic. This topic will discuss the interactions between PAD and CV outcomes and explore specifically limb-based and CV events in patients with PAD. The presentation will provide an update on detection, treatment and prevention of PAD complications and present an update on the clinical evidence and guideline recommendations along with practical suggestions for clinicians.

Home Monitoring of Arrhythmias and HF via Devices

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Cardiovascular Implantable Electronic Device (CIED) Monitoring

Patient Related

- ◆ Patient education, reassurance
- ◆ Records, databases

Device Related

- ◆ Assessing/ Optimizing device performance and safety
- ◆ Identify/ correct any system abnormalities
- ◆ Plan elective replacement

Disease Related

- ◆ Monitor arrhythmias
- ◆ Monitor Heart Failure parameters

Communication Related

- ◆ Reports to physicians and health care providers

CIED implantation and monitoring

- ◆ The focus of CIED use has been on the value of implantation
- ◆ The implication of CIED implantation is that it has a sustained purpose
- ◆ In order for that purpose to be manifest, the CIED must be monitored, maintained and followed up regularly.

Device follows up recommendations:

- ◆ Pacemakers:
 - ☐ 2/12 Within 1st year of implant
 - ☐ 1/12 Subsequent Years
 - ☐ 2/12 Near battery replacement
 - ☐ Implantable defibrillator
 - ☐ 4-3/12 Throughout device lifetime**
 - ☐ Cardiac Resynchronisation Therapy (CRT)
 - ☐ Patient and Therapy dependent? ? 4-12x year

Advantages of “Distance” or “Wireless” telemetry

- ◆ Transmission of routine information can be done passively by patient...
- ◆ Eliminates need for remembering to transmit and allows patient to “forget” about chronic illness.
- ◆ Transmission of device and patient problems (alerts) can occur without the requirement for patients to be symptomatic or be aware of a problem.

Vendor	Frequency	Band
St. Jude Medical Merlin.net PCN	402 – 405 MHz	Medical Implant Communications Service band
Medtronic Care link System	402 – 405 MHz	MICS band
Boston Scientific Latitude system	914 MHz	Industrial, Scientific and Medical (ISM) band (Cordless phones band)
Biotronik Home monitoring system	GSM network 403 MHz	(Cellphone band)

Operation	Biotronik Home Monitoring	Medtronic Carelink	St. Jude Housecall	Boston scientific Guidant Latitude
RF Wireless	✓	✓	✓	✓
Automatic	✓	✓	✓	✓
Mobile	✓	✗	✗	✗
Internet Access	✓	✓	✓	✓

Advantages of wireless networks:

- ◆ Better able to accommodate changing needs and schedules of both patients and of clinicians.
- ◆ Easier for clinician to set up a scheduling routine that fits into current practice methods. Scheduling becomes automated, saving time for the clinic.
- ◆ Automatic prescheduled checks can improve patient care and convenience while reducing compliance issues
- ◆ Alerts triggered by device or physiologic events, provide early event notification to help better manage patient outcomes.

Remote monitoring of CIEDs may help:

- ◆ Improve QOL
- ◆ Improve Re-hospitalisation/FU rate
- ◆ Improve Morbidity and Mortality
- ◆ Reduction of costs
- ◆ Early detection of patient, lead or device related issues
- ◆ Immediate and Continuous control on therapy changes
- ◆ Improvement of event free survival

Summary

- ◆ The Electrophysiology community is the initial owners of this technology, but it will spread too many other disciplines. The standards that we create will be replicated. It is our job and a great opportunity.

Latest ACC/AHA Guideline for Management of Heart Failure

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Designed to assist clinicians in selecting the best management strategy for individual patients, the guideline updates definitions and classifications for heart failure (HF) and increases emphasis on patient-centric outcomes such as quality of life, shared decision making, care coordination, transitions and palliative care.

Of note, the guideline provides a more focused approach on dilated cardiomyopathies and the appropriate evaluation including family and genetic screening/counseling, expanded use of aldosterone antagonism for HF, better descriptions and a more thorough analysis of HF with preserved ejection fraction, more discriminate use of cardiac resynchronization therapy, recommendations for advanced HF therapies that prompt appropriate use of ventricular assist technologies, and more. The document also discusses greater adherence to performance measures and quality measures, with timely recommendations to reduce readmissions. In addition, it is the first ACC/AHA guideline to include the new designation for optimal treatment, termed "guideline-directed medical therapy" (GDMT). The new GDMT designation allows clinicians to easily determine the specific course of care deemed most important in the management of HF.

GDMT as depicted in Figure 1 should be the mainstay of pharmacological therapy for HFrEF.

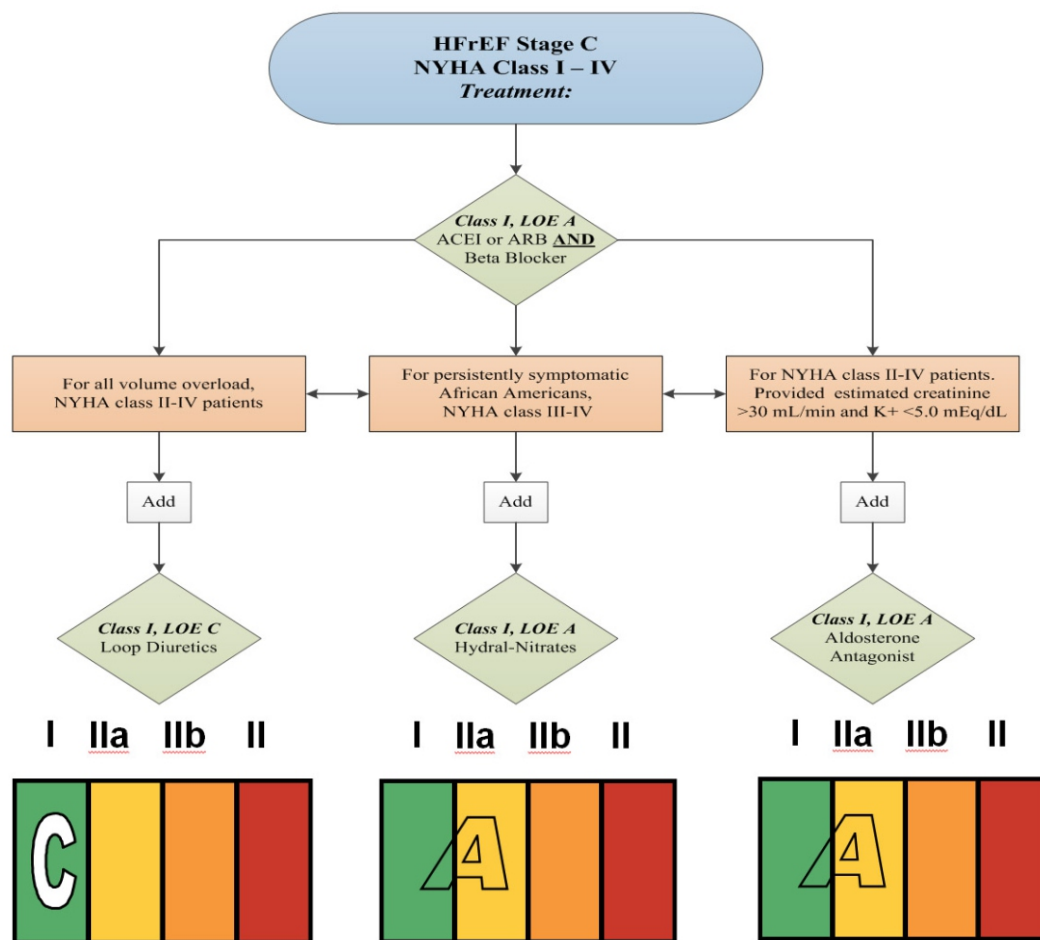
The recommendations include-

- a) Diuretics are recommended in patients with HFrEF who have evidence of fluid retention, unless contraindicated, to improve symptoms.
- b) ACE inhibitors are recommended in patients with HFrEF and current or prior symptoms, unless contraindicated, to reduce morbidity and mortality.
- c) ARBs are recommended in patients with HFrEF with current or prior symptoms who are ACE inhibitor-intolerant, unless contraindicated, to reduce morbidity and mortality.

The guidelines also highlight the current gaps in knowledge of HF care and emphasize that "more successful risk modification, sophisticated screening, perhaps using specific-omics technologies, or effective treatment interventions that reduce the progression from stage A to stage B is an urgent need."

Ten points to remember from the guideline for the management of HF

- i. Definition of HF has now expanded to:
 - a) HF with reduced ejection fraction (HFrEF, $EF \leq 40\%$)
 - b) HF failure with preserved ejection fraction (HFpEF, $EF \geq 50\%$)
 - c) HFpEF, borderline (EF 41-49%)
 - d) HFpEF, improved ($EF > 40\%$)
- ii. The number of patients with HF, as well as the cost to treat HF patients is expected to increase.
- iii. All causes of HF must be evaluated, with consideration of multigenerational family histories and genetic testing.
- iv. Risk factors need to be continually addressed when managing a patient with HF: hypertension, lipid disorders, obesity, diabetes mellitus, tobacco use, and known cardio toxic agents.



- v. Anticoagulation should not be used in patients with chronic HFrEF with no risk factors (atrial fibrillation, thromboembolic event, or cardio embolic source).
- vi. Aim to control systolic and diastolic blood pressures, as well as volume status, to treat HFpEF.
- vii. Re-evaluate patients with left ventricular EF $\leq 35\%$, New York Heart Association class II-IV, left bundle branch block, and a QRS ≥ 150 ms for cardiac resynchronization therapy.
- viii. HF education, dietary restrictions, and exercise training should be provided for all patients to enhance self-care.
- ix. A HF multidisciplinary team, including a palliative care team, should be involved when treating patients with advanced HF.
- x. There is a clear mortality benefit from using guideline-directed medical therapy.

Conclusion: Evidence-based guideline directed diagnosis, evaluation and therapy should be the mainstay for all patients with HF to reduce mortality, improve QoL and preserve health care resources. Ongoing research is required to answer the remaining questions including: prevention, dietary adjustments, treatment of HFpEF, management of hospitalized HF, effective reduction in HF readmissions, more precise use of device-based therapy, smaller MCS platforms and cell-based regenerative therapy.

Strategies of Handling Resistant Hypertension by Renal Sympathetic Denervation: What All Physician should Know

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Resistant hypertension is defined as failure to achieve goal blood pressure (BP) when a patient adheres to the maximum tolerated doses of three antihypertensive drugs including a diuretic. Single largest contributor to death worldwide every 20/10 mmHg increase in BP correlates with a doubling of 10-year cardiovascular mortality besides dramatically increasing risk of stroke, heart attack, heart failure, & kidney failure. Only half of all treated hypertensives are controlled to established BP targets. The method of action of Renal Denervation (RDN) therapy is supported by surgical hypertension treatments, called nonselective surgical sympathectomy, which were highly invasive and involved open surgery to sever the sympathetic nerves leading to the kidneys. This surgery was shown to effectively lower blood pressure yet caused significant side effects. The technique was discontinued as antihypertensive drugs became more affordable and accessible.

Definition of Resistant Hypertension

- Uncontrolled Hypertension-Includes all patients who lack BP control on treatment, including those on inadequate treatment regimens, those with poor adherence, those with undetected secondary hypertension, as well as those with true treatment resistance
- Resistant Hypertension-BP that remains above goal in spite of compliance with full doses of ≥ 3 antihypertensive medications of different classes; ideally, 1 of the 3 agents should be a diuretic. The treatment plan must include attention to lifestyle measures. Includes those patients who achieve BP control but require ≥ 4 antihypertensive agents to do so.

Prevalence of Resistant Hypertension

Small studies estimate the prevalence at approximately 5% in general practice and 50% or higher in nephrology clinics, depending on the severity of the underlying chronic renal disease. In a large US study (NHANES), the estimated prevalence of resistant hypertension was 8.9% of all adults with hypertension and 12.8% of all drug-treated hypertensive adults in the US

Causes of Pseudoresistant Hypertension

- ◆ Suboptimal dosing of antihypertensive agents
- ◆ White coat effect
- ◆ Suboptimal BP measurement technique
- ◆ Physician inertia
- ◆ Lifestyle factors
- ◆ Medications that interfere with BP control
- ◆ Pseudoresistance caused by poor adherence to prescribed medication

Secondary Causes of Hypertension

- ◆ Obstructive sleep apnea
- ◆ Primary aldosteronism
- ◆ Renal artery stenosis

Low-dose (25 mg-50 mg) spironolactone decreased BP by an average of 25.5/10.5 mm Hg after 6 months of daily use in patients with resistant hypertension.

Basic Principles of RDN

- ◆ Reduction in surrogates of afferent/efferent denervation
- ◆ Reduction in Tissue NE levels, MSNA(Muscle Sympathetic Nerve Activity (MSNA) Total body NE “spillover”--Reduction in SBP
- ◆ Histological evidence of renal nerve disruption
- ◆ No intermediate/long-term evidence of renal artery injury, renal dysfunction, dysautonomia
- ◆ Application of percutaneous energy source to renal intima
- ◆ Accommodate anatomic renal variants
- ◆ Acute procedural safety, ease of use, an outpatient procedure

Simplicity HTN-1

SYMPPLICITY Clinical Trial Program follows over 5000 patients across multiple indications

First-in-man, non-randomized cohort of 45 patients with resistant HTN (SBP ≥ 160 mmHg on ≥ 3 anti-HTN drugs, including a diuretic; eGFR ≥ 45 mL/min) .

Trial design: Patients with refractory hypertension underwent radiofrequency ablation (RFA) of the renal sympathetic nervous system. BP response at 12 months was monitored.

Conclusions :- First-in-man trial demonstrates significant reduction in SBP and DBP with RFA of renal sympathetic nervous system in patients with refractory hypertension.

Simplicity HTN-2

Purpose: To demonstrate the effectiveness of catheter-based renal denervation for reducing blood pressure in patients with uncontrolled hypertension in a prospective, randomized, controlled, clinical trial

Patients: 106 patients randomized 1:1 to treatment with renal denervation vs. control.

Clinical Sites: 24 centers in Europe, Australia, & New Zealand (67% were designated hypertension centers of excellence)

Proven Clinical Outcomes after Renal Denervation

- ◆ Reduced systemic sympathetic activation
- ◆ Reduced congestion (fluid overload) and CHF
- ◆ Induced LVH regression & ventricular remodeling
- ◆ Improved renal function
- ◆ Decreased arterial stiffness
- ◆ Reduced arrhythmias
- ◆ Reduced hypertension
- ◆ Reduced Glucose Tolerance
- ◆ Reduced Insulin resistance
- ◆ Improved Obstructive Sleep Apnea

Safety Outcomes

- ◆ One renal artery dissection from injection of contrast into renal artery wall during dye angiography. The lesion was stented without further consequences.
- ◆ One hospitalization prolonged in a crossover patient due to hypotension following the RDN procedure. IV fluids administered, anti-hypertensive medications decreased and patient discharged without further incident
- ◆ No radiofrequency-related renal artery stenosis or aneurysm occurred in either randomized group
- ◆ Impressive Procedural Safety in an Expanded Cohort of Treated Patients
- ◆ Minor adverse events (full cohort)
 - ☐ One femoral artery pseudoaneurysm treated with manual compression
 - ☐ One post procedural drop in BP resulting in a reduction in medication
 - ☐ One urinary tract infection
 - ☐ One prolonged hospitalisation for evaluation of paraesthesias
 - ☐ One back pain treated with pain medications and resolved after 1 month

Using Smart Phone (and iPad) to Optimize my Patient Therapeutics : How & Where to go?

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Mobile devices are the fastest growing segment of Internet enabled devices and the only segment (compared to TV, Radio, Print and PCs) where time spent consuming media is increasing. Many people cannot imagine spending a day without their smartphones and they even sleep with these next to their beds. These devices can be used by health providers as well as patients to improve health and communication. In this session we will look at various apps and techniques for leveraging smartphones to improve the care of our patients.

Advances in ICD Therapy

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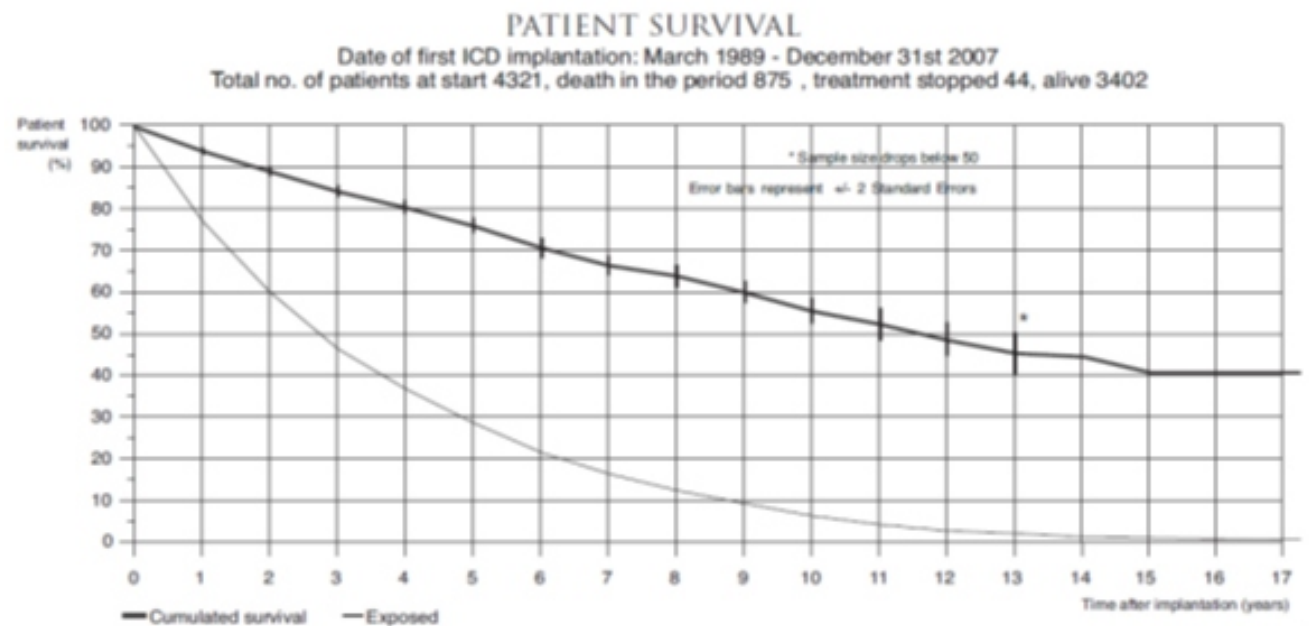
History of ICD therapy

1966	Device conception
1969	First experimental model
1976	First animal implant
1980	First human implant
1982	Addition of cardioverting capability
1985	FDA approval for ICD
1988	First programmable ICD device approved
1991	Model with tiered therapy and single-chamber back-up pacing approved
1993	1st endocardial defibrillation lead approved
1995	First pectoral implants
1997	Addition of atrial rhythm discrimination and backup dual-chamber pacing approved
2002	Model with CRT for CHF approved (CRT-D)

ICD therapy: Perception vs. Reality

Perception	Reality
SCD is not a major issue	SCD is the most common cause of death in the west
The ICD is mainly aimed for SCD survivors.	Several studies proved that ICD is an essential therapy for the prevention of SCD
ICDs are used too often	Only a small portion of potential patients who might benefit from an ICD implant is receiving it
The current budget does not allow the high cost of an ICD implant.	Cost / Effectiveness of an ICD is comparable or superior to other treatment

Patient survival curves on ICD:



Advances in ICD therapy:

1. Reduced ICD shocks
2. Minimized Ventricular Pacing
3. Wireless Telemetry
4. Leadless ECG
5. Remote Monitoring
6. Fluid Monitoring for HF (Optiviol / Corvue)
7. Proactive ST segment monitoring
8. Round-the-clock automated ICD monitor
9. Single connector (DF4) leads
10. Increased device longevity
11. Subcutaneous ICD
12. MRI safe ICDs

Newer Anti-coagulants:2014 Update

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Atrial Fibrillation (AF) increases the risk of stroke:

- ◆ Estimated prevalence of AF in India - 4.3 million patients (~0.4%)¹
- ◆ Risk of stroke same in AF patients regardless of type of AF (paroxysmal or sustained AF)
- ◆ Stroke - the most serious complication of AF^{4,5} and is catastrophic*
- ◆ Cardioembolic stroke: 30-day mortality 25%⁶
- ◆ AF-related stroke: 1-year mortality ~50%

CHADS₂ risk of Stroke score in AF

CHADS ₂ risk criteria	Score	CHADS ₂ score	Patients (n = 1733)	Adjusted stroke rate (%/year)
Cardiac failure	1	0	120	1.9
Hypertension	1	1	463	2.8
Age ≥75 years	1	2	523	4.0
Diabetes mellitus	1	3	337	5.9
Stroke or TIA (previous history)	2	4	220	8.5
		5	65	12.5
		6	5	18.2

CHADS₂VASc₂ risk score

CHA ₂ DS ₂ -VASc criteria ^{1,2}	Score	Total score ^{3,4}	Patients (n = 7329)	Adjusted stroke rate (%/year)*
Congestive heart failure/ left ventricular dysfunction	1	0	1	0.0
Hypertension	1	1	422	1.3
Age ≥75 years	2	2	1230	2.2
Diabetes mellitus	1	3	1730	3.2
Stroke/transient ischaemic attack/TE	2	4	1718	4.0
Vascular disease (prior myocardial infarction, peripheral artery disease or aortic plaque)	1	5	1159	6.7
Age 65–74 years	1	6	679	9.8
Sex category (ie, female gender)	1	7	294	9.6
		8	82	6.7
		9	14	15.2

Bleeding risk assessment on oral anticoagulation: HAS-BLED score

HAS-BLED risk criteria ¹	Score	HAS-BLED ² total score	N	Number of bleeds	Bleeds per 100 patient-years*
Hypertension	1	0	798	9	1.13
Abnormal renal or liver function (1 point each)	1 or 2	1	1286	13	1.02
Stroke	1	2	744	14	1.88
Bleeding	1	3	187	7	3.74
Labile INRs	1	4	46	4	8.70
Elderly (eg, age >65 years)	1	5	8	1	12.5
Drugs or alcohol (1 point each)	1 or 2	6	2	0	0.0
		7	0	–	–
		8	0	–	–
		9	0	–	–

Warfarin and NOACs pharmacological properties:

	Warfarin	Dabigatran	Rivaroxaban	Apixaban	Edoxaban
Administration	Once daily	Twice daily	Once daily	Twice daily	Once daily
Target	Vit K dependant factors	Factor II (Thrombin)	Factor Xa	Factor Xa	Factor Xa
Time to peak effect	3-5 days	1 hr	2.5-4 hr	3 hr	1-2 hrs
Dose	Variable	150 mg twice a day and 110 mg twice a day	20 mg every day (15 mg every day for renal impairment)	5 mg twice a day (2.5 mg twice a day for high risk)	30 mg every day and 60 mg every day (with adjustment for high exposure)
Half life	40 hr	12-14 hrs	7-11 hrs	12 hrs	9-11 hrs
Drug Interactions	Multiple	Inhibitors of P-glycoprotein transporter*	Inhibitors of CYP 3A4 and P- glycoprotein transporter†	Inhibitors of CYP 3A4 and P- glycoprotein transporter†	Inhibitors of CYP 3A4 and prostaglandin transporter†
Renal clearance	0	80%	25%	35%	40%
Anticoagulation Monitoring	Needed	Not needed	Not needed	Not needed	Not needed
Antidote	Vit K	None	None	None	None

Summary:

- ◆ NOACs represent a paradigm shift in prevention of AF related strokes.
- ◆ Superior / Non-inferior to VKA.
- ◆ Choice of new NOACs and flexibility in dosages as per co-morbidities.
- ◆ Freedom from frequent INR monitoring, predictable action and reduction in ICH are significant advantages

Pharmacodynamics of Prasugrel Versus Clopidogrel in Elderly

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Pathophysiological changes reported in elderly include increased platelet activation and reactivity as well as elevated levels of various coagulation factors. Platelet reactivity further is known to be influenced by various factors including – coronary artery disease, renal inefficiency, diabetes, body mass index and age. While antiplatelet agents such as aspirin, clopidogrel and prasugrel are often used to inhibit clot formation, their use unfortunately may be accompanied by increased risk of bleeding. One major pharmacokinetic difference between prasugrel versus clopidogrel is that while clopidogrel requires CYP2C19 for activation, prasugrel doesn't, and as liver function is more likely to be compromised in elderly patients one would expect clopidogrel to be less effective than prasugrel as an antiplatelet agent in the elderly population. In a recent clinical trial (1) called SENIOR-PLATELETS, direct comparison was made between prasugrel and clopidogrel on platelet reactivity. Based on the study authors concluded that “age” is an independent variable contributing to increased platelet reactivity in elderly. Impaired platelet response was seen at clopidogrel 75mg, clopidogrel 150 mg and prasugrel 10 mg, in elderly compared to young patients, though at clopidogrel 150 mg and prasugrel 10 mg, the difference between elderly and younger population was reduced. In TRITON-TIMI 38 trial (2), where a clinical end point was measured, prasugrel showed a consistent benefit over clopidogrel in reducing cardiovascular deaths but increased the incidence of bleeding. Post hoc subgroup analysis of TRITON-TIMI 38 study in patients with a prior history of stroke or transient ischemic attack, there was worse clinical outcome in both primary clinical end point and bleeding in the prasugrel group.

1. J. Silvain et. al. (2012) High on-thienopyridine platelet reactivity in elderly coronary patients: the SENIOR-PLATELET study. European Heart Journal 33:1241-1250.
2. M. O'Donoghue et al (2009) The efficacy and safety of prasugrel with and without a glycoprotein IIb/IIIa inhibitor in patients with acute coronary syndromes undergoing percutaneous intervention. J Am Coll of Cardiol, 54:679-685.



Vitamin D and Hypertension

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Vitamin D is mainly derived endogenously through exposure of skin to ultraviolet light by the conversion of 7-dehydrocholesterol to Vitamin D. It is further converted by a two stage hydroxylation process to 25(OH) D and finally to 1,25(OH)₂D, the most active form. Activation of Vitamin D receptor (VDR) leads to interaction with retinoid X receptor (RXR), which in turn through its interaction with Vitamin D responsive elements in the gene leads to the regulation of approximately 3% of the human genome. As enzyme capable of generating 1,25(OH)₂D is distributed throughout the body, it has become clear that Vitamin D possibly have other physiological role besides bone metabolism.

One billion people in the world are currently considered to be deficient in Vitamin D. Major reason for Vitamin D deficiency is attributed to low sun exposure. While experimental and epidemiological studies have linked Vitamin D deficiency as a risk factor for both arterial hypertension and stroke, convincing clinical data supporting this relationship is still missing. Pharmacologically, vitamin D induced decrease in endothelial adhesion molecules, increase nitric oxide production and inhibition of macrophage foam cell formation point to a positive cardiovascular effect. This presentation hopefully will help you decide whether Vitamin D supplementation is right for your patient.

New Guidelines for Lipid Management: Hot off The Press : 2014 Update : 15 points to Remember for Physicians

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AHA/ACC Task Force on Practice Guidelines For Prevention of Atherosclerotic Cardiovascular Disease (ASCVD) - 2013

These new recently published (2013) guideline's recommendation are intended to provide a strong evidence-based foundation for the treatment of cholesterol for the primary and secondary prevention of ASCVD in women and men. By using RCT data to identify those most likely to benefit from cholesterol-lowering statin therapy, the recommendations will be of great value and design to be easy to used primary care clinicians as well as specialists concerned with ASCVD prevention for adults (≥ 21 years of age). Other strategies for using drug therapy to reduce ASCVD events have been advocated, including treat-to-cholesterol target, lower cholesterol is better, and risk-based treatment approaches. Because the overwhelming body of evidence came from statin RCTs, the Expert Panel appropriately focused on these statin RCTs to develop evidence-based guidelines for the reduction of ASCVD risk with best safety.. We recognize that this represents a significant departure from current strategies. This should not come as a surprise to clinicians.

What's New in the Guideline?

1) Focus on ASCVD Risk Reduction: 4 statin benefit groups

Based on a comprehensive set of data from RCTs that identified 4 statin benefit groups which focus efforts to reduce ASCVD events in secondary and primary prevention and not on hemodialysis, heart failure NYHA Class-III and IV. Identifies high-intensity (Lowers LDL by approximately $> 50\%$) and moderate-intensity (Lowers LDL by approximately $> 30 - 50\%$) statin therapy for use in secondary and primary prevention (Table-1).

Table:-1. High- Moderate- and Low-Intensity Statin Therapy

High-Intensity Statin Therapy (Daily dose lowers LDL-C on average, by approximately = 50 %)	Moderate-Intensity Statin Therapy (Daily dose lower LDL-C on average, by approximately 30 % to < 50 %)	Low-Intensity Statin Therapy (Daily dose lowers LDL-C on average, by < 30 %)
Atorvastatin (40 ÷)-80 mg Rosuvastatin 20 (40) mg	Atorvastatin 10 (20) mg Rosuvastatin (5) 10 mg Simvastatin 20-40 mg+ Pravastatin 40 (80) mg Lovastatin 40 mg <i>Fluvastatin XL 80 mg</i> Fluvastatin 40 MG bid <i>Pitavastatin 2-4 mg</i>	<i>Simvastatin 10 mg</i> Pravastatin 10-20 mg Lovastatin 20 mg <i>Fluvastatin 20-40 mg</i> <i>Pitavastatin 1 mg</i>

2) **A New Perspective on LDL–C and/or Non-HDL–C Treatment Goals**

The Expert Panel was unable to find RCT evidence to support continued use of specific LDL–C and/or non-HDL–C treatment targets. The appropriate intensity of statin therapy should be used to reduce ASCVD risk in those most likely to benefit. Use of LDL–C targets (Like < 70 mg) may result in under-treatment with evidence-based statin therapy or overtreatment with nonstatin drugs that have not been shown to reduce ASCVD events in RCTs (even though the drug may additionally lower LDL–C and/or non-HDL–C). Implications of treating to an LDL–C goal may mean that a suboptimal dose of statin is used because the goal has been achieved, or that adding a nonstatin therapy to achieve a specific target results in down-titration of the evidence-based dose of statin for safety reasons.

3) **Global Risk Assessment for Primary Prevention**

This guideline recommends use of the new Pooled Cohort Equations to estimate 10-year ASCVD risk in both white and black men and women simple cardiovascular risk calculator can be downloaded (<http://www.cardiosource.org/science-and-quality/practice-guidelines-and-quality-standards/2013-prevention-guideline-tools.aspx>) and can identifying higher risk individuals who are likely to benefit from statin therapy. It also indicates, based on RCT data, those high-risk groups that may not benefit. Before initiating statin therapy, this guideline recommends a discussion by clinician and patients.

4) **Safety Recommendations**

Using RCTs to determine statin adverse effects facilitates understanding of the net benefit from statin therapy to reduce ASCVD risk.

5) **Role of Biomarkers and Noninvasive Tests**

Treatment decisions in selected individuals who are not included in the 4 statin benefit groups may be informed by other factors as recommended by the Risk Assessment Work Group guideline.

6) **Future Updates to the Blood Cholesterol Guideline**

This guideline focuses on treatments proven to reduce ASCVD events. It does not, and was never intended to be, a comprehensive approach to lipid management. Future update may give answer to many clinical question for which there is an absence of RCT data available at present for any recommendation.

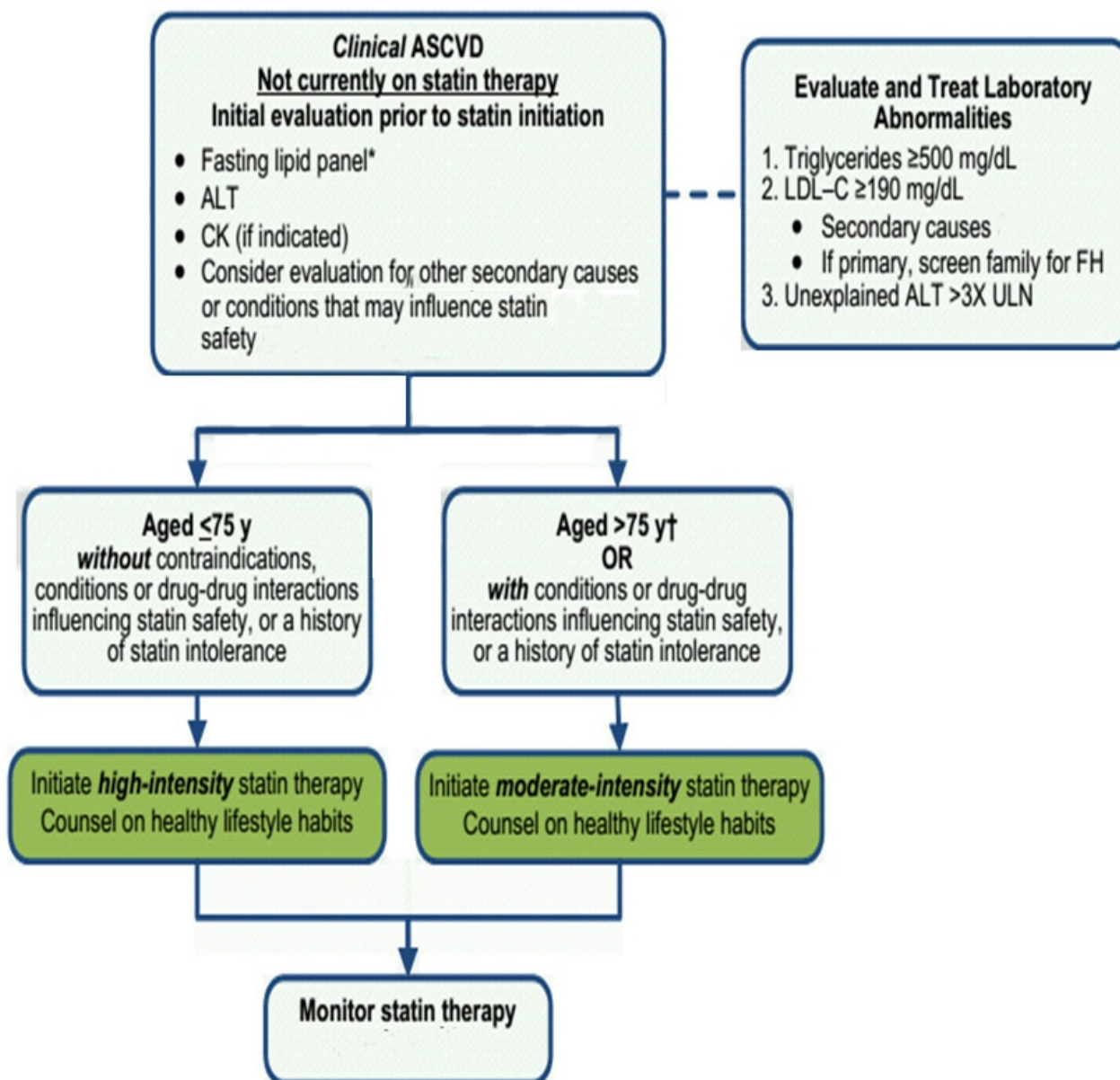
Lifestyle as the Foundation for ASCVD Risk Reduction Efforts

It must be emphasized that lifestyle modification (i.e., adhering to a heart healthy diet, regular exercise Habits, avoidance of tobacco products, and maintenance of a healthy weight) remains a critical component of health promotion and ASCVD risk reduction, both prior to and in concert with the use of cholesterol lowering drug therapies.

Four Major Statin Benefit Groups

On the basis of this large and consistent body of evidence, 4 major statin benefit groups were identified for whom the ASCVD risk reduction clearly outweighs the risk of adverse events. Individuals 1) with clinical ASCVD, 2) primary elevations of LDL-C >190 mg/dL, 3) diabetes aged 40 to 75 years with LDL-C 70 to 189 mg/dL and without clinical ASCVD, or 4) without clinical ASCVD or diabetes with LDL-C 70 to 189 mg/dL and estimated 10-year ASCVD risk $>7.5\%$. Clinical ASCVD is defined by the inclusion criteria for the secondary prevention statin RCTs (acute coronary syndromes, or a history of MI, stable or unstable angina, coronary or other arterial revascularization, stroke, TIA, or peripheral arterial disease presumed to be of atherosclerotic origin).

Figure 1. Initiating statin therapy in individuals with clinical ASCVD



For the primary prevention of ASCVD in individuals without clinical ASCVD and LDL-C 70 to 189 mg/dL, the estimated absolute 10-year risk of ASCVD (defined as nonfatal MI, CHD death, nonfatal and fatal stroke) should be used to guide the initiation of statin therapy. The 10-year ASCVD risk should be estimated using the Pooled Cohort Equations. For the primary prevention of ASCVD in individuals with diabetes (diabetes mellitus type-1 and type-2), estimated 10-year ASCVD risk can also be used to guide the intensity of statin therapy.

Figure 2. Initiating statin therapy in individuals without clinical ASCVD

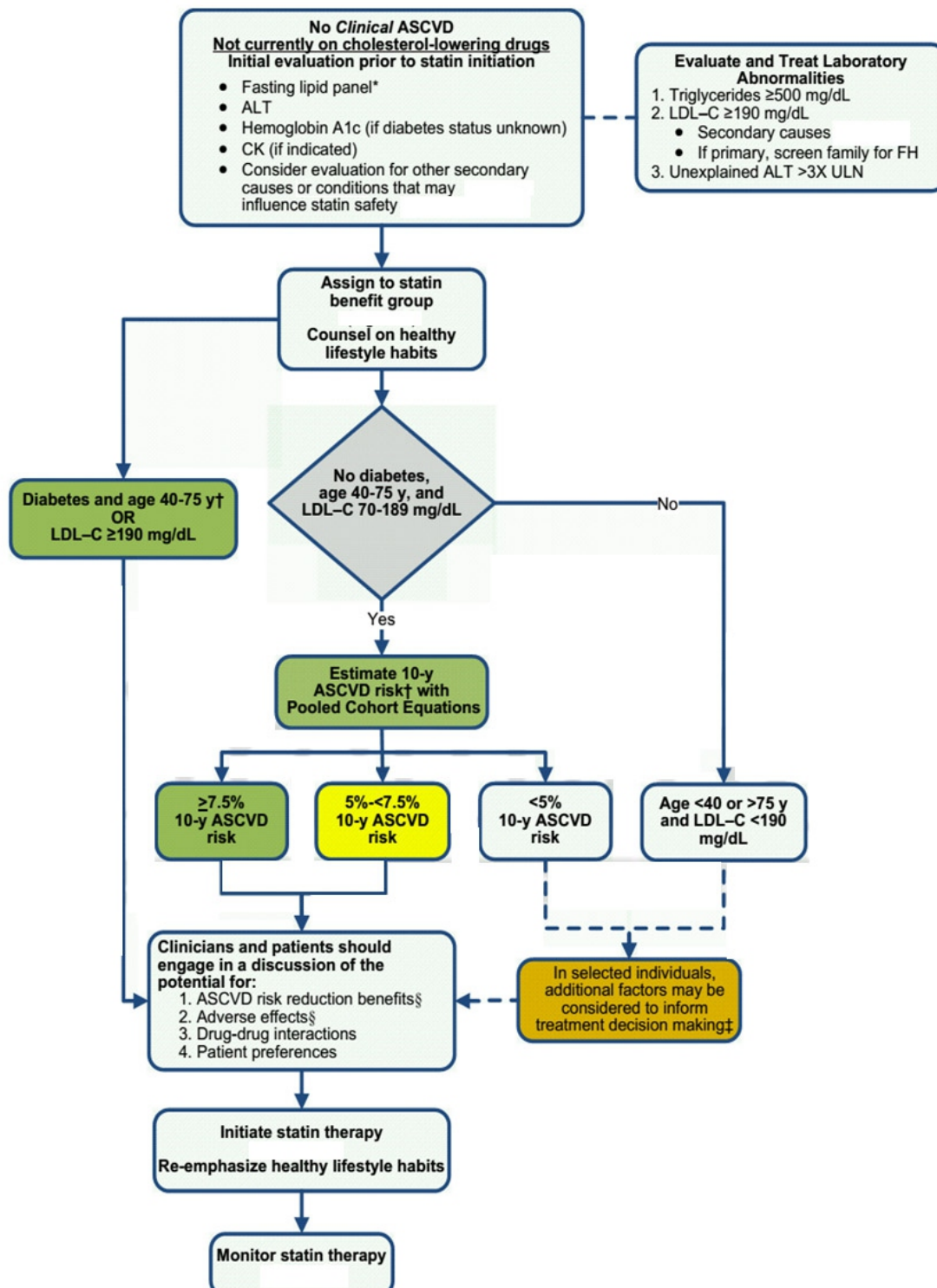


Table 2. Secondary Causes of Hyperlipidemia Most Commonly Encountered in Clinical Practice

Secondary Cause	Elevated LDL–C	Elevated Triglycerides
Diet	Saturated or trans fats, weight gain, anorexia	Weight gain, very low-fat diets, high intake of refined carbohydrates, excessive alcohol intake
Drugs	Diuretics, cyclosporine, glucocorticoids, amiodarone	Oral estrogens, glucocorticoids, bile acid sequestrants, protease inhibitors, retinoic acid, anabolic steroids, sirolimus, raloxifene, tamoxifen, beta blockers (not carvedilol), thiazides
Diseases	Biliary obstruction, nephrotic syndrome	Nephrotic syndrome, chronic renal failure, lipodystrophies
Disorders and altered states of metabolism	Hypothyroidism, obesity, pregnancy	Diabetes(poorly controlled), hypothyroidism, obesity; pregnancy

Future Updates to the Blood Cholesterol Guideline

At present there is no enough data for following groups to recommend line of management;

1. The treatment of hypertriglyceridemia;
2. Use of non-HDL-C in treatment decision-making;
3. Whether on-treatment markers such as Apo B, Lp(a), or LDL particles are useful for guiding treatment decisions;
4. The best approaches to using noninvasive imaging for refining risk estimates to guide treatment decisions;
5. How lifetime ASCVD risk should be used to inform treatment decisions and the optimal age for initiating statin therapy to reduce lifetime risk of ASCVD;
6. Subgroups of individuals with heart failure or undergoing hemodialysis that might benefit from statin therapy;

Conclusion

These recommendations arose from careful consideration of an extensive body of higher quality evidence derived from RCTs and systematic reviews and meta-analyses of RCTs. Rather than LDL–C or non-HDL–C targets, this guideline used the intensity of statin therapy as the goal of treatment. Through a rigorous process, 4 groups of individuals were identified for whom an extensive body of RCT evidence demonstrated a reduction in ASCVD events with a good margin of safety from moderate- or high-intensity statin therapy which has been discussed earlier. One should understand that this is not a comprehensive lipid management guideline. Guidelines main focus is to give recommendation on those individuals most likely to benefit from evidence-based Statin therapy to reduce ASCVD risk with establishment of safety.

An Update on Treatment of Peripheral Arterial Disease

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Peripheral arterial disease (PAD) is extremely prevalent worldwide, especially in India, which is in the midst of a diabetes epidemic. This topic will discuss treatment options for PAD with a special focus on endovascular and minimally invasive therapeutic options. The presentation will provide an update on current and emerging endovascular treatment paradigms and best-practice recommendations for practicing physicians with an emphasis on a multi-disciplinary approach

Abdominal Aortic Aneurysm – What We All Need To Know

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Abdominal aortic aneurysm (AAA) is a common and lethal disorder of older vasculopathic patients. While much of the contemporary information about AAA involves recent technological advances related to minimally-invasive AAA repair, these rapidly-evolving techniques are not the most crucial component of a general discussion of AAA. Instead, this presentation, while mentioning current results of endovascular and open repair of AAA, will emphasize our current understanding of AAA epidemiology, natural history, presentation, diagnosis and decision-making regarding therapy. In particular, mitigation of known AAA risk factors and identification of at-risk populations will be discussed.

An Update on Stroke Management

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"In this talk I will discuss the advances that have taken place in the management of Ischemic strokes with relevance to interventions in the carotids and cerebral circulation and developing a comprehensive stroke program."

An Update on Venous Disease

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Varicose veins, Chronic Venous Ulcers and Post thrombotic syndromes are the most common venous diseases. They affect quality of life and increase socio economical burden.

We studied 500 patients having venous disease from Jan 2012 to Oct 2013. Varicose veins (80%), venous ulcers (15%) and PTS (Post Thrombotic Syndrome) (5%) were evaluated by clinical exam, color Doppler scan and CT Venography when indicated. They were classified according to international CEAP classification. Symptomatic patients (300) were offered treatment.

RF ablation $\pm$ USG guided Foam sclerotherapy was done for varicose veins. Venous ulcers were given compression stockings/bandages in addition. PTS patients were evaluated by venography and treated with venoplasty $\pm$ stenting.

Conclusion: Venous diseases are quite prevalent in modern day society, and phlebology itself is a specialty branch now. With focused patient centered approach and modern day technology; we can offer treatment to patients having chronic venous disorders with high success rate and improve their quality of life.



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VT Substrate Determines Therapy and Outcomes

Dr. Ajay Naik, MD, DM, DNB, FACC, FHRS

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	VT procedures	Success
2001	1	1
2002	3	3
2003	4	3
2004	3	3
2005	4	2
2006	4	3
2007	2	2
2008	3	2
2009	8	6
2010	14	12
2011	20	18
2012	9	8
2013	6	4
Total	81	67

Indian **PACING and ELECTROPHYSIOLOGY** Journal www.ipej.org 278

Case Report

Ventricular Tachycardia Storm in Cardiac Sarcoidosis: A 76-Day-ICU-Nightmare

Ajay M Naik, Sizan B Patel

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NASPE Cath Ablation Registry data

3357 procedures from 68 centers.

Success rates:

◆	AVNRT	96%
◆	AVRT	94%,
◆	Atrial flutter	86%
◆	Atrial tachycardia	52-80%
◆	Idiopathic VT	86%
◆	AV nodal ablation with PPI	97%

Mechanisms of VT in the EP lab

◆	Outflow Tract Tachycardia	40%	(RVOTT / LVOTT)
◆	Idiopathic LV Tachycardia (ILVT)	40%	(Fascicular Tachycardia)
◆	CAD, Post MI Scar VT	15%	
◆	Others (Sarcoid / Pap ms VT)	5%	

Reasons for recurrence / non-success:

- ◆ Papillary muscle origin of VT (closely mimics ILVT, Fascicular tachycardia)
- ◆ Structural heart disease, scarred ventricle.
- ◆ Deep focus of VT, hypertrophied muscle.
- ◆ Epicardial origin of VT with focus close to epicardial coronary arteries.

Summary

- ◆ Arrhythmia management is a highly refined science and art
- ◆ EP and RFA is a “curative” procedure with high success rates and low complications in skilled hands

SVT Intervention and Outcomes

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Mechanisms of SVT in patients taken for EP study and Ablation in the EP laboratory NASPE data

◆ Typical AVNRT	50%
◆ WPW syndrome and Concealed Accessory pathways	40%
◆ Atrial Tachycardia	3%
◆ Atrial Flutter	3%
◆ Atypical AVNRT	2%
◆ Others (AF / Junc Tach)	2%

NASPE Catheter ablation registry success rates:

- ◆ 3357 procedures from 68 centers.

Success rates:

◆ AVNRT	96%
◆ AVRT	94%,
◆ Atrial flutter	86%
◆ Atrial tachycardia	52-80%
◆ Idiopathic VT	86%
◆ AV nodal ablation with PPI	97%

Reasons of recurrence / non-success:

- ◆ Structural heart disease (Ebstein's anomaly, IVC interruption)
- ◆ Arrhythmogenic focus in close proximity to important conduction tissue (e.g. Mid-septal Accessory pathways, AT close to AVN, Junctional tachycardias)
- ◆ Multiple accessory pathways, especially in Right Free Wall region.
- ◆ Atypical Flutters

Summary:

- ◆ Arrhythmia management is a highly refined science and art
- ◆ EP and RFA is a “curative” procedure with high success rates and low complications in skilled hands.

CIMS Arrhythmia center data:

	SVT	Success rate (96.6%)
2001	2	2
2002	30	28
2003	64	60
2004	60	57
2005	89	85
2006	92	88
2007	103	99
2008	104	100
2009	116	112
2010	113	110
2011	176	173
2012	168	165
2013		
Total	1117	1079

Management of Massive and Submassive Pulmonary Embolism : Catheter Directed Thrombolysis

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Background: Pulmonary Embolism (PE) is a life-threatening condition, responsible for more than 300,000 deaths every year in the US. Patients with massive PE, who present with signs of severe right ventricular dysfunction (RVD) and cardiogenic shock, are routinely treated using aggressive strategies. Whether similar treatments should be performed in submassive PE patients, who also present with signs of RVD albeit being hemodynamically stable, remains a topic of debate. The current review examines the clinical evidence in support of treating submassive PE patients aggressively and highlights a novel strategy that has demonstrated success institutionally.

Materials and Methods: We conducted a literature review of recent studies where long term outcomes were reported for acute PE patients with various degrees of RVD, characteristic of submassive PE. We also reviewed our institutional experience using aggressive treatments for acute submassive PE patients.

Results: Large-scale studies show that, when treated conservatively, acute PE patients with right ventricular dilatation (characterized by elevated RV/LV ratios) exhibit higher rates of mortality (short-term and long-term) and adverse events than patients with normal RV/LV ratios. Additional evidence shows that patients who present with right ventricular hypokinesis on echocardiography carry a greater risk of mortality (at 3-months) than those without. Furthermore, the incidence of venous thromboembolism and pulmonary hypertension, as well as the mortality rate increase substantially if the patient is discharged before RVD is resolved. Institutionally, aggressive treatments have been performed on acute patients who present with an elevated RV/LV ratio on echocardiography using ultrasound-assisted thrombolysis (USAT) (Ekosonic System; EKOS Corp.). Among these patients, the treatment demonstrated safe and successful outcomes, with rapid symptomatic relief and reversal of RVD.

Conclusions: Based on the clinical evidence reviewed, submassive PE is associated with poor prognosis when treated conservatively; patients may develop long-term sequelae (i.e., chronic pulmonary hypertension and RV failure) if the thrombus is not resolved and RV dysfunction reversed by an effective treatment. Our experience demonstrates that catheter-directed thrombolysis can be safely administered to patients with acute PE and USAT is an accelerated form of CDT which holds the promise of becoming the first-line treatment for both acute submassive and massive PE.

Can We Detect Vulnerable Plaque? Newer Imaging Techniques

Dr. Vineet Sankhla MD DM

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Cardiovascular diseases are the leading cause of morbidity and mortality in the world. Arterial thrombosis which leads to myocardial infarction and stroke is triggered by a ruptured atherosclerotic plaque and precipitates an acute vascular event, which is responsible for the high mortality rate. These rupture-prone plaques are called “vulnerable plaques.” Thus, there is a clear need for identifying these vulnerable plaques before the rupture occurs. Atherosclerotic plaques are a challenging imaging target as they are small and move rapidly, especially in the coronary tree. During the past decades, much effort has been put toward accurately detecting the presence of vulnerable plaques with different imaging techniques. Many of the currently available imaging tools for clinical use still provide minimal information about the biological characteristics of plaques, because they are limited with respect to spatial and temporal resolution. Moreover, many of these imaging tools are invasive. The new generation of imaging modalities such as magnetic resonance imaging, nuclear imaging such as positron emission tomography and single photon emission computed tomography, computed tomography, fluorescence imaging, intravascular ultrasound, and optical coherence tomography offer opportunities to overcome some of these limitations. The upcoming challenges in translating these techniques into clinical practice and in assigning them their exact place in the decision-making process are being discussed.

Management of “The Diabetic Foot”

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Development of “the diabetic foot”, replete with cutaneous ulcers, draining sinuses, tissue gangrene and invasive infection and necrosis, is a common limb- or even life-threatening complication of diabetes mellitus, familiar to most medical practitioners. While the condition often is thought to arise as a consequence of inadequate arterial perfusion, this presentation will emphasize that several other manifestations of diabetes are much more important to the development of diabetic foot problems than arterial insufficiency. Indeed, various forms of neuropathy, diabetic immune incompetence and structural destabilization of the foot account for as much as 90% of the problems associated with development of “the diabetic foot”. This presentation offers an evidence-based discussion of optimal management of the diabetic foot, including a protocol for preventing, or at least limiting the likelihood of development of the problem in the first place.

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Comprehensive Aortic Root and Valve Reconstruction

Dr. Meong Gun Song, MD, P.HD

Konkuk University Medical Center, Seoul, Korea

Comprehensive aortic root and valve reconstruction (CARVAR) operation is innovative new surgical technique which addresses the four main components of the aortic root; sino-tubular junction (STJ), aortic root wall (three aortic sinuses and three inter-leaflet triangles), annulus and aortic leaflets according to the various aortic root and valve diseases.

The development process of CARVAR operation is composed of five stages: (1) research of functional anatomy; functional and anatomical characteristics of aortic root and valve in the beating heart, (2) research of pathologic changes and disease progression mechanism in aortic root and leaflet disease, (3) development of new aortic root wall reconstruction technique; the STJ reduction, aortic sinus reduction or reconstruction and aortic annulus reduction, (4) development of aortic valve leaflets repair or reconstruction technique, and (5) extension of indication through clinical experiences: this procedure is now applicable to all kinds of aortic root wall and valve disease with very durable results.

This procedure consists of two major processes; evaluation and surgery. The evaluation process is to determine the necessity of correction through assessments of the leaflets, aortic sinus wall, the annulus, and the STJ. And the surgery process consists of (1) annulus reduction, (2) aortic sinus reduction or reconstruction, (3) aortic leaflet repair or reconstruction, and (4) STJ reduction.

For leaflets correction, bovine or autologous pericardial leaflets tailored over a specially designed template are implanted onto the original cuspal attachments in equal tricuspid valve, or newly decided cuspal attachments in unequal tricuspid valve, bicuspid, and quadricuspid valve. The STJ and annulus are reduced by implanting specially customized artificial rings and strips, respectively. Aortic sinus reduction or replacement is determined according to the diameter.

According to the anatomical difference of leaflets and coronary arteries, there should be minor changes of surgical procedures. All the details of research findings and surgical procedures in various pathological conditions were written in a new book, 'Song's Innovative Aortic Root and Valve Reconstruction'. This book can be used as a good reference when you start this new procedure.

Principles of Aortic Valve Repair and Starting a New Aortic Valve Repair Program

Dr. Meong Gun Song, MD, PhD

Konkuk University Medical Center, Seoul, Korea

Principles of Aortic Valve Repair

The real time characteristics of aortic root in a normally beating heart was understood through our vigorous research by looking at the histological characteristics and movement of aortic root in relation to the pressure changes in the left ventricle and aortic compartments; the ratios between the diameters of STJ, sinuses and annulus, and height of aortic root and leaflets are constant at a certain time in the cardiac cycle, although the diameter, height and shape of each part change with the opening and closing of the aortic valve.

The significant ratio changes of them in a beating heart causes malfunction of aortic valve and this dysfunction can be solved by new surgical technique which normalizes the ratios between them.

Therefore, with the new technique addressing the four main components of the aortic root, sino-tubular junction (STJ), aortic root wall, annulus and aortic leaflets, almost all kinds of aortic root and valve diseases can be repaired.

Practically the CARVAR procedure is composed of two processes; evaluation and surgery. The evaluation process is to determine the necessity of correction of four main components; the leaflets, aortic sinus wall, annulus and STJ, and determination of the optimal diameter of the STJ. And the surgery process consists of correcting the four main components: annulus reduction, aortic sinus procedure, aortic leaflet procedure, and STJ reduction. However, it doesn't mean that every patient needs all four procedures, but only the needed procedures according to the disease status.

Organizing (Starting) a New Aortic Valve Repair Program

The organization and starting a new aortic valve repair(reconstruction) program team varies from institution to institution. The surgeon should be a program director and has set up a functional organization framework. The team members should include not only the surgeons but also the cardiologists, the anesthesiologist, and the nurses in operation room and they could share their tasks respectively.

Task of the surgeons

1. Surgeon should be completely dedicated to his work such as understanding of functional anatomy of aortic root and leaflets (chapter 4 and 5 in the book, 'Song's Innovative Aortic Root and Valve Reconstruction').

2. Surgeon should practice the procedures in vivo utilizing the pig or sheep hearts and become very skillful in surgical technique.
3. Surgeon should be familiar with the instruments such as the leaflets retractor, the sizer for annulus and STJ reduction, the template of leaflets and new medical materials such as rings and strips and bovine pericardium.
4. Surgeon should start from simple cases first and progress to the more complex cases.
5. Surgeon should attend the international CARVAR meetings often to improve his knowledge and experiences.

Task of the cardiologist

1. Cardiologist should completely dedicate to his or her work of the patients selection and postoperative evaluation of new techniques.
2. Cardiologist should be responsible for the reporting the statistical results of new procedures annually.
3. Cardiologist should give the surgeon the feed-back related to the new procedure even it is minor problem.

Task of the anesthesiologist

1. Anesthesiologist should be responsible for all anesthesia process and intra-operative TEE evaluation.
2. Anesthesiologist should give the surgeon the feedback about the surgical results.

Task of the attending nurses in operation room (OR)

1. OR nurse should completely understand the surgical procedures.
2. OR nurse should be responsible for the preparing and handling the proper instruments and medical material such as rings and bovine pericardium for new procedures.
3. OR nurse should be familiar with the work tailoring the pericardium over the specially designed template for leaflet.

Long Term Results of Homograft Valve and How to Setup Homograft Bank

Dr. Sridhara Iyengar, B.Sc., M.D., FRCSC, FACS.

Diplomate American Board of Surgery

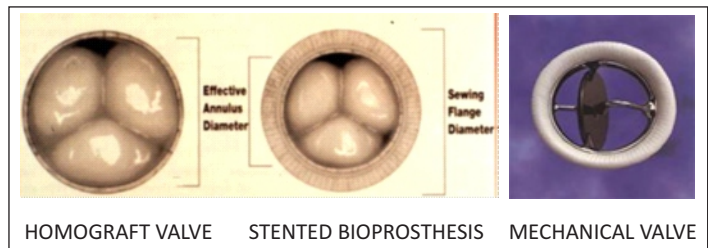
Diplomate American Board of Thoracic Surgery

Cardiovascular and Thoracic Surgeon

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Homograft valves are human heart valves either donated or explanted from cadavers. Homograft valves were first introduced in the early 1960's by Donald Ross. At the time, they did not receive recognition because of the intricacy of the requisite implantation technique and lack of availability. During the same period, mechanical valves (and, later, bioprosthetic valves) were introduced. Because of the relative ease with which these prosthetic valves could be implanted, they became the widely accepted choice for valve replacement. Prosthetic valves



could also be manufactured in various sizes, a benefit versus homograft valves, which are of limited size. Human heart valve transplants are a better alternative to replace diseased heart valves in both adult and pediatric age groups. Complications such as thromboembolism, durability and hemolysis that are seen with prosthetic valves are uncommon with homograft valves. Mechanical valves demand lifelong anti-coagulation, and patients need periodic monitoring for therapeutic levels of anticoagulant. The increased incidence of structural failure makes bioprosthetic valves less durable – especially in younger patient populations, warranting repeat operations. Another important negative factor related to both of these types of prosthetic valves is the reduced effective orifice area due to rigid sewing ring in smaller annulus. The advantages of homograft valves are: (i) anticoagulation is unnecessary; (ii) larger effective orifice area compared to same sized prosthetic valves; (iii) relatively better resistance to infections; (iv) because of the viable cells in a cryopreserved valve, they are known to grow with a growing child; (v) with advancing technology, in the future, a failed homograft valve may be treated by a percutaneous approach.

The available data strongly suggests the following advantages:

- Proven Long-term Durability:
 - 80% Freedom from Structural Deterioration at 15 Years
 - 97% Freedom from Structural Deterioration at 10 Years
- Excellent Hemodynamics:
 - Low Pressure Gradients
 - Large Effective Orifice Area
- Less Complications
- Less Incidence of Endocarditis
- Low Risk of Thromboembolic Events
- Makes future percutaneous valve replacement easier.

We will discuss the procurement, preparation, preservation and distribution of homograft valves during the presentation.

Aortic Root Enlargement: Must We Do it?

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The concept/phenomenon of valve prosthesis/patient mismatch (VP-PM), was initially described in 1978, by Rahimtoola et.al. This has stood the test of time. From that time-to-time, VP-PM has received a great deal of attention but studies have come to varying conclusions. This is largely because of the determination of prosthetic heart valve area [called effective orifice area index (EOAi)] by projection rather than by actual measurement, variable criteria to assess severity of EOAi and the timing of determination of EOAi. All prosthetic heart valves have some degree of VP-PM, which must be placed in a proper clinical perspective. This can be done by determining its effects on cardiac function and outcomes.

Issues that important when considering VP-PPM:

1. The mismatch was related to 2 factors: a) the PHV that can be inserted in most patients has an effective EOAi that is less than that of the normal human valve and; b) the in vivo effective EOAi is further reduced because of endothelialization and tissue ingrowth.
2. The EOA is only 1 factor that has to be taken into account when selecting a valve replacement device for an individual patient.
3. The relationship between gradient and the EOA and PHV size is complex (Fig. Next page).
4. In patients with moderate to severe PHV mismatch severe to very severe VP-PM may develop with additional tissue ingrowth or thrombotic material, which could result in deterioration of cardiac function, which may be acute and could result in prosthetic thrombosis and sudden death.
5. When evaluating the poor late results of valve replacement on survival, functional class or left ventricular (LV) function it is important to evaluate PHV function and mismatch accurately.

Effective orifice area (EOA) (red circles) corrected for body size (EOAi) provides better knowledge of the hemodynamic consequences of the prosthetic heart valve. For example, in patients, the EOA could be identical.

Degrees of PPM:

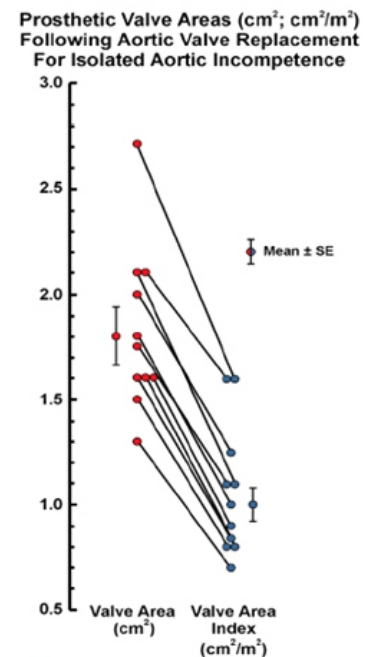
Grading	AVA and EOA, cm ²	AVA Index and EOAi, cm ² /m ²
Mild	>1.5	>0.9
Moderate	>1.0-1.5	>0.6-0.9
Severe	≤1.0	≤0.6
Very severe/critical*	≤0.7	≤0.4

However, because the patients can be of different sizes, the each EOAI can then be quite different. (Rahimtoola).

A. Studies using a measured EOAI. Given the considerations, studies using direct measurement of the EOAI in individual patients after surgery will have the most sensitivity and specificity for VP–PM.

1. Survival

- a. Operative or 30-day mortality. As discussed previously, the measured EOAI immediately postoperatively does not necessarily reflect the EOAI in the long term. Its has been shown to have increased early mortality in patients with severe VP–PM. Studies have shown that VP–PM using a measured EOAI does not have a significant impact on operative or 30-day mortality (28,46).
- b. Long-term mortality
 - i. Moderate VP–PM. Several studies measured the EOAI and examined the impact of moderate VP–PM on mortality (Table). None of them showed an increased mortality with moderate VP–PM.
 - ii. Severe VP–PM. Studies, which have measured the EOAI and examined the impact of severe VP–PM on mortality have recorded an incidence of severe VP–PM ranged from 6.9% to 39.8%. These studies have shown an increased mortality with severe VP–PM.
 - iii. Moderate-severe VP–PM. Studies that measured the EOAI and combined moderate and severe VP–PM showed no statistically significant increase in mortality. The incidence of moderate-severe VP–PM ranged from 3.3% to 65.7%. Given that severe VP–PM has a significant impact on mortality, whereas the influence of moderate VP–PM is not likely to be significant, grouping patients with moderate and severe VP–PM together, will likely only have an impact on mortality if there is a sufficient proportion of patients with severe VP–PM.



2. LV mass regression

Studies have also assessed the impact of VP–PM on LV mass regression. Traditionally, the state of the myocardium has been referred to as LV hypertrophy when evaluated by electrocardiography and imaging techniques such as angiography, echocardiography, and magnetic resonance imaging. However, in reality, these are measures of increased LV mass because they are measuring cardiac myocytes, blood vessels, connective tissue, and fibrosis; in the normal heart, only about one half of the cells are

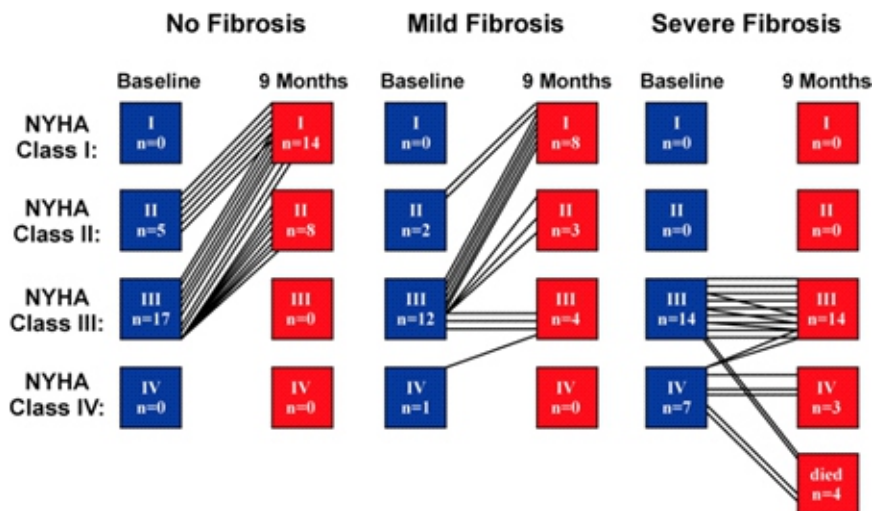
cardiomyocytes, and fibroblasts are the predominant cell types in the remainder. This is important because increased LV mass may be due to changes in factors other than myocyte hypertrophy.

Indeed, LV mass regression is complicated by multiple factors including female sex, the degree of pre-operative LV hypertrophy, the presence of systemic hypertension, renal dysfunction, and preoperative LV fibrosis. These should be kept in mind when considering the effect of VP-PM on LV mass regression because LV mass regression is multifactorial.

3. Functional status and quality of life

It has been consistently demonstrated that moderate-severe VP-PM and the presence of coronary artery disease are predictors of decreased exercise capacity 6 months post operatively. However, moderate-severe VP-PM does not significantly affect long-term functional class or quality of life based on the Short Form-36

questionnaire. The greater amount of myocardial fibrosis before AVR results in a worse New York Heart Association functional class postoperatively (Fig. Left).



Conclusion:

In this light, we can assume that in the presence of longstanding aortic stenosis with myocardia fibrosis and higher NYHA functional class the adverse effects of VP-PPM are much more pronounced and thus mandates aortic root enlargement procedures depending upon the skill, experience of surgeon and facilities available in the center of treatment after fully informed consent.

Sutureless Valve Replacement With Edwards Intuity Rapid Deployment Valve

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The development of rapid deployment and sutureless aortic valves represents a translation of knowledge gained from the performance of transcatheter aortic valve replacement (AVR) procedures combined with decades of experience of conventional AVR surgery. Such devices have gained increasing clinical acceptance—particularly in Europe—with almost 3000 total implants to date. Rapid deployment and sutureless valves facilitate minimal invasive AVR and are associated with significantly reduced myocardial ischaemic and cardiopulmonary bypass times. The reduced ischaemic times may also be important for patients requiring complex combined procedures, or those with poor left ventricular function. These devices are associated with excellent haemodynamic performance and acceptable rates of pacemaker implantation and paravalvular leak.

Rapid deployment aortic valves offer a method by which surgeons can more easily perform minimal invasive AVR and these devices should lead to increased surgeon acceptance and more widespread adoption of minimal invasive AVR surgery. In addition, rapid deployment valves represent an important addition to the surgeon's armamentarium when dealing with patients who will benefit from a reduced myocardial ischaemic time, i.e. patients with left ventricular dysfunction or those requiring complex multivalve or combined procedures. Three different rapid deployment valves are currently approved for clinical use in Europe—the Enable (Medtronic, Minneapolis, MN, USA), the Perceval S (Sorin Biomedica Cardio Srl, Sallugia, Italy) and the EDWARDS INTUITY (Edwards Lifesciences, Irvine, CA, USA; see Photo 1) valves. Several thousand patients have been treated with these devices to date. Early- and medium-term outcome data is comparable to traditional AVR. Although durability remains to be determined, these devices represent a significant development in the history of AVR surgery. Implantation of rapid deployment valves is relatively easy with a short learning curve. As stated above, however, proper sizing is absolutely critical for these devices.



In addition, the surgeon must ensure that the annulus is roughly circular after the removal of the calcified cusps. A large block of calcium that extends deep into the aortic annulus can pose a problem for rapid deployment valves, and a conventional AVR may be more appropriate for such patients. A markedly hypertrophied interventricular septum does not pose a problem, however, and rapid deployment valves can also be implanted following a myectomy procedure.

There are ongoing FDA approval studies for the Perceval S and INTUITY devices in USA, as well as post approval studies for all three rapid deployment valves in Europe. Such studies will be crucial in order to determine whether minimal invasive AVR is indeed simpler with a rapid deployment valve, to better define patient groups that will benefit most from these devices and to determine medium- and long-term outcomes. The case demonstrates a minimal invasive implantation of an EDWARDS INTUITY rapid deployment valve (Edwards Lifesciences, Irvine, CA, USA) and highlights important steps in its implantation. Tips and tricks will also be discussed.

¹ O'Brien et al., Ann. Thorac. Surg. 1995; 60:S65-70

² Doty et al., JTCVS 1998; 115:371-380

The JOINT REPLACEMENT TRACK

Live surgeries would be performed by Joint replacement surgeons of national and international repute.

The Surgeons include -

Dr Vijay Bose
(Chennai, India)

Dr Sks Marya
(New Delhi, India)

Dr Luca Marega
(Italy)

Dr Philip Hurst
(United Kingdom)

The live surgeries would include Complex Primary Hip and Knee Replacements and Revision Hip and Knee Replacements.

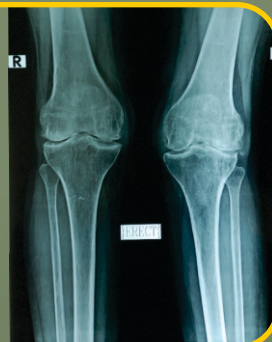
Case 1

Mrs A
Female
50 Years

Primary Valgus Knee

Surgery:
Total Knee Replacement

Surgeon: Dr. SKS Marya



A 50 year old female with operated ipsilateral hip is to be operated for Valgus Knee.

Case 2

Mr B
Male
32 Years

Post Traumatic Hip Arthritis

Surgery:
Total Hip Replacement

Surgeon: Dr. Luca Marega



A 32 year old male has post traumatic AVN Hip. Primary Total Hip is planned for him.

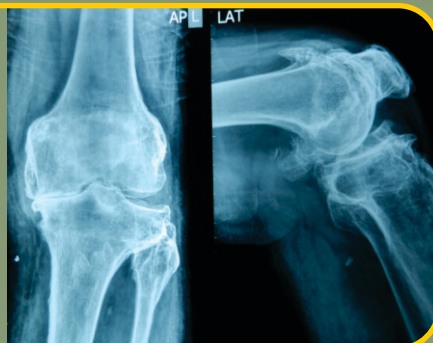
Case 3

Mr C
Male
75 Years

Post HTO Arthritic Knee

Surgery:
Total Knee Replacement

Surgeon: Dr. Philip Hirst



A 75 year old male was operated for High Tibial Osteotomy before 10 years. The Arthritis has now worsened and now he requires a Total Knee replacement.

Case 4

Mr D
Male
48 Years

Post Traumatic Unstable Knee

Surgery:
Rotating Hinge Knee Replacement

Surgeon: Dr. Philip Hirst



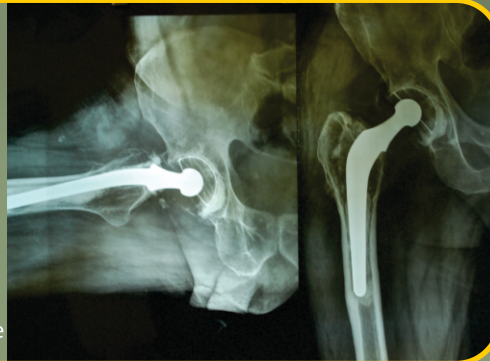
Case 4 :This 48 year old male had a severe injury to his knee before 15 years. There was vascular damage for which he was operated at that time. The ligaments of the knee were severely damaged. This unstable knee would be operated with Rotating Hinge Knee Replacement.

Case 5

Mr E
Male
65 Years

Operated THR with Loosening

Surgery:
Revision THR
Surgeon: Dr. Vijay Bose



Case 5: This 65 year old male was operated for Total Hip before 15 years. There is Osteolytic loosening and a Revision Hip Replacement is planned for him.



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Arterial Cannulation Routes For Type A Aortic Dissection

Dr.V.M.Kurian

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Perfusion technique plays a major role in the outcome of Type A Aortic Dissection(TADA). Various techniques are used, but the optimal arterial cannulation for TADA is a topic of continuing debate. Cannulation can be at a single site (sole cannulation) or at multiple sites (composite cannulation).

Femoral cannulation is still one of the most commonly used approach. It can be used as a sole cannulation or along with some other sites for cannulation. Some of the complications associated with femoral cannulation are malperfusion, atheroembolism and ischemic leg problems. Axillary artery cannulation is also widely used. This is usually done by attaching an 8 or 10mm side graft to the artery. The advantage of this technique is that the flow is antegrade and the risk of malperfusion and atheroembolism is less. One of the major difficulties encountered is the smaller size of the axillary artery in our population. Alternative sites for arterial cannulation include innominate artery, subclavian artery, carotid artery, ascending aorta, aortic arch and transapical.

Cannulation is also required for antegrade cerebral perfusion. The same cannulation can be used for antegrade cerebral perfusion during Total Circulatory Arrest (TCA) in axillary and innominate artery cannulation. Otherwise selective unilateral or bilateral carotid artery cannulation can be done.

Thoraco-abdominal Aortic Aneurysm – Is Surgery still the Gold Standard?

Dr. M. Unnikrishnan

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Background:

Open repair of Thoraco-Abdominal Aortic Aneurysm is a formidable procedure associated with significant morbidity and mortality as a result of insult to vital organs despite a host of strategies to attenuate ischemia-reperfusion injury. Over the years, we have developed surgical protocol and strategies for organ protection during open repair of TAAA which is a lethal disease if left untreated.

Material and methods

107 patients who underwent elective open repair of TAAA from January 1998 to October 2013 at Sree Chitra Tirunal Institute form the basis of this study. Age of this cohort ranged from 32-78 years with a

mean of 56 and male to female ratio of 3:1. Thoracophrenolaparotomy was done through 7th left intercostal space in all supplemented by thoracotomy through 4th intercostal space in cases of extensive proximal thoracic aortic aneurismal disease. Disease extent belonged to Crawford type I (30), type II (15), type III (37), type IV (18) and type V (7) patients.

Specific Strategies:

Temporary aorto-femoral bypass was instituted to equilibrate volume and pressure above and below the aortic cross clamps so as to optimise after load to protect the heart and also provide distal aortic perfusion. Spinal cord protection was achieved using pharmacological means (thiopentone sodium and methyl prednisolone), suture closure of intercostal arteries (in most), reimplantation of intercostal arteries (in 12), CSF drainage in all and epidural cooling in a few. Visceral and renal arteries were selectively perfused using a modified in house circuitry system, blood being siphoned from proximal aorta and directed to the appropriate arteries using Pruitt-Inahara shunt. Renal protection fluid infusion was also performed initially. Hemodynamic parameters and blood volume were maintained using blood retrieval cum rapid infusing system. Operative surgical technique consisted of teflon felt reinforced proximal anastomosis, reimplantation/suture closure of intercostal arteries, reimplantation of celiac, SMA and right renal artery in single carrel followed by reinforced distal aortic anastomosis along with reinclusion of aortic button bearing left renal artery.

Results

Overall hospital mortality was 22 % (24/107) with recent decrease to 18 % (10/53) since 2007. Perioperative haemorrhage (10), stroke (2), myocardial failure (2), respiratory failure (2), renal failure (3), septicaemia (2) and paraplegia (3) have led to mortality. At discharge all patients, except 2, returned home with stable system functions and none required readmission to High Dependency units except one patient with preop serum Creatinine of 5 mg% who required haemodialysis. One young lady with Takayasu's disease died of rupture of pseudoaneurysm, 1 year after repair during advanced pregnancy with rapid disease activity. During late follow-up one patient with distal aortic pseudoaneurysm 4 years post op required surgery and another patient underwent left renal artery angioplasty for anastomotic stenosis. The 5 and 10 year survival rates are 66% and 55% respectively in this cohort. During follow up 3 patients died, 2 unrelated to vascular procedure.

Conclusion:

Our innovative strategy has helped preserve organ function satisfactorily in all survivors except two following open repair of TAAA. Although system dysfunctions have occurred which ultimately resulted in in-hospital mortality, nearly all survivors (83 / 107 patients) immensely benefited from our comprehensive approach to organ protection.

Peak Expiratory Flow Rate

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The peak flow meter is an essential OPD instrument which extreme utility. It is used as an effective screening tool for OADs, diagnostic tool for asthma and a home monitoring device for patients. This session details with clinical examples the various uses of the peak flow meter.

Basic Principles and Procedure of Spirometry

Dr. Komalkirti Apte,

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This session explains the principle used in spirometry along with details on the correct procedure on performing this test.

Interpretation and Quality in Spirometry

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Simple tips for effective interpretation of spirometry will help manage patients of obstructive airway diseases better. However, unless done according to international ATS/ ERS standards, the test remains of no value in practice. This session will help identify the correct graphs and the possible mistakes which patients make during spirometry.

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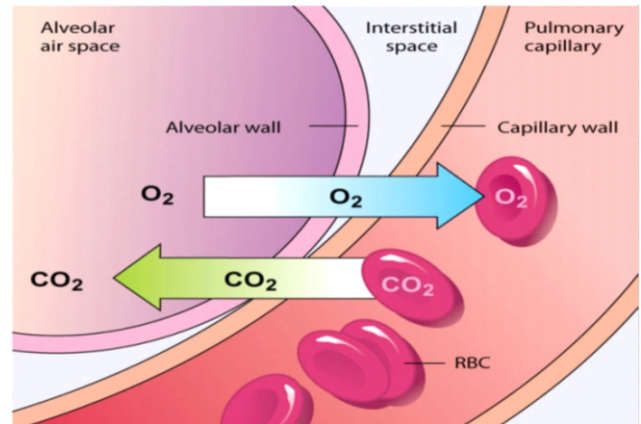
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Diffusing Capacity of the Lung for Carbon Monoxide

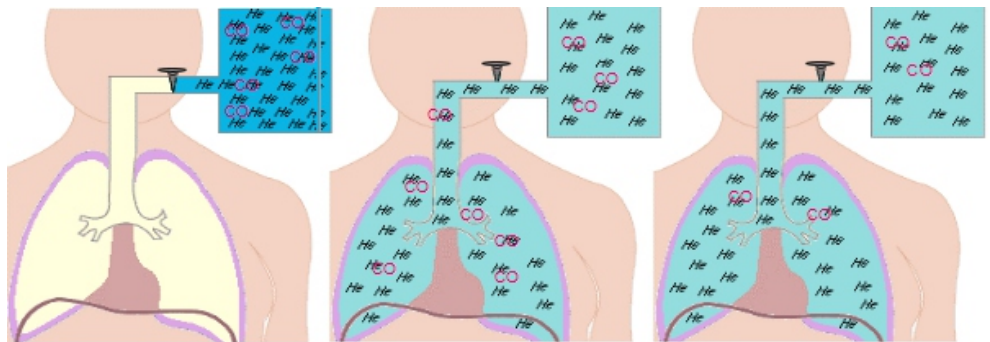
Dr. Rahul Kodgule, Chest Research Foundation, Pune, India

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(a) DLCO/TLCO, concept and procedure: Measuring diffusion of oxygen and carbon dioxide is presently impossible. Diffusion of carbon monoxide provides important information about the ability of lung to diffuse gases. Single breath method used to measure diffusion of carbon monoxide is the most popular and standardized way. After exhalation up to residual volume (RV) the subject breathes in CO which gets diluted with the RV in the lung. Inert gases like helium and methane are used to measure this dilution fraction. During breath hold of 10 seconds CO diffuses in to the pulmonary circulation and the remaining concentration is exhaled in to a sensor which measures exhaled CO. Subtracting diluted fraction from the final measurement returns the capacity of the lung to diffuse CO.



(b) Interpretation: Diffusion capacity of the lungs (better term-transfer factor) is affected in almost all the diseases that affect alveolar-capillary membrane or availability of haemoglobin in the pulmonary circulation. A reduction or increase in DLCO along with medical history, spirometry



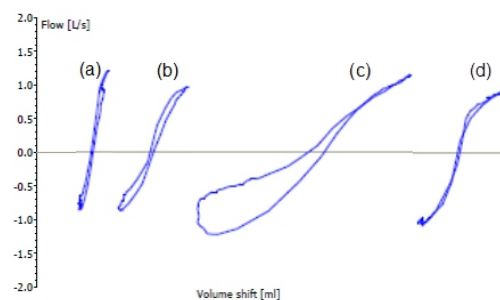
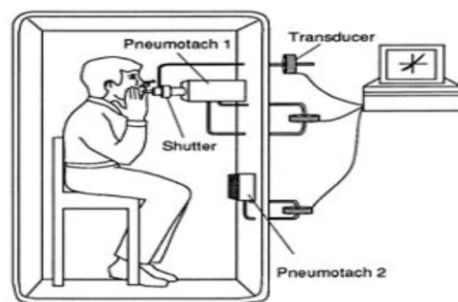
and/or body plethysmography provides a strong clue towards differential diagnosis of interstitial lung disease, emphysema, asthma, chronic bronchitis, pulmonary vascular problems, etc. Besides, DLCO is an important guide for monitoring progression of interstitial lung diseases, especially idiopathic pulmonary disease. It is also an important investigation for pre-surgical evaluation.

Making Sense of Whole Body Plethysmography

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(a) Introduction to whole body plethysmography (BP) and its principle: Body plethysmography is a telephone booth shaped air-tight box. Being closed it allows application of Boyle's law. When subject breathes inside the box the changes in the volume and pressure of air in the chest allows measurement of actual air in the lungs using Boyle's law. Lung volumes measured by BP are most reliable. In addition resistance of the airways can be measured. Correction of the measured resistance with the volume of air in the lungs (sRaw) makes sRaw the most reliable and applicable measure of airway resistance, especially in those having air trapping.



(b) Interpretation: Lung volumes are reduced in restrictive and are normal or increased in obstructive lung diseases. Combinations of residual volume (RV), total lung capacity (TLC) and RV/TLC help diagnose obstructive, restrictive, MIXED patterns, obesity-related pulmonary effects, etc. Mixed obstructive and restrictive patterns are highly prevalent in India and have important effect on management of asthma and COPD. Just a second's look at the sRaw loop can diagnose airway obstruction and air-trapping. Upper airway obstruction can be easily suspected by looking for specific sRaw loop patterns.

Impulse Oscillometry in your Clinical Practice

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- (a) Introduction to impulse oscillometry and its principle: Impulse Oscillometry is a device which uses sound waves to estimate resistance offered by airways. It is a useful test in patients who cannot perform spirometry, especially in pediatric and geriatric population.
- (b) Interpretation: Resistance offered to the sound waves help identifies the degree of obstruction in the airways. Different frequencies measure the resistance across various levels of the airways.



Bronchial Thermoplasty

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Bronchial Thermoplasty (BT) refers to the use of heat to induce structural changes in the bronchial smooth muscles. It is performed using a specially designed catheter and a radiofrequency (RF) generator. The energy delivered at each treatment site is substantially lower than the energy used for ablation of the endobronchial lesions.

When passed through the working channel of a therapeutic flexible bronchoscope (FB), the wire basket at the end of the catheter is expanded to touch the airway wall under direct vision. Once contact is achieved, a 10-second pulse of RF energy is delivered, and the wire basket is collapsed and moved approximately 5 mm proximally to the next treatment site. The BT system was developed over a series of pre-clinical studies and was first applied in the canine airways. During the pre-treatment trials in dog model the thermal effects were found to be dependent upon the temperature reached in the airway wall. Histological examination of treated sites revealed that smooth muscle was replaced with connective tissue elements. Long-term studies at 3 years showed no evidence of scarring and the effect on reducing muscle mass was stable. Functionally, airways treated with BT contracted less following methacholine instillation than untreated sites and this effect was related to the degree to which muscle was reduced, yet the relaxation was not impaired.

BT was first applied in the human airway in patients who were scheduled for a lobectomy for suspected lung cancer. At the time of FB, performed 1 to 3 weeks before surgery, BT was applied to the airways of the lobe to be removed. Following resection, histological comparison of treated and untreated sites showed less smooth muscle in the former group. The extent of the effects closely resembled those documented in the canine airways and was temperature dependent. The epithelium, which can be injured by the heat, was largely reconstituted between the second and third weeks. Currently, BT is usually performed under local anesthesia and moderate sedation in an out-patient setting. Typically, it takes 3 separate procedures, usually 3 weeks apart, to treat the entire bronchial tree. The right middle lobe is usually left untreated because of concerns of causing the right middle lobe syndrome. The catheter is deployed only under direct vision and airways with a diameter between 3 and 10 mm are treated. The temperature achieved at the tissue level is less than 65°C.

BT for asthma was first studied by Cox G et al in 16 patients. This study proved its safety. In addition, numbers of symptom-free days and peak expiratory flows improve at 3 months. Bronchial hyperresponsiveness was also reduced for at least 12 months.

One hundred and nine patients with moderate to severe asthma underwent BT under a randomized trial, also by Cox G. The BT group had statistically significant reduction in the rates of mild exacerbations and improvements in asthma quality of life (AQOLQ), asthma control, use of rescue medication and

numbers of symptom-free days. The side effects were minimal and as expected. Thirty two Patients with even more severe asthma than previous two trials were enrolled in the Research in Severe Asthma (RISA) trial, some requiring maintenance oral corticosteroids. At 22 weeks, subjects followed an algorithm to taper their maintenance steroid dose and did not deteriorate. There was significantly greater improvement in AQOLQ asthma control questionnaire score, and use of rescue medication. There was an increase in the severity of adverse events probably related to the severity of asthma. Asthma Intervention Research 2 multicenter trial was designed with a control group that underwent sham treatments under the same protocol as BT. A total of 297 subjects with severe asthma and persistent symptoms were randomized 2:1 to active and sham control groups. The AQOLQ improved in both groups, but significantly in the BT group. Use of health care resources, such as unscheduled office or emergency department visits, and admissions were lower in the BT treated group than the sham control group. HRCT examinations performed annually for 5 years in the subjects who participated in the feasibility trial continue to show normal airways without any evidence of either stenosis, bronchiectasis or parenchymal damage. There is no deterioration of pulmonary functions for at least three more years in patients who have under gone BT so far, proving long term safety of the procedure.

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Difficult Asthma

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My understanding of difficult asthma goes like this..... Difficult asthma is encountered in two situations, the first being Acute Life Threatening Asthma in the emergency medicine unit and the second being the out patients with uncontrolled asthma. The former involves decisions regarding the need for intubation and ventilation and has to be a team work involving the Intensivist and the Physician. Frequent causes are severe allergies leading to anaphylactoid type or asphyxiating type of asthma, viral infections and disturbed emotional status. This group of patients encounters a higher risk of complications of mechanical ventilation and difficult intubation, CO2 narcosis, metabolic acidosis, haemodynamic instability, cardiac arrhythmias, secondary nosocomial infections and often end up with a tracheostomy. In outpatients with uncontrolled asthma it is essential to reconfirm the diagnosis and tackle associated comorbidities like rhinosinosis, obesity, GERD. It is also important to understand that Difficult Asthma may be associated with cardiac failure, pulmonary thromboembolism and thyrotoxicosis, and certain medications (Beta blockers, Ace inhibitors and NSaids), and vocal cord dysfunction. It is essential to treat these conditions as well. It is of prime importance to educate patients regarding the compliance and techniques of medication. Optimum combination of drugs is the cornerstone of treatment. Newer drugs like Anti-IGE have a distinct role to play. Brittle Asthma, Pre-Menstrual Asthma and Steroid dependent and Steroid resistant Asthma are real challenges. Peak flow monitoring is useful to pick up early deterioration in asthma. Every patient who recovers from severe asthma should be given a prescription for corticosteroids and advised as to how to use them early and judiciously to prevent a major attack.

Infection Control in Intensive Care Unit

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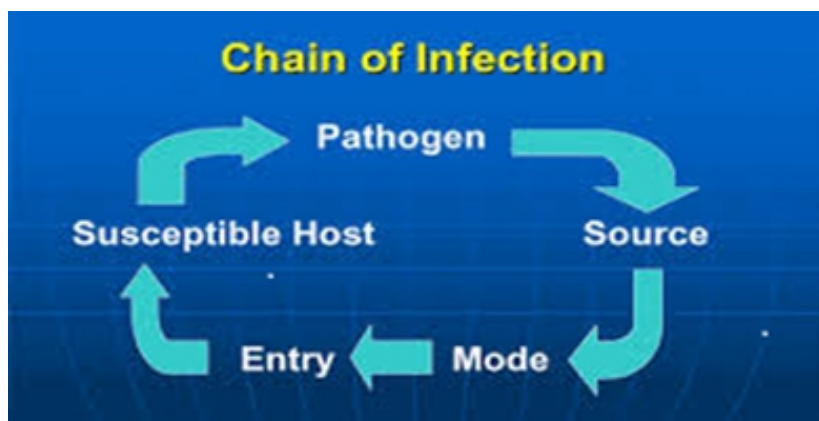
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Nosocomial infections affect 5 to 15% of hospitalized patients and can lead to complications in 25 to 33% of those patients admitted to ICUs.

The causes for increase infection rates in ICU patients are multifactoral: these patients are the sickest with multiple underlying comorbidities, malnourished; their care is usually long term and invasive with multiple indwelling devices and catheters and usage of broad spectrum antibiotics.

The most common infections in the ICU are ventilator associated pneumonia, (VAP) catheter associated urinary tract infection (CAUTI), central line associated blood stream infections (CLABSI), skin and soft tissue infections (SSTI), intrabdominal infections post trauma or surgery.



This overview is targeted at ICU physicians to convince them that the principles of infection control in the ICU are based on simple concepts and that the application of preventive strategies be viewed as basic measures which are easy to implement at the bedside.

Recent studies strongly confirm that these strategies may only be effective over prolonged periods if they can be integrated into the behavior of all staff members who are involved in patient care. Accordingly, infection control measures are to be viewed as a priority and have to be integrated fully into the continuous process of improvement of the quality of care.



The Hepatopulmonary Syndrome

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The hepatopulmonary syndrome (HPS) is a reasonably common complication of chronic liver disease that is defined by the presence of three clinical conditions:

1. Liver disease, most commonly chronic and characterized by accompanying portal hypertension
2. Widened alveolar-arterial oxygen gradient and/or low PO₂, and
3. Intra-pulmonary vascular dilatations (IPVDs), which are arterio-venous connections that allow mixed venous blood to pass directly to the pulmonary veins.

The hepatopulmonary syndrome may accompany a variety of liver diseases, most commonly cirrhosis with portal hypertension, though case reports document the occurrence of the HPS with portal hypertension accompanying *Schistosoma mansoni* infection and even short-lived liver disorders like hepatitis A and hypoxic hepatitis.

Clinical features of the HPS include dyspnea, hypoxemia (defined as a widened alveolar-arterial oxygen gradient), digital clubbing, spider angiomas, and orthodeoxia (i.e., desaturation on assuming the upright posture), possibly accompanied by platypnea (shortness of breath on assuming the upright posture). Prevalence estimates of the HPS in chronic liver disease vary across series, from ~4% to 47% in series of patients being evaluated for liver transplantation.

While the pathogenesis of the HPS is incompletely understood, substantial evidence implicates nitric oxide as a mediator of the pulmonary capillary dilatation that characterizes the HPS. Such capillary dilatation gives rise to a mechanism of hypoxemia that has been called “diffusion-perfusion” impairment, as erythrocytes traverse a dilated capillary bed at increased speed (because cardiac output is usually increased in chronic liver disease), thereby precluding full binding to oxygen that is diffusing from the alveolus. The hypoxemia of the HPS can be partially corrected by inhaling oxygen.

The diagnosis of the HPS requires evidence of hypoxemia and the demonstration of intrapulmonary vascular dilatations (IPVDs), which are characteristic of the dilatation of the pulmonary capillary bed that is the pathophysiologic basis of the HPS. Contrast-enhanced echocardiography is most sensitive in detecting the IPVDs, demonstrating intra-pulmonary shunt through the appearance of bubbles in the left heart chambers more than 3 systoles after injecting agitated saline intravenously. The sensitivity of the echo can be increased by performing the test with the patient upright or using a transesophageal route. Technetium macroaggregated albumin scanning is more specific for detecting the HPS by demonstrating uptake of Tc99m over the kidneys or brain, thereby indicating avoidance of trapping of the macroaggregated albumin by the pulmonary capillary bed. Plain films and chest CT imaging may show increased interstitial markings which are manifestations of the dilated pulmonary capillaries in so-

called Type I HPS. Type II HPS is less common and may be manifested by macroscopic arterio-venous malformations in the lung, which may – as in other diseases with pulmonary arterio-venous malformations like hereditary hemorrhagic telangiectasia – be amenable to embolization.

The natural history of the HPS is characterized by progressive hypoxemia. The presence of the HPS worsens prognosis compared with cirrhosis unaccompanied by the HPS.

Many medications have been studied for treatment of the HPS, largely with disappointing results. Nitric oxide inhibitors such as methylene blue can improve oxygenation during infusion, but methylene blue is clinically impractical as a treatment for the HPS because it requires continuous infusion. Some evidence supports the role of garlic (*allium sativum*), which contains a nitric oxide antagonist.

The definitive conventional treatment for the HPS is liver transplantation, which can reverse the clinical manifestations of the HPS. Responses may of course vary, with some authors reporting poorer outcomes post-liver transplantation in patients with pre-transplant PO₂ values < 50 mmHg and others refuting this observation. In general, diagnosis of the HPS is an indication for considering liver transplantation.

Decortication in Empyema: Indications, Timing and Role of Video Assisted Techniques

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Decortication of the lung is the process of peeling or stripping a constricting membrane from the pleural surfaces. Decortication departed from the classic approach of aspiration, open drainage and thoracoplasty for the treatment of chronic empyema and fibro thorax. Further refinements of the initial procedure included intercostal incision, wide exploration of the pleural cavity, full mobilization of the lung, removal of the fibrous peel (but not the visceral pleura), and suction drainage of the complicated pleural space. Advent of video assisted techniques and emergence of multidrug resistant species have greatly changed the concepts of scientific management of pleural space infections.

Pills and the Air Passages:

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Accidental aspiration of a medication in the airways in any form produces a variety of adverse effects, both local and systemic. Furthermore, specific reaction of the airways to each type of pill strongly affects the outcome. It is crucial for pulmonologists and emergency medicine specialists to acknowledge this clinical entity. In several instances the pill may completely dissolve in the endobronchial tree and the diagnosis can be missed if not suspected. In addition; airways have been increasingly used to deliver medications such as insulin and prostacycline. These aerosolized medications can also cause local as well as systemic side effects. We'll review the local and systemic reactions of these "pills" accessing the airways either by incidental aspiration or iatrogenic administration. We'll address clinical presentation, mechanism of injury, diagnosis, and management of complications of these pills in the air passages.

Mechanism of Airways Involvement With Medicines			
Aspiration		Systemic Effects	Iatrogenic Administration
Inflammation	Obstruction		
Potassium Chloride	Sucralfate	Clopidogrel	Pentamidine
Ferrous Sulphate	Capsule Endoscopy	Amiodarone	Insulin
Nortriptyline	Cocaine Bag	Rapamycin	Acetylcysteine
Metformin	Aspirin	Heroin	Epinephrine
Pomegranate Pill	Ciprofloxacin		ICS
Barium Sulphate	"Cold Remedy"		
Gastrografin			
Hytrast/Dianosil			
Lopydol/Dianosil			
BismuthSubgallate			
Cholestyramine			
Phenobarbital			
Mercury			
Mineral oil			
Kaolin-Pectin			
Tetracyclin			
PO4 BinderSevelamer			

Transporting a Critically Ill...

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Intra and Inter- hospital transport is common due to need for specialized diagnostics, treatment or care, yet has inherent risks. It needs adequate risk-benefit analysis and diligent planning to be effective and successful. It should be done by experienced, specialized retrieval team and vehicle well-equipped with dedicated, well-adapted equipment-support systems. The process should be well-orchestrated for given patient and scene by preparation, prediction-prevention, and management of expected or unexpected-untoward event with proper and timely communication with receiving-relevant facilities. Whole process should be well-documented for continuity of care, legal and quality improvement purposes. Aeromedical evacuation is getting popular for specific patient population, need special knowledge & experience of different working conditions with altered physics and physiological effects. For safe transportation practices, simulation training may be beneficial with focus on medical as well as technical problem and its resolution.

Practical Use of Supplemental Oxygen

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Supplemental oxygen is commonly prescribed, with great associated expense. This presentation will address four questions that regard the practical use of supplemental oxygen:

1. How commonly is supplemental oxygen used?
2. What are the conventional indications for prescribing supplemental oxygen?
3. What types of oxygen systems are available?
What are the advantages/disadvantages of available systems?
4. What are the unanswered clinical questions regarding supplemental oxygen?

In the United States, as early as 2004, supplemental oxygen was used by > 1 million CMS beneficiaries and currently accounts for > \$2 billion/year, with costs rising by approximately 12%/year.

Table 1 reviews the indications for supplemental oxygen according to the American Thoracic Society.

Table 1. Indications for Supplemental Oxygen Use According to the American Thoracic Society

Pa,O_2 mmHg	Sa,O_2 %	LTOT indication	Qualifying condition
≤ 55	≤ 88	Absolute	None
55–59	89	Relative with qualifier	“P” pulmonale, polycythemia $>55\%$ History of oedema
≥ 60	≥ 90	None except with qualifier	Exercise desaturation Sleep desaturation not corrected by CPAP Lung disease with severe dyspnea responding to O_2
<i>Pa,O_2: arterial oxygen tension; Sa,O_2: arterial oxygen saturation; Right heart failure; CPAP: continuous positive airways pressure; O_2: oxygen.</i>			

Two classic randomized trials - the MRC Trial (1981) and the National Institutes of Health Long-Term Oxygen Treatment Trial (1980) - provide the evidence base for these recommendations, based on findings that COPD patients with $PaO_2 < 60$ mmHg experienced some survival benefit in using supplemental oxygen at nighttime only and a greater survival benefit in using supplemental oxygen close to 24 hours daily.

Available delivery systems for supplemental oxygen include compressed gas, liquid oxygen, and oxygen concentrators (which extract oxygen from the atmosphere). Each system has advantages and disadvantages, with compressed gas cylinders being least expensive and available in a variety of tank sizes but bulky and capable of providing oxygen for limited durations. Liquid oxygen systems offer convenience when services are available but are expensive and feature evaporative loss. Oxygen concentrators are self-sufficient and free patients from dependence on delivery services but provide decreasing FIO_2 values at higher flow rates (e.g., FIO_2 is <0.90 at flows > 5 liters/minute and incur electricity costs for users (of approximately \$300/year in the United States). Various oxygen-conserving strategies are available, including reservoir cannula devices, transtracheal oxygen, and demand oxygen delivery systems. Two important reminders about demand oxygen systems are: 1. that the numeric settings on demand oxygen systems are not equivalent to the numeric liter flow settings on continuous flow systems, and 2. that various demand systems differ in their algorithms and ability to deliver oxygen. As such, when patients undergo oxygen titration to determine the patient's oxygen needs, the titration should be done with the patient's own device, especially if it is a demand oxygen system.

Despite current practice, many important questions regarding supplemental oxygen lack rigorous supportive evidence. These include the benefits of supplemental oxygen for COPD patients with only mid hypoxemia (e.g., SpO_2 89 - 93%), the benefits of supplemental oxygen for patients with exercise or nocturnal desaturation only, and the benefits of oxygen for patients with interstitial lung disease or other hypoxic disorders. Ongoing research (e.g., the NIH Long-Term Oxygen Treatment Trial [LOTT]) is addressing some of these issues.

How to Develop & Enhance Web Identity

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In an age when “Google” has become a verb, people are increasingly looking up information on the Web for themselves rather than asking someone for an opinion. This trend is going to increase as the amount of online digital information increases, more people have smartphones with voice recognition and natural language processing apps like Siri and Google Now, and we move towards wearable computers like Google Glass.

We have traditionally told our medical trainees not to use social networking sites like Facebook in case they post something inappropriate that can hurt them in the future. Unfortunately, if we stand by the sidelines, we lose our chance to control our own digital footprint. In this session we will look at advantages of controlling your own professional identity. We will review tools and steps for actively managing and monitoring your own digital persona.

The Aging Physician - Impact on Patient Care...

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All of us grow older, and the implications of advancing age are ever-evident to each of us. For physicians, in particular, the advantages and hindrances of advancing age have implications not only on how we practice but also have real impacts on patient outcomes. The Author – no spring chicken himself! – offers a review of contemporary data regarding what is known about the effects of aging on physician and surgeon performance, particularly in the context of knowledge, judgment and psychomotor performance. Based on comparative studies of other professionals dependent on maintenance of both visuospatial and cognitive skills the Author offers some thought about how to maximize the benefits, and minimize the deficits, which accompany advancing physician age.

Management Learnt Medically

Dr. Dhiren Joshi M.D.

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How Our Body and its Functions, Anatomy, Physiology, Biochemistry, Psychology etc teach us management!! We should think "Out Of Box".

Human Body and its functions teach us following principals of Management.

1. Aims and Objectives (Goal) of life.
2. Resources- Start With Small.
3. Structure and System
4. Leadership- It should be exemplary. Qualities of Leader like Visionary, Active, silent, Disciplined, Motivation and Incentives.
5. Team Work- Empowerment of each member of the Team, Co-Operation and Compassion.
6. Disaster or Crisis Management

Arrhythmias requiring intervention:

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Tachyarrhythmias that warrant treatment:

- ◆ Ventricular Tachycardia
- ◆ Pre-excited Tachycardias
- ◆ Supraventricular arrhythmias
- ◆ Arrhythmias worsening underlying cardiac disease
- ◆ Hemodynamically significant arrhythmias
- ◆ Rhythms that precede life-threatening arrhythmias.

Bradyarrhythmias that warrant treatment:

- ◆ Advanced degree AV block
- ◆ Symptomatic Sinus node disease
- ◆ Bradyarrhythmias due to dyselectrolytemia

Summary

- ◆ ECGs need to be interpreted and analyzed carefully
 - ◆ Clinico-electrocardiographic correlation is of paramount importance
 - ◆ Present and potential emergencies need to be identified and managed.
-
-
-
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Rational Medical Diagnosis and Therapy:-

Dr. Y.K.Oza

Investigating and drug prescriptions should be based on evidence based medicine to prevent unnecessary inconvenience, hazard and expense to the patient. Indiscreet use of tests and drugs should be avoided and should be relevant to the clinical suspicion.

What physician should know about radiation oncology:

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Approximately 12.7 million new cases of cancer per year being reported worldwide. A significant proportion of this burden is borne by developing countries. Cancer is a multigenic and multicellular disease that can arise from all cell types and organs with a multi-factorial etiology. The past decade has witnessed a considerable progress towards the treatment and understanding of the earlier proposed hallmarks of cancer and together with advances in early detection and in the various treatment modalities, many cancers have become curable. In recent years remarkable progress has been made towards the understanding of proposed hallmarks of cancer development and treatment. However with its increasing incidence, the clinical management of cancer continues to be a challenge for the 21st century. Treatment modalities comprise of radiation therapy, surgery, chemotherapy. In the era of combined modalities upto certain extent we are able to achieved our goal of cure with organ and function preservation.

Radiation therapy remains an important component of cancer treatment with approximately >70% of all cancer patients receiving radiation therapy during their course of illness; it contributes towards >50% of curative treatment for cancer. Misconcept in our society and late presentation at diagnosis make oncologist job difficult one.

The main goal of radiation therapy is to eradicate cancer cells of their multiplication (cell division) potential.

The delivery of radiotherapy has changed significantly over the last few decades. We have moved from conventional radiotherapy using simple rectangular (fig 1) treatment fields to increasingly conformal radiotherapy techniques such as three dimensional conformal radiotherapy (3D-CRT) (fig 2) and intensity modulated radiotherapy (IMRT) (fig 3). IMRT is an advanced approach to three-dimensional treatment planning and conformal therapy. It optimizes the delivery of irradiation to irregularly-shaped volumes and has the ability to produce concavities in radiation

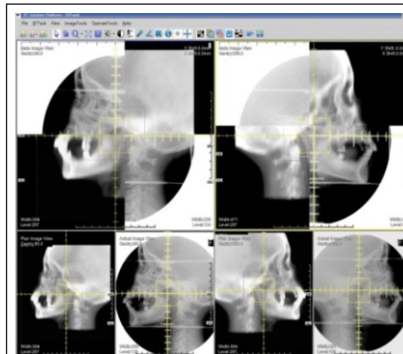


Figure-1

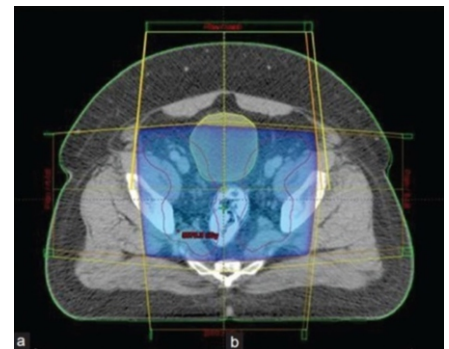


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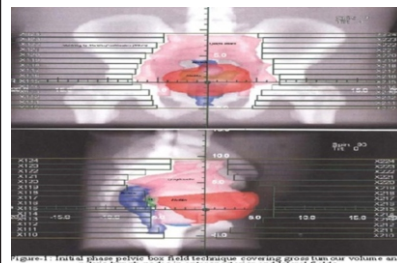


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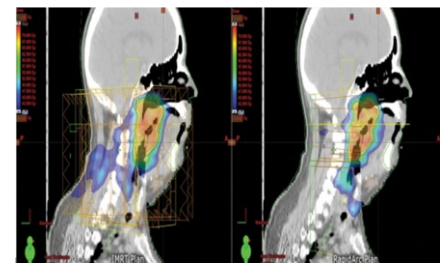


Figure-4

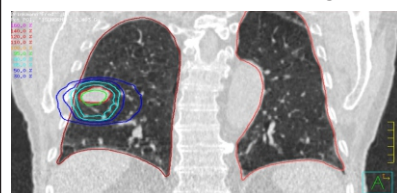


Figure-5

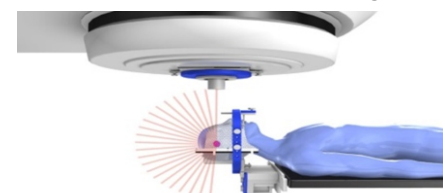


Figure-6

treatment volumes. IMRT can be delivered using linear accelerators with static multi-leaf collimators (MLC, step and shoot IMRT) or dynamic leaf MLCs, tomotherapy machines or volumetric arc modulated therapy (VMAT). With success of IMRT (fig 4), some limitation is seen when you are reducing margin around tumor, so next generation linear accelerator comes with Image Guided Radiotherapy (IGRT) (fig 5) and recently one more weapon added in field of radiation oncology and going to make treatment more effective and fast, Stereotactic Radio Surgery (fig 6), from conventional 6–7 weeks of radiation can be delivered in only one day or in 4-7 fraction. Stereotactic radiotherapy enables the delivery of exquisitely conformed radiation in large fraction sizes, which also enables improved tumour control while limiting the normal tissue toxicity. Due to the exquisite dose sculpting, robust image-guided technologies (gating or chasing) have to be coupled with the radiation delivery systems. Stereotactic radiotherapy can be delivered using linear accelerator systems or Cyberknife®(Accuray Inc, CA, USA). This technique is currently widely used for treating intra-cranial lesions, . There is increasing evidence supporting its use for the radical treatment of stage I lung cancer, renal cell carcinoma, hepato-cellular carcinoma, spinal tumours and prostate carcinoma (as a primary treatment or a post-treatment boost). It can also be used for treatment of lung and hepatic metastases).

In conclusion we will like to mention that radiation play major role in all solid tumor management (curative, adjuvant or palliative). Evolution in field of radiation oncology make delivery of therapeutic doses feasible with minimum side effects, mutli-modality or tri-modality (radiation, chemo and surgery) make organ preservation and cure even in locally advanced stages.

Department of Radiation Oncology At CIMS:

The Latest Generation of Linear Accelerator from Elekta company “Versa HD” is installed at CIMS CANCER CENTER.

Answer for all solid tumors, with precision (spare maximum normal tissue and deliver maximum dose to target), speed (shortest treatment time, due to VMAT, FFF and most important high speed MLC) and higher doses to achieve maximum therapeutic gain. It is the Latest Linear Accelerator with 6 D couch movement for upmost precision.



The Spectrum of Meningitis- Case Based Discussion

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The syndrome of meningitis ranges from acute to sub acute to chronic; and may be caused by a wide variety of infectious agents including bacteria, viruses, fungi, protozoa and helminths. Meningitis may be community acquired or health care associated. Key goals of early management are to emergently identify the syndrome, identify the responsible pathogen, and initiate appropriate antimicrobial therapy.

Bacterial meningitis- The management algorithm for suspected community acquired bacterial meningitis includes immediate collection of blood samples and lumbar puncture to determine whether CSF formula is consistent with the clinical diagnosis. Patients with immunocompromised state, history of CNS lesion, new onset seizure, papilledema, abnormal level of consciousness and focal neurological deficit should undergo a CT scan of the head prior to lumbar puncture. In such patients and in whom lumbar puncture is delayed, appropriate antimicrobial and adjunctive therapy should be started immediately after collecting blood samples for culture, prior to lumbar puncture or before the patient is sent for CT scan. The choice of empirical antimicrobial therapy depends on the patient's age and various conditions that may have predisposed the patient to meningitis. Results of CSF culture are important and guide the change in the empirical antibiotics.

Tuberculous meningitis – CNS tuberculosis occurs in approximately 1% of all patients with active tuberculosis. The features which usually distinguish tuberculous meningitis from bacterial meningitis are longer duration of history, degree of CSF pleocytosis, lymphocytic predominance in CSF. A score called THWAITE'S SCORE differentiates tuberculous and bacterial meningitis with a sensitivity of 90-99% and specificity of 79-82%. Similarly, a score which helps to differentiate tuberculous from viral meningitis has a sensitivity and specificity of 92 and 94% respectively. TB culture is very crucial as it is the gold standard diagnostic modality. Moreover, drug susceptibility testing is a must in drug-resistant cases. Molecular tests like GenXpert, LPA Hain, TB PCR help in fast diagnosis. Their role in the diagnosis in culture negative cases cannot be over emphasized. The duration of treatment with the first line drugs should be minimum 12 months, and all patients of TBM should be started on adjunctive corticosteroids regardless of disease severity at the time of presentation.

Cryptococcal meningitis- Presentation is usually sub acute to chronic. Immunocompromised states like HIV and some primary immunodeficiency states predispose to cryptococcal meningitis. WBC count in

Post-neurosurgical meningitis- Post-neurosurgical meningitis comprises 0.4% of all nosocomial infections and may result from invasive procedures of the central nervous system (eg. craniotomy, spinal surgeries, placement of internal and external ventricular catheters for shunting or drainage and lumbar puncture). The principles of management for post-neurosurgical meningitis are similar to those for the treatment of community-acquired meningitis; however, surgical management including removal of the infected foreign implants is vital for the successful outcome of patients with post-neurosurgical meningitis. There is a role for local instillation of antibiotics (intraventricular/ intrathecal) in the treatment of patients with post-neurosurgical meningitis, especially in shunt/EVD related infections difficult to eradicate, where removal of foreign bodies/implants is not possible and where the choice of intravenous antibiotics is limited because of multidrug resistant organisms.

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Role of Interventional Radiology-What All Physicians Should Know

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Interventional Radiology has been a revolution in the past 30 years with a strategic position in medicine and surgery for Minimally Invasive Image Guided Therapies. Since the pioneers of Interventional Radiology in the 60's there have been tremendous leaps in medical devices to navigate through arteries and veins, visceral ducts, like ureters and bile ducts, bowel and also various cavities like the chest, abdomen and pelvis. The spectrum of Percutaneous Image Guided Procedures has widened tremendously and currently Interventional Radiology is involved in Emergency, Acute and Hyper acute Patient Care and also elective and chronic patient care.

Today various emergencies get managed with percutaneous catheter directed techniques like Acute Ischemic Stroke, Trauma Bleeding, Pulmonary Embolism, Massive GI bleeding, portal hypertension, chest tube placements, post partum bleeding. In acute care setting, Interventional Radiology plays a significant role in central venous access, hemodialysis catheter placement, and abscess drainage percutaneous from the abdomen and empyema in the chest. Management of Peripheral Arterial Occlusions (PAO), Deep Vein Thrombosis, Acute Mesenteric and Renal Ischemia, management of portal hypertension with variceal bleeding. It plays a significant role in management of vertebral compressions fractures with kyphoplasty, vertebroplasty, sacroplasty and also for various targeted spine injections with fluoroscopy and CT scan guidance. The role of obstetric and gynecologic applications of Interventional Radiologic Procedures has also widened significantly. They are used in acute setting, treatment of fibroid embolization, arteriovenous malformations, pelvic congestion syndrome.

Interventional Radiology plays a big role in Oncology applications not only from a diagnostic standpoint using Core biopsies and Fine Needle Aspirations, but also treatment of liver metastases with targeted ablations using radiofrequency and cryoablation, liver directed angiographic embolization with DEB-TACE, (drug eluting beads), radioembolization with Yttrium -90, ganglion blocks for pain palliation, ports and tunneled lines for chemotherapy, feeding gastrojejunostomy tubes for enteral nutritional management. Interventional Radiology is a full service clinical consulting speciality with Clinic hours, procedures, rounding on patients and many other facets of Clinical Patient Care. These minimally invasive image guided specialists provide a 24/7/365 coverage to hospitals.

With the rapid technological advances in medical devices, Digital Subtraction angiography equipment, CT with fluoroscopy, Ultrasound, Fluoroscopy and MRI guidance, Interventional Radiology has become a new normal for Image guided minimally invasive procedures.

This is the 50th anniversary of Charles Dotter's Angioplasty!

Upper GI Bleed: Causes and Management

Dr. Bhavesh Thakkar

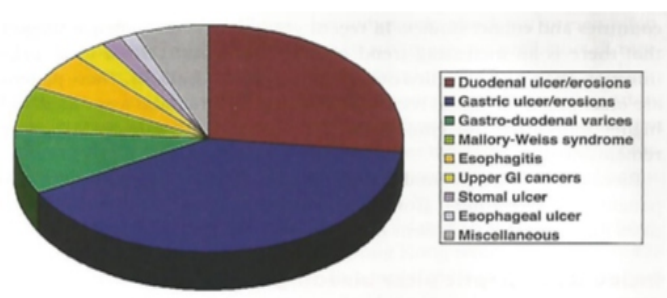
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Upper GI bleed (UGIB) represents substantial clinical and economic burden, with reported incidence ranging from 48-160 cases per 1,00,000 adults per year. UGIB is bleeding above the ligament of the Tietz. UGIB commonly presents as hematemesis and/or melena. In cases of severe UGIB, hematochezia can be present.

From management point of view UGIB can be divided into variceal and non-variceal upper GI bleed (Fig.1: causes of UGIB). Variceal bleeds (constitutes 15-20% of UGIB) due to portal hypertension can be from esophageal, gastric fundal or ectopic variceal bleed. Causes of non variceal bleed includes peptic ulcer disease (about 50% of UGIB), Mallory-Weiss tear, Portal hypertensive gastropathy, Arterio-venous malformations, Dieulafoy's lesions, Esophageal or Gastric malignancy, Gastric Antral vascular ectasia(GAVE), Aorto-duodenal fistula, Duodenitis, Gastritis and Erosions, etc.



Management of UGIB depends of acuteness of presentation and rapidity and severity of blood loss. Initial hemodynaemic assessment and clinical judgment plays important role. ABC of resuscitation has to be maintained. Endoscopy plays important role in acute bleeding condition and has to be performed within 12 hours of presentation, preferably within 6 hours of hospital admission. Management can be guided various scoring systems like: Rockall score, Glasgow-Blatchford scoring system.

A. For Variceal Bleed:

Pharmacotherapy: Terlipressin, Somatostatin, recombinant Factor VIIa.

Endotherapy: Variceal band ligation, Sclerotherapy, Glue injection.

Balloon Tamponade: Sengstaken-Blakemore Tube.

TIPS: Transjugular Intrahepatic Porto-systemic Shunt.

Surgery: Gastric Devascularization.

B. For Non-Variceal UGIB:

Pharmacotherapy: Injectable PPI, Somatostatin, Octreotide

Endoscopic Injection Therapy.

Endoscopic Thermal Therapy and Mechanic Techniques.

Non-operative Management of Abdominal Trauma

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Introduction: The number of nontherapeutic laparotomies for abdominal trauma has reduced significantly over last 2-3 decades with the advent of technological advances in imaging modalities. Today a large number of patients with solid organ injury are managed by non-operative methods. **Indication for NOM:** Blunt or penetrating trauma to solid abdominal organs with hemodynamic stability is the main deciding factor. **Investigations:** Ultrasonography and CT scan of abdomen with oral and I/V contrast is essential besides monitoring investigations.

Management: Close hemodynamic monitoring of patient in intensive care unit with readiness to operate if needed is the core of NOM. Interventional radiological procedures are useful adjuncts to NOM. Angio-embolisation, endoluminal stenting, percutaneous drainage of intra-abdominal collection are some of the procedures that may be necessary in some patients. If more than one body region is involved, it is possible to apply NOM for abdominal injury and perform surgical intervention for the other regional injury. Majority of liver injuries, splenic trauma and renal injuries are now being managed by non-operative management. NOM has been shown to be associated with reduction in mortality in patients with massive liver trauma. **Contraindications for NOM:** Increased need for blood transfusion, hemodynamic instability, persistence or development of signs of peritoneal irritation and suspected hollow viscus injury are contraindications for NOM.

Point-Counterpoint: Nonoperative/Operative Management of Blunt Pancreatic Injury

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Pancreatic injuries are the 10th most common injury in Level 1 centre and constitute 2 – 10% of major trauma. 20-30% of these are due to penetrating trauma. This injury may be seen as an isolated injury in a child. 1.6% of blunt pancreatic trauma are associated with MPD rupture. 7- 10% of trauma laparotomy is for pancreatic injuries. Pancreatic trauma results in a mortality of 2-23% & morbidity of 30-49%. 33% of patients present with shock.

Pancreatic injuries can be identified by Grading system, FAST, CT, MRCP, ERCP, S.Amylase, or exploratory laparotomy. The management of stable pancreatic involves expectant NOM when there is no evidence of ductal injury. Such cases need serial physical & lab investigations. Continued raise in S. amylase/change in physical examination need CT/ ERCP & Endoscopic stenting in stable patients. Peritonitis, hypotension, evidence of PD disruption are indications for surgery.

Surgical decision depends on severity, associated injuries, condition of patient. Less is better. Most injuries can be managed by observation/closed suction drainage. Grade III injuries need distal pancreatectomy, Grade IV, V need- resection, diversion, pyloric exclusion. Extensive injury to pancreato duodenal complex with biliary involvement may need Whipples procedure. Abbreviated laparotomy in critically ill will be needed.

Management of Life Threatening Thoracic Injuries

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Thoracic trauma is the second leading cause of death due to trauma after head injuries, accounting for almost one fourth of trauma deaths. Majority of thoracic trauma patients reach emergency department and are one of the most important group of salvageable patients. These patients suffer from difficulty in ventilation, which is affected by inadequate oxygen exchange due to parenchymal lung injury, changes in intrathoracic pressure, pump failure due to myocardial injury and splinting of chest wall due to pain. There may be a further problem of hypovolemic shock due to blood loss. It is thus important to identify and treat early.



Immediate life threatening chest injuries are – airway obstruction, massive hemothorax, tension pneumothorax, open pneumothorax, pericardial tamponade and flail chest with lung contusion.

Airway obstruction can be easily managed with endotracheal intubation or surgical cricothyroidotomy or tracheostomy. Massive hemothorax, open pneumothorax and tension pneumothorax are managed with chest tube insertion and replacement of blood loss. Only 15% of these cases require thoracotomy. Pericardial tamponade is detectable by Focused Abdominal Sonography in Trauma (FAST) and can be managed by pericardiocentesis initially followed by thoracotomy. Flail chest and lung contusions by themselves are not immediately life threatening but pose a serious threat to life due to underlying hemothorax / pneumothorax. These are managed conservatively with good analgesia, adequate pulmonary toileting and oxygen supplementation.

Missed Injuries in Polytrauma

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An injury undiagnosed in the ED, but recognized or unrecognized in subsequent admissions, is customarily termed a missed injury or delayed diagnosis. Missed injuries leads to loss of Life, disability: Loss of limb, vision, hearing, prolonged hospital stay & costs and medicolegal issues.

These can be prevented by thorough clinical and radiological exams, good tertiary exam. Studies find that there are lack of x-rays specific to the area, misinterpreted x-rays, clinical inexperience, assessment errors, neighboring injuries (contributing factors). Various suggestions to reduce missed injuries include full time surgeons for trauma service because of the following factors, lower rate of missed major injuries, experience, age, training, background, trauma team, error reduction, complete thorough timely examination, higher index of suspicion and training and education.

Missed injuries significantly affect modern trauma services and should be minimized especially in cases of polytrauma ,mass casualties, blast injuries. Spectacular injuries cause less apparent injuries to go undetected. Standardization of tertiary survey is vital. Dedicated Trauma Surgeon and role of Trauma units and teams cannot be more emphasized. Training and education should go hand in hand.

Video Presentation of Trauma Resuscitation, Intercostal Chest Tube Drainage, Cricothyroidotomy and Tracheostomy

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This presentation discusses the basic procedures required to correct the ABC of trauma victims during primary survey. Trauma resuscitation, although being practiced from long still remains debatable. With new insights into the physiology of an acutely hypovolemic patient, wide variety of intra-venous fluids available and different practices among different geographical areas and trauma settings makes this an issue of great interest and conjecture. This discussion aims to blur these controversies so that we have one safe and evidence based way of resuscitating a trauma victim. The concept of 'hypovolemic resuscitation' is also discussed.

Intercostal tube drainage remains one of the most frequently performed, emergent and life saving interventions for dealing with traumatic pneumothorax and hemothorax. Although easy to perform, the procedure is not without complications. The tips and tricks of performing intercoastal tube drainage safely and quickly that is universal for all trauma patients will be discussed. Airway obstruction kills a trauma patient much faster than any other injury. It may not always be possible to secure the airway by endotracheal intubation. Multiple futile attempts in intubating a patient with airway compromise make him vulnerable for further hypoxia and death. In such situations establishing a surgical airway remains the only effective and safe option. Cricothyroidotomy is the procedure of choice as time is limited. The procedure can later be converted to tracheostomy for prolonged ventilation. There is hesitancy from the non-surgeon acute care givers in establishing early surgical airway, primarily because of less exposure in surgical techniques and consideration of neck as a risky area. The present discussion attempts to describe the surgical steps of cricothyroidotomy and tracheostomy in a simple way with an aim to allay this anxiety and build confidence among all acute care givers to perform these procedures quickly and safely.

Interesting Trauma Case Discussion

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I. Case No 1

Case of Injury due to Iron Road Penetration over Left Side of Neck with Massive Hemorrhage

Case Presentation:

A 9 year old child fell down while playing, and had penetrating injury due to iron rod over left side of neck, had massive hemorrhage from wound. He was taken to local hospital where they tried to control the bleeding by applying multiple hemostatic forceps but could not do successfully and with prior intimation was shifted to CIMS accompanied with anaesthetic and surgeon. Our trauma team was ready for further treatment.

Diagnosis and management:

During transfer he had cardiac arrest before 10 minutes of arrival and was given CPR. On presentation, he was unconscious, GCS-E1M4VT, pupil dilate + 4mm and NRL(non reacting to light) as CPR was given. After CPR, P=160/min SBP: 60 mm Hg, on ionotropic support of dopamine and noradrenaline. Central and arterial line were inserted and normal sinus rhythm regained, with ventilator support. X-ray of chest was suggestive of no hemothorax or pneumothorax. The child was operated immediately. Left common carotid artery and left intra jugular vein were dissected; avulsion of left superior thyroid artery at its origin, transaction of left facial artery rent in left internal jugular vein was repaired primarily. Patient was given multiple blood component (12 products), IV fluids, Inj.vit.K, Inj. Tranexemic acid and other supportive care. He was kept on ventilator support. Ionotropic support was tapered and stopped. Blood parameters came to normal levels. He regained consciousness after 14 hours and was extubated. Patient was not having any neurological deficit inspite of long CPR in ambulance and in ER of CIMS trauma centre along with torrential external bleeding. He was mobilized independently. Post operative colour doppler suggested normal flow in LCCA, LECA, LICA and left IJV.



Fig. 1: Multiple Hemostatis
Forceps applied to
Control Bleeding

Fig.2 Recovery
after Procedure

Outcome:

Patient came with poor haemodynamics and in cardiac arrest with extuberent external bleeding. An effective CPR along with aggressive resuscitation and invasive monitoring was done in ER. Timely

intimation before transferring such patient allowed us to activate whole trauma team, ER department, operation theatre staff and blood bank. This event was managed successfully because of team work and the bold decision to go ahead by trauma surgeon inspite of very poor prognosis. Discharge medications included antibiotics, antacids and analgesics.

I. Case No 2

Case Presentation:

A 40 years old male patient, normotensive, non-diabetic brought to CIMS hospital with alleged history of RTA, at Bagodara, his vehicle stucked with truck. Patient came with poly trauma inform of injury to chest, abdomen, left upper and both lower limbs.

Diagnosis and Management:

On presentation patient was conscious but drowsy, having complaints of severe breathlessness, pain in right upper limb and right lower limb. Vitals were; pulse: 120/min, blood pressure: 110/70 mmHg, respiratory rate: 38/min, SPO2: 80 % with 6 litres/min O2. After resuscitation patient was intubated and put on ventilator support. X-ray of chest after intubation was suggestive of left hemothorax with query elevated diaphragm, fracture of the right 1st rib with wide and bifid anterior end of right 4rth rib. X-ray of right tibia-fibula showed comminuted displaced fracture of lower 1/3rd shaft of tibia and fibula. Plain skiagram of the left elbow revealed comminuted fracture of lower end of humerus involving lower shaft of humerus. X-ray of hip showed fracture of neck of femur on left side. In ER, ICD placement was planned, so incision made but while dissecting with finger, blood and food particles came out of that incision and hence ICD was not placed. He was resuscitated aggressively and then was shifted for pan-scan CT brain with cervical spine, chest, abdomen with IV contrast. Multislice CT-thorax and abdomen showed eventration of left dome of diaphragm with herniation of part of stomach, descending colon, splenic flexure and part of retroperitoneal fat along with spleen. Bilateral moderate pleural effusion with collapsed lower lobe and pneumothorax was also noted. Large diaphragmatic tear on left side. Patient was immediately taken for exploratory laprotomy. Intra-operatively, about 2 litres of hemorrhagic fluid drained from left hemithorax mixed with food particles and all abdominal contents were reduced into abdominal cavity. There was 'V' shaped laceration at fundus near oesophagol-gastric junction with active bleeding and it was repaired in two layers. Seromuscular tear in mid transverse colon was repaired. Greater omentum was excised and food particles were drained. Large laceration on left hemidiaphragm from lateral wall to crux of diaphragm was repaired primarily in 2 layers after adequate washing was done along with feeding jejunostomy and bilateral intercostal drainage. Suturing of multiple facial and scalp laceration was done. Post operatively patient was kept on ventilator VCV- AC mode. Jejunostomy feeding started after 48 hours. Treatment with antibiotics, antipyretics, sedatives and inotropics was started. On 3rd day post-operative, patient had severe SIRS inform of sudden tachycardia, hypotension and high grade fever, demand for inotropics was increased, added higher antibiotic, antifungal and hydrocortisone injection was started. Injection albumin was started in concern to low serum albumin level. In next 48 hours, patient got stabilized with ventilatory support and inotropics were tapered down. Tracheostomy was done. On 5th day, inotropics were stopped. on 6th

day, patient was operated for DHS and CCS for fractured neck of femur of left side, interlocking tibia nailing of right side, left side SC fracture of humerus - closed reduction and K wire fixation by orthopedic team. Post-operatively patient was continued on ventilatory support - VCV - AC mode. Swab culture specimen was suggestive of *Candida non-albicans* and tracheostomy culture specimen was suggestive of *Klebsiella pneumonia*. Antibiotics and antifungal drugs were continued accordingly. On 8th day, ventilator weaning off trial started. On 11th day, patient was tolerating fully on T' piece and bilateral ICD removed one by one. Tracheostomy was closed after 10 days and patient was shifted to ward in hemodynamically stable condition. On 17th day, upper GI dye study was done, suggestive of no evidence of leak of contrast from stomach, smooth passage of contrast is seen in o duodenum and in jejunal loops. No evidence of any collection of contrast in peritoneal cavity. Hence, he was started orally and tolerating diet. Rehabilitation started for limb fractures.



Figure - 1: X-Ray of Chest



Figure - 2: CT Scan of Chest
Abdomen



Figure - 3: Intra operative picture
suggestive of diaphragmatic laceration

Outcome:

Patient gradually improved. Patient was discharged in haemodynamically stable condition, taking normal diet, in afebrile condition.

Pelvic Injuries- Surgical Perspective

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Pelvic Injuries can involve injury to the Bones (Pelvic ring), Soft tissues (including Urethra and Rectum) and Intrapelvic Organs. Apart from these, injury to intra-abdominal organs can occur. Head Injuries are commonly associated. Though Pelvic fractures form only 3% of Skeletal injuries, they have a mortality of 5- 16%, the major causes being Head injuries, bleeding and Multiorgan failure.

Motor Vehicle crashes are the major cause. Fractures can be classified depending on Stability(Tiles) or Force (Young and Burgess). Bleeding is a major concern in Pelvic injuries. Treatment involves Resuscitation and stabilization of patient, Stabilization of the Pelvis to control bleeding(Binder/ Exfix), ruling out and managing other injuries (Bladder/ Urethra/ Rectum and Intra Abdominal Organs). Whatever the injuries, ABCD should never be forgotten even in Pelvic injuries.

Xray Pelvis AP view can show 90% of fractures; FAST for intrabdominal bleeding and CT scan are useful to evaluate the injuries. CT shows not only the fracture, but also volume of blood loss and site of bleed in arterial bleeds.

If initial measures fail to control bleeding, Angiography and Embolization for Arterial Bleeds and Preperitoneal Pelvic packing for Venous bleeds are indicated. Angiography is time consuming and must be used cautiously in the hemodynamically unstable patients. Laparotomy to control bleeding is used when Internal Iliac artery ligation is contemplated.

Injuries to Urethra must be recognized clinically, confirmed by Urethrogram and SPC done. Immediate repair is not advocated. Perineal and Rectal injuries may warrant Colostomy. A systematic approach has led to a decline in mortality.

Stabilization and Transport of A Sick Kid

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Assessment and management of paediatric critical illness needs special expertise so sick kids should be timely transported to a hospital where paediatric critical care expertise is available. The transport should be done by dedicated paediatric intensive care unit transport services for better outcomes. Ideally children should be stabilized before transport as mild physiological disturbances are likely to become severe and life threatening during transport. Communication between the referring physician and the receiving paediatric critical care team is an essential component of transport. Safe transport is an important issue, particularly in developing countries where the transport process may be less than optimal due to personnel and resource limitation.

Chronic Diarrhea! From Usual to Unusual Suspects., as Tummy Matters

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Chronic diarrhea is a major global health problem. Almost 5 million children die every year globally from chronic, recurrent infantile diarrhea with malnutrition. Apart from infection and malnutrition, there are many causes of chronic diarrhea which could be divided into 4 categories: 1) Osmotic diarrhea, 2) Secretory diarrhea, 3) Inflammation causing diarrhea, and 4) Dysmotility syndromes causing diarrhea. Causes of and morbidity and mortality associated with chronic diarrhea varies according to age. In infants, intractable diarrhea is usually result of post infectious enteropathy & malnutrition. Other causes in this age group are congenital small bowel epithelial structural or functional defects, food sensitivities, autoimmune disorder and short bowel syndrome. Congenital pancreatic disorders account for a small percentage of cases. In toddlers, chronic non-specific diarrhea ("toddler's diarrhea") predominates but Celiac disease and intestinal pseudo-obstruction emerge as significant pathologic causes. In older children, Celiac disease and inflammatory bowel diseases (Crohn's disease, ulcerative colitis) are the main causes of chronic diarrhea apart from irritable bowel syndrome. We are just starting to understand the role of fecal/intestinal microbes in diseases causing diarrhea.

In recent years, significant advances have been made in the methods to diagnose various intestinal and pancreatic disorders causing chronic diarrhea. Technological advances like capsule endoscopy & balloon enteroscopy have made evaluation/visualization of small bowel mucosa feasible. Genetic testing, particularly for pancreatic disorders, has now become affordable for clinical practice. Newer

serological tests are also of tremendous help in management of Celiac disease and inflammatory bowel disease.

Apart from greater understanding of causes and technological advances in diagnoses of chronic diarrhea, advances in the management of these disorders have revolutionized the clinical practice. Nutritional management remains the main stay of treatment in infantile diarrhea, food allergies and Celiac disease while biologics have opened a new page in management of inflammatory bowel disease. Fecal microbiota transplant has emerged as one of the most fascinating and challenging mode of treatment in chronic diarrhea. Small bowel transplant has not been as successful as one would have hoped for, but it may be the only option for short bowel syndrome patients with liver failure.

Handling Chronic Lung Disease Tactfully

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Chronic lung disease or bronchopulmonary dysplasia is described as a syndrome of lung injury in preterm infants receiving mechanical ventilation and high amounts of supplemental oxygen. There are 2 types of bronchopulmonary dysplasias described. The “classical” BPD characterized by significant airway injury alternating with emphysema and the “new” BPD characterized by arrest in lung development. BPD may be mild, moderate or severe. However, definitions of BPD may vary, although currently diagnosis of BPD is often made based on oxygen requirement at 36 weeks.

Management of chronic lung disease includes measures to prevent or minimize lung disease include treatment of chorioamnionitis, resuscitative efforts that minimize lung injury, use of surfactant, gentle ventilation, and judicious corticosteroid use. In addition to focus on pulmonary management, focus on adequate nutrition and on neurodevelopmental issues is critical in these infants. Infants with chronic lung disease often have other co-morbidities that also need attention. Post-discharge, these infants will often continue to require specialized care with focus on airway support, avoidance of infectious and irritant exposures, optimized pharmacologic, nutrition and developmental care.

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Law and Ethics: Are they on our side?

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Optimized patient care incorporates the fundamental principles of ethics and law, in addition to the clinical knowledge and skills of the medical practitioner. The key concept of patient autonomy dictates that patients be well informed partners in their care. To achieve this goal, informed consent is essential not only to meet legal requirement but to satisfy ethical standards. At the practical level, a well-informed patient will be empowered in participating more fully in the care.

In the area of medical malpractice litigation, the plaintiff had to meet certain proof requirements. In addition to proving duty of care on the part of the provider, demonstrate injury and damages, and establish causation. Additionally, in this context there has to be proof of breach of the “standard of care”.

The legal and ethical standards also apply to the type and adequacy of informed consent obtained. Besides who may provide or withhold consent, the quality of the information shared with the patient is important. Absent adequate consent or an emergency situation where there may be specific mitigating circumstances, any contact absent consent can be construed as an assault.

Risk management is the institutional effort to minimize risk of patient injury and malpractice litigation by establish policies and practices that diminish the likelihood of these events. In a coherent, well established system guidance by legal and ethical principles serves to optimize patient care and satisfaction and enable the providers to establish morally and ethically sound practices.

Coronary Pseudoaneurysm :- A Rare Complication of PTCA and How to Manage it

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Coronary artery pseudoaneurysms are relatively uncommon but life threatening complications of coronary interventions. Coronary artery pseudoaneurysms are commonly caused by iatrogenic problems. Inappropriate patient selection or aggressive intervention may predispose patient for such complications. These patients must be managed carefully to prevent further complications of coronary pseudoaneurysms. We describe a case report of a middle aged male who developed chest pain in early post PTCA period and found to have Lt. anterior descending artery pseudoaneurysm after PTCA.

Adrenomyeloneuropathy(AMN) Plus Syndrome: Usual Presentation of an Unusual Entity

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A 26 years old unmarried male, born out of a nonconsanguineous marriage with normal birth and developmental history presented with insidious onset gradually progressive symptoms consisting of progressive cognitive impairment, dysarthria, hemifacial spasm, spastic ataxic gait and unexplained episodic seizures (even on antiepileptics). Detailed work up for recurrent seizures done before coming to us revealed only dyselectrolytemia without any structural brain abnormality. Limited investigations done for dyselectrolytemia were suggestive of possibility of Addison's disease in view of raised ACTH low serum Cortisol level. General examination revealed dark muco-cutaneous pigmentation and a significant postural hypotension. On neurological examination, he had severe cognitive and frontal subcortical executive dysfunction with hypertonia and hyper reflexia in both lower limbs, with normal tone and hyporeflexia in both lower limbs. He also had bilateral gaze evoked nystagmus, spastic ataxic gait, hemifacial spasm, lack of body-brain co-ordination, hyperactivity and attention deficit. Routine blood investigations revealed normal renal and liver function and normal blood glucose level. Neuro-psychiatric manifestations on the background possibility of Addison's disease prompted us to go for MRI Brain and VLCFA level keeping the possibility of adrenoleukodystrophy in mind. MRI brain was suggestive of altered signal intensity lesions in parietal white matter with NCV study showing sensory motor polyneuropathy involving lower limb more than upper limb which is likely to be due to a metabolic cause rather than an acquired etiology in current medical scenario. VLCFA analysis was performed by capillary gas chromatography on mass spectrometry and diagnosis of Adrenomyeloneuropathy was established by elevated VLCFA C26:0 and elevated ratio of C24/22 and C26/22.

AMN is a peroxisomal disorder. Peroxisomes are intracellular organelles responsible for β -oxidation of very long chain fatty acids {VLCFA} – hexacosanoic acid{C26:0}, pentacosanoic acid{C25:0} and tetracosanoic acid{C24:0}. These acids get deposited in tissues such as adrenal, gonads, central or peripheral myelin and are responsible for the clinical features. Adreno myeloneuropathy is phenotypic variant of male Adrenoleukodystrophy consisting of progressive neuropathy and paraparesis.

Rare case of Bleomycin induced Pulmonary toxicity: reversal with high dose corticosteroids

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Introduction : Bleomycin is an effective chemotherapeutic agent in the treatment of many different neoplasms, including testicular carcinoma and Hodgkin's disease. Its major toxic effect is pneumonitis with subsequent progression to fibrosis. Management of bleomycin lung toxicity is frequently difficult and there are case reports with good response to steroids.

Case report : A twenty year old male diagnosed case of stage III Hodgkin's lymphoma treated with combination chemotherapy ABVD.(adriamycin, bleomycin, vincristine and dacarbazine). After sixth cycle patient developed dyspnoea on exertion, dry cough and CT thorax was suggestive of drug induced interstitial pneumonitis. He recovered successfully after treatment with high doses of corticosteroids.

Conclusion : This report suggests that bleomycin lung toxicity may be reversible if treated aggressively and all patients with bleomycin lung toxicity should receive a trial of corticosteroids.

The dose used should depend on the severity of the pneumonitis.

A Case of Posterior Reversible Encephalopathy Syndrome at Term Pregnancy with Eclampsia

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Introduction : Posterior reversible encephalopathy syndrome is a clinico-radiological entity characterized by variable associations of seizure activity, consciousness impairment, headaches, visual abnormalities, nausea/vomiting, and focal neurological signs. Recognition of PRES has evolved with increasing availability of MRI. PRES can develop in association with a vast array of conditions and typically reversible once the cause is removed. Patients with severe manifestations such as coma or status epilepticus, may require admission to the ICU. Moreover, permanent neurological impairment or death occurs in a minority of patients. The objective of this case report is to provide clinicians with guidance for diagnosing and treating patients with PRES.

Case Report : 25yr old primi presented with complaints of generalised tonic clonic seizures following acute onset of headache. On arrival patient was unconscious, responding to pain stimulus, pedal oedema and blood pressure of 170/100mm of Hg with right sided hemiparesis. On auscultation bilateral basal creps present. Patient was intubated and shifted to ICU for mechanical ventilatory support. Initial investigations revealed Hb-10, platelets-3.2 lakhs, serum creatinine-1.7. serum electrolytes 133/4.6 LFT and coagulation profile within normal limits except for elevated D-dimer(>10000) and urine analysis with albumin of 4+. Pregnancy was terminated and baby shifted to NICU. She was managed in ICU with magnesium sulphate therapy, labetalol, furosemide and mannitol along with CVP monitoring. Fundus revealed bilateral papilloedema. MRI of Brain- suggestive of PRES and small lacunar haemorrhagic infarct in left posterior parietal region. She responded to the treatment and weaned of ventilator over a period of week, maintained on air saturation of 100% with significant neurological recovery and shifted to ward. Rest of her hospital stay was uneventful until her discharge.

Discussion : The incidence of PRES is unknown and has been reported in young to middle-aged adults with female predominance. Patients have comorbidities such as bone marrow or solid organ transplantation, chronic renal failure, and chronic hypertension. Mechanical ventilation is required in majority of patients with ICU admission. Familiarity with the imaging criteria is crucial to the diagnosis. Regardless of the underlying cause, the main abnormality is cerebral vasogenic edema. Early recognition and resolution of the underlying cause is the keystone of management.

A Study of Cardiac Diseases In Pregnancy and its Fetomaternal Outcome

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Aims & Objectives: To study the pattern of diseases, clinical features, and pregnancy outcome in cardiac patients.

Methods: A retrospective analysis of one year data, from 2012 to 2013 for all patients admitted with cardiac disease in pregnancy at Civil Hospital, Ahmedabad.

Results: Past history of heart disease was present in 70%. Rheumatic heart disease was predominant type in 83% and the chief complaint at admission was breathlessness in 44%. Mitral stenosis was the commonest lesion in 55% and mitral regurgitation with or without stenosis in 48%. Preeclampsia was seen in 20% and preterm labor in 10%. Spontaneous vaginal delivery was seen in 41% and cesarean in 20.6%.

Conclusion: Heart disease in pregnancy is a high risk condition has a major impact on pregnancy. Associated obstetric complications along with lack of knowledge and ignorance regarding the pathology lead to unpleasant obstetric outcomes.

A Case of Multiple Endocrine Neoplasia Type 1 presenting as Acute Pancreatitis

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Multiple Endocrine Neoplasia type 1 (MEN1) is a rare autosomal dominant hereditary cancer syndrome presented mostly by tumours of the parathyroids, endocrine pancreas and anterior pituitary. Hypercalcaemia due to parathyroid tumour can be the first manifestation of MEN 1. Acute pancreatitis in MEN 1 is rare, with no previous reports published in the literature. Our patient presented to us with acute pancreatitis due to hypercalcemia who subsequently diagnosed as a case of MEN1 having parathyroid adenoma, non-functional pancreatic neuroendocrine tumor and pituitary macroadenoma in the form of prolactinoma. After the treatment of acute pancreatitis, she underwent 3 and ½ gland parathyroidectomy for parathyroid enlargement. Post-operatively parathyroid hormone level normalised and patient developed hypocalcaemia for which she was commenced on alpha-calcidol and calcium tablets with that normocalcaemia was maintained. She was commenced on 0.5mg cabergoline twice a week and prolactin level normalised in just 3 months. Thus prolactinoma is one of the tumor which is when diagnosed early can be cured with drugs only without surgery. She is going to be operated for pancreatic neuroendocrine tumor resection after 2 months. MEN1, a rare disease, can present as pancreatitis for which one should be very vigilant and search etiology of the presenting complaints.

Correlation of ANSiscope Autonomic Dysfunction Grades With Bellavere's and Ewing's Classification of Autonomic Dysfunction In Type 2 DM Patients

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Introduction: Diabetic autonomic neuropathy (DAN) is a serious and common complication of diabetes. Its prevalence has been reported about 20% in diabetic population though it may be as high as 50% in long standing cases. It affects various organs of body (gastrointestinal, cardiovascular, and genitourinary). And may have varied presentations and lead to impaired glycemic control. We intend to evaluate the correlation of ANSiscope in picking up and grading DAN in comparison to Bellavere and Ewing's classification.

Materials and Methods: For evaluation of cardiovascular autonomic neuropathy (CAN), a panel of 5 clinical tests was carried out in all patients. These tests included heart rate response to expiration-inspiration, standing (30:15 ratio), Valsalva manoeuvre and blood pressure response to standing, isometric exercise. In each of these tests, patients were graded as normal, borderline and abnormal and classified separately using clinical scoring systems of Ewing's and Bellavere's. Autonomic dysfunction score and grading was also done by ANSiscopeTM device.

Results: A comparison was drawn between Bellavere's classification system and between ANSiscope autonomic dysfunction grades. We highly significant correlation ($P=0.0007$) on statistical analysis. In another comparison, patients were classified using both the Ewing's criteria and ANSiscope autonomic dysfunction grades. Applying the statistical analysis to above data, also gave a highly significant correlation ($P=0.01$)

Conclusion: DAN is yet underappreciated complication of diabetes which compromises the day to day life of patients and may be severe enough to lead to fatal events. DAN has enormous economical burden and hampers the productivity. Simple, non invasive, reliable detection and grading of DAN using ANSiscope will have substantial physical mental and economical ramifications. More frequent use of ANSiscope is recommended specially in patients with long history of diabetes.

Retinopathy as a Predictor of Pre-Clinical Diabetic Cardiomyopathy

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Objective: Diabetic Cardiomyopathy (DbCM) is known to begin early as pre clinical entity before leading symptomatic to heart failure. We intend to evaluate if presence of diabetic retinopathy can be used as a marker of pre clinical DbCM.

Methods: 100 normotensive diabetic patients (having no previous history of IHD, LVD, or heart failure) coming to diabetes clinic of CHA were evaluated for retinopathy. Fundus findings were graded as WNL, NPDR, PDR. 2D echocardiography was used for screening cardiomyopathy. Ejection fraction (EF%) was used as marker for systolic dysfunction (<55%), Diastolic dysfunction was defined as V_e/V_a ratio <1. The results were then analysed for statistical support for retinopathy in picking up preclinical DbCM.

Results: Out of the 100 patients evaluated 4 patients were rejected as fundus examination showed changes of hypertensive retinopathy. Of study subjects (n=96), retinopathy (NPDR+PDR) was present in 45 subjects; Isolated diastolic dysfunction in 34.37% (n=33), systolic dysfunction in 51% (n=49). Presence of retinopathy was able to predict DbCM with sensitivity of 53.66% specificity of 92.86% and positive predictive value of 97.78%. PDR had almost 100% positive predictive value for DbCM.

Discussion: Mortality from CHD in diabetics is 3 – 7 times higher than normal population. Even in presence of comparable factors diabetics have higher mortality and greater incidence of heart failure as compared to non diabetics. DbCM is now a recognized disease entity explaining the above phenomenon. Structural changes in diabetic myocardium show enhanced thickening of capillary basement membrane, myocellular atrophy and hypertrophy and myocardial interstitial fibrosis further strengthen the concept of DbCM. A long subclinical phase is present before symptoms of overt heart failure develop.

Conclusion: Recognising DbCM and taking measures for its early detection and preventing its progression is likely to have significant benefit in morbidity mortality and financial burden of disease. Retinopathy is a very specific and well recognised easily screened microvascular complication of diabetes. Using retinopathy as a surrogate marker will improve the awareness of DbCM and lead to its early detection. The health and economic benefits of this simple association are likely to be very fruitful.

Bernard-Soulier Syndrome

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We hereby describe a case report of Bernard-Soulier syndrome (BSS) which is rare disease, especially from Indian subcontinent. Patient was 17 year old girl who was referred by gynaecologist for continuous bleeding per vaginum since menarche. Patient's history dated way back to her age of around 2 year from when she had actually suffered multiple episodes of epistaxis and gum bleeding for which she was treated with packed red cell and platelet transfusions repeatedly but her parents were never educated about the disease process. Education about the disease & its natural history, treatment modalities and transfusion and associated complications was provided to the family as well as need to avoid consanguineous marriages among their kids to prevent other affected generation was given. Our patient was given oral contraceptive pills to control bleeding per vaginum as well as tranexemic acid with hepatitis B vaccination.

Hemolytic anemia as the presenting feature of Gilbert syndrome

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We hereby describe a case of teenage girl who presented with history of intermittent jaundice. On evaluating case for the first time, hemolytic picture due to pernicious anemia was the prominent feature. Later on further follow up of the patient case turned out to be one of isolated indirect hyperbilirubinemia due to Gilbert syndrome. Hemolytic anemia has been described in up to 50% of cases that actually unmask underlying Gilbert. In this case pernicious anemia leading to vitamin B12 deficiency was the cause of her haemolysis which precipitated her Gilbert. Treatment of nutritional deficiency was done and she was explained about avoidance of fasting and strenuous activity in order to prevent appearance of clinical jaundice.

A Study of 50 Cases Of Pancytopenia

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Aims And Objectives

1. To study the causes of the pancytopenia.
2. To study various clinical presentation, physical examination findings in patient with pancytopenia.
3. To study utility of peripheral smear examination in diagnosis of pancytopenia.
4. To study the utility of the bone marrow examination in diagnosis of pancytopenia.

Results:

In present study, 50 patients of patients of pancytopenia are studied with an objective to study incidence of various causes of pancytopenia, their clinical manifestations and physical findings. All the results are tabulated and discussed and following conclusions are drawn:

- ◆ In present study, most common affected age group was 21-40 (56%) followed by 41-60 (40%).
- ◆ In present study, males (52%) were commonly affected.
- ◆ Megaloblastic anemia was significantly associated with vegetarian diet.
- ◆ Among all patients with megaloblastic anemia, most had MCV between 100 and 110 fL and the average MCV was 105.6 fL.
- ◆ In present study, the most common symptom found in patients with pancytopenia was fatigue (70%), followed by anorexia (58%). Bleeding manifestations were present in only 38% of patients.
- ◆ The most common clinical sign was pallor (92%), followed by splenomegaly (52%) and hepatomegaly (16%).
- ◆ The most common red blood cell morphology in megaloblastic anemia was macrocytic normochromic with hypersegmented neutrophils found in most patients.
- ◆ Microcytic hypochromic picture was found in most patients with hypersplenism.
- ◆ Among the patients who underwent bone marrow examination, most (75%) had hypercellular marrow.
- ◆ In present study, megaloblastic anemia was most common cause of Pancytopenia. 44% of the patients were affected by it followed by infectious diseases (30%, including dengue fever, malaria, enteric fever, HIV, septicemia and disseminated tuberculosis), aplastic anemia (14%), and hypersplenism (10%).

Conclusions:

1. In present study, the most common cause for pancytopenia was megaloblastic anemia followed by infections and aplastic anemia.
2. The most common symptom was fatigue followed by anorexia. The most common clinical sign was pallor followed by splenomegaly. This suggests that anemia is the predominant condition in the study population.
3. Most of the patients with megaloblastic anemia as well as aplastic anemia had macrocytosis. Hypersegmented neutrophils were commonly found in megaloblastic anemia. Most patients with hypersplenism had microcytic hypochromic picture.
4. Not all patients with pancytopenia required bone marrow examination for the diagnosis. It was chiefly helpful for the diagnosis of aplastic anemia.

Case Report: Common Variable Immunodeficiency

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Case - 1

Introduction: Common variable immunodeficiency (CVID) is a form of severe antibody deficiency with an estimated prevalence of 1 in 25,000 to 1 in 100,000. The disorder apparently results from currently undefined immune deregulations resulting in failed B-cell differentiation with impaired secretion of immunoglobulins. It has a broad range of clinical symptoms including recurrent infections of the respiratory tract, chronic lung disease, autoimmune diseases, liver and gastrointestinal disorders, granulomatous infiltrations, lymphoma and solid tumors.

Case presentation: A 5-year female presented with fever, cough and shortness of breath at rest. Past medical history of incision and drainage done for empyema followed by decortications before 2 years. Recurrent pneumonia and ear discharge since 1 year of life. She had temperature of 100.5 °F, was tachycardic, tachypneic with normal blood pressure, was maintaining normal saturation with oxygen. Physical examination was significant bilateral crepitation and bronchial breathing. Laboratory data were significant for leukocytosis. Chest X-ray demonstrated right mid zone & lower zone consolidation. The patient was started on intravenous vancomycin and cefoperasone-sulbactam, sputum gram stain and AFB and culture were performed. Given the patient's recurrent respiratory infection an underlying immunologic disorder was considered. Work-up revealed reduced Ig A (decreased), Ig M (normal) and Ig G (decreased). The patient was diagnosed with CVID & started on four week regimen of IVIg.

Conclusion: This case emphasizes the need for a high index of clinical suspicion for CVID in patients presenting with recurrent sinopulmonary infections. Although intravenous immunoglobulin provides improvement in these patients, early diagnosis is the key to preventing significant morbidity and mortality and improving prognosis.

Keywords: Immunodeficiency, sinopulmonary, intravenous immunoglobulin, antibody.

Case - 2

Introduction : Common variable immunodeficiency (CVID) is a form of severe antibody deficiency with an estimated prevalence of 1 in 25,000 to 1 in 100,000. The disorder results from failed B-cell differentiation with impaired secretion of immunoglobulins. It has a broad range of clinical manifestations including recurrent infections of the respiratory tract and chronic lung disease, autoimmune diseases, gastrointestinal disorders, granulomatous infiltrative diseases, lymphoma and solid tumors. We report a case of a 5-year old female who had presented with classical symptoms of CVID over a period of several years and review the various clinical manifestations, diagnosis and treatment options for CVID.

Case presentation : A 5 year old female presented with a history of high grade fever, cough and shortness of breath at rest. The parents' of the patient described chronic dyspnea for approximately last 2 months limiting her ability to perform outdoor activity. Patient was referred from other hospital for further work-up of frequent respiratory infection.

Past medical history of incision and drainage done for empyema before 2 years followed by decortications. History of recurrent cough since 1 year of life requiring antibiotic and frequent hospitalization, multiple episode of ear discharge and perforation of tympanic membrane.

On examination, she appeared chronically ill. She had temperature 100.5 °F was tachycardic (120/min), tachypneic (48/min) with blood pressure 100/58 mmHg, was saturating 92% on 5 Ltr/min of oxygen with mask, had grade-3 clubbing and had some pallor.

Physical examination was significant bilateral crepitation and bronchial breathing, had abdominal distension with hepato-splenomegaly. The remainder physical examination were within normal limit. Her white blood cell (WBC) count was elevated at 14,800/mm³, this was 7800/mm³ at discharge. Her renal function test and liver function test were within normal limit. Chest X-ray suggestive of right mid zone & lower zone consolidation. 2D-echo which was showing thin rim of pericardial effusion before 2 months was normal during admission. ABG showed pH of 7.5, PCO₂ of 32 mmHg, PO₂ of 48 mmHg and HCO₃ of 25 mEq/l on 5 l/min of oxygen with mask.

ASO, CRP and RA Factor were negative. HRCT Thorax- Bronchiectatic changes in posterior segment of right upper lobe, right middle lobe, anterior basal, lateral basal, medial basal segment of right lower lobe and inferior lingular segment of left lower lobe. And consolidation with air-bronchogram in right mid zone /lower zone, collapse involving left lower lobe. Multiple enlarged pre & para tracheal and subcarinal lymphnode.

Sputum for gram stain and sputum for AFB were normal. USG-Abdomen was showing hepato-splenomegaly. Otoscopy of right ear showed perforated tympanic membrane with discharge. Blood culture did not had any growth at 72 Hrs. she was started on intravenous vancomycin and cefaperazone-sulbactam, and nebulized with gentamycin and salbutamol.

Given the patient's recurrent respiratory infection since 1 year of life wide differential diagnosis considered to include genetic condition such as; cystic fibrosis, immotile cilia syndrome, alfa-1 antitrypsin deficiency and immunodeficiency. Work-up initiated with a human immunodeficiency virus(HIV)screening test non-reactive and a negative sweat chloride test. Immunoglobulin level were significantly reduced Ig A – 0.217(decreased) (N= 0.7 – 4.0 gm/L),

Ig M – 0.601(normal) (N= 0.3 – 2.4 gm/L) and Ig G – 1.009(decreased) (N= 0.7 – 16 gm/L).

The patient was given 0.4 gm/kg of IVIg and planed to give IVIg every 4 weekly and follow regularly to improve quality of life.

IVC Tear due to Blunt Abdominal Trauma

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Blunt traumatic injuries of the inferior vena cava (IVC) are rare. There is a high mortality rate associated with all blunt IVC injuries, but this is usually related to associated morbidities. Not only are these lesions difficult to diagnose in isolation, this requiring sectional imaging, but surgical exploration and repair is also difficult and associated with a high mortality.

Blunt Abdominal Trauma Generally Leads to Higher Mortality than the Penetrating Trauma

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Injuries from road traffic accidents will be the third most common cause of disability worldwide and the second most common cause in the developing world. With the development of civilization more and more death occurring due to accident. Also more of the young life's are lost, civilization is also bring under infectious disease under controlled to the extent of an national eradication and life is becoming more fast due to rapid transportation. All this factors are responsible for the trauma producing death. In evaluation of blunt abdominal trauma there is a greater difficulties in diagnosis largely due to multiple associated injury with masking of abdominal signs. Patient may be unconscious due to alcoholism or head injury. Sophisticated trauma centre systems have been shown to reduce the number of preventable deaths after trauma, maximum impact in reducing the burden of trauma must come from injury prevention strategies.

Self Resolving Encephalopathy with Normal Liver Function Secondary to Docetaxel : A Case Report

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Docetaxel is anti – Neoplastic agent and its efficacy is demonstrated in variety of tumours. Although Sensory neuropathy is well known side effect of taxanes, CNS related toxicity is well documented after paclitaxel but very few cases have been reported after docetaxel. Here we present a patient with advanced carcinoma prostate who developed acute transient encephalopathy after receiving docetaxel. Patient presented with diarrhoea, altered sensorium after 5 days of receiving docetaxel. All blood investigations were within normal limits except hyperammonemia (bilirubin and liver enzymes were also normal). This encephalopathy resolved spontaneously after stopping docetaxel.

We would like to present a poster on this case of Self Resolving Encephalopathy with Normal Liver Function Secondary to Docetaxel.

To know the Profile of Cardiovascular System in Hypothyroid Patients

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Introduction : Hypothyroidism is very common pathological hormone deficiency of thyroid hormone. Subtle asymptomatic condition to frank coma with multi system failure can make it an elusive disease. Cardiovascular system is very much sensitive to thyroid hormone. The Heart is an organ sensitive to the action of thyroid hormone. So, the intention for the study is to surface major cardiovascular manifestations in patients having hypothyroidism in our region.

Results :

Lipids	mg/dl	Percentage (%)
Total Lipids	>500	64
Triglycerides	>150	52
LDL	>130	40
S.Cholesterol	>200	24

ECG Findings	Percentage (%)
ST-T Changes	26
Normal	24
S.Bradycardia	22
Low Voltage Complexes	14
A-V Conduction Block	10
Long QT Interval	02
Electrical Alternans	02

CxR(PA) & Echocardiographic Changes	Percentage (%)
LVH with Decreased LV Dia. Compliance	30
Cardiomegaly	16
Mild-Mod Pericardial Effusion	12
LVEF<55%	08
MVP	06
Pleural Effusion	04
Severe Pericardial Effusion	04

Conclusion : Hypothyroidism is 4 times more common in females. Thyroid function must be done in all patients of cardiovascular diseases for better outcome.

A Rare Presentation of Unstable Angina Wellens Syndrome

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Wellens' syndrome, also known as LAD (left anterior descending) coronary Y-wave syndrome, or warning sign, is a potentially unrecognized critical proximal LAD stenosis with possible fatal consequences. It can be associated with extensive acute anterior wall myocardial infarction, with left ventricular dysfunction and a lethal outcome within a few days after the onset of symptoms. It usually consists of a typical ECG finding in the precordial leads that represents a significant proximal LAD stenosis in patients with unstable angina pectoris. Although this syndrome is not indicated for PCI (the patient is usually pain-free at the time of electrocardiography registration). It is necessary to recognize the characteristic pattern and percutaneous or surgical revascularization of the affected blood vessel. Here we present a case of 40 year old male patient with no past history on coronary disease. He presented in emergency department with complain of chest pain since 2 days and ECG findings suggestive of Wellens syndrome which was later on confirmed by his coronary angiographic findings.

Peripheral Symmetrical Gangrene in Systemic Lupus Erythematosus

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Peripheral Symmetric Gangrene is a well documented but rare clinical Syndrome characterised by symmetric distal ischemic damage leading to gangrene of two or more sites in the absence of large vessel obstruction or vasculitis. Peripheral Symmetric Gangrene in connective tissue disorders is more commonly associated with Systemic Sclerosis and relatively rare in Systemic Lupus Erythematosus. We here report a case of Peripheral Symmetric Gangrene presenting without its usually implicated etiopathological pathway in a patient with Systemic Lupus Erythematosus.

Seizures: A Rare Presentation of Pheochromocytoma

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We describe a rare case of 20 years old male patient admitted in emergency ward with first time convulsions with past history of intermittent headache, palpitation and profuse perspiration. He had hyper tension (BP-160/100), polymorphonuclear leukocytosis and hyperglycemia. A thorough work up revealed left adrenal mass on ultrasonography and CECT abdomen, grade 1 hypertensive retinopathy and normal level of urinary metanephrine. He was treated with phenoxybenzamine followed by B-blocker. He underwent laproscopic adrenalectomy on 14th day & biopsy confirmed diagnosis of pheochromocytoma. With regular follow up, patient has become asymptomatic and normotensive without any anti-hypertensive. so this is a rare presentation of benign nonfunctioning pheochromocytoma.

In conclusion, young hypertensive patient with convulsions need through work up & follow up.

A Study of Adverse Drug Reactions In MDR-TB Patients In Tertiary Care Centre

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Introduction: MDR-TB is on an increasing trend in our country, for which effective regimens were being implemented through PMDT services. But the regimen is associated with wide spectrum of adverse drug reactions.

Aim: This is a study to evaluate the pattern of adverse drug reactions in our hospital.

Methods: A study of MDR-TB patients from August 2007 to December 2011. Totally 1283 patients were put on CAT IV under PMDT programme and monitored for adverse drug reactions in our department.

Results: Among 191 patients who developed ADR, 128(67.1%) were males and 63(32.9%) were females. The incidence of ADR was 12.6% in ≤ 20 years age, 53.9% in 21-40, 31.4% in 41-60 and 2.1% in >60 years patients. Of 191, 135(70.6%) patients were having BMI <18 , 53(27.8%) were between 18-25 and 3(1.6%) were having BMI >25 .

Type of intervention in addition to symptomatic treatment	Vestibulo-auricular (kanamycin)	Psychiatric (cycloserine)	Arthrological (pyrizinamide)	Gastrointestinal (Ethionamide, pyrizinamide)	Cutaneous	Neurological	Misc
Dosage adjustment (including counseling)	3(1.4%)	23(10.6%)	7(3.2%)	22(10.1%)	7(3.2%)	10(4.6%)	16(7.3%)
Temporarily stopped and re-started	15(6.9%)	8(3.6%)	8(3.7%)	12(5.5%)	1(0.5%) (all)	0	3(1.4%)
Permanent stoppage	23(10.6%)	32(14.7%)	15(6.9%)	0	1(0.5%) (Ethionamide)	0	12(5.5%)
Total	41(18.9%)	63(28.9%)	30(13.8%)	34(15.6%)	9(4.2%)	10(4.6%)	31(14.2%)

Conclusion: The ADRs were more common in low BMI patients and in the first 15 days of the regimen. Hence vigilant monitoring is required for these types of patients during the initial period. Vestibulo-auricular, psychiatric and arthrological ADRs were the ones that demanded the culprit drugs to be withheld permanently.

William-Campbell Syndrome – A Case Report

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Introduction : William-Campbell syndrome, one of the rare causes of bronchiectasis is characterized by absence of bronchial cartilage in the segmental/subsegmental bronchi (bronchomalacia) and collapse of the airway on expiration. Most of the cases occur during childhood but a few present during adulthood.

Case Report : A 45 year old farmer presented to our out-patient clinic with complains of productive cough, intermittent fever without chills and breathlessness on exertion for past 5 days. He had a history of repeated visits to the hospital for similar complaints for which he was treated with antibiotics, antipyretics and inhaled bronchodilators. There was no history suggestive of Tuberculosis. Rest of the systemic review and past medical history was unremarkable. He smoked occasionally and was a social drinker. On examination, the patient was febrile, tachypnoeic . Clubbing was present but rest of the physical examination was normal. Respiratory system examination revealed wide spread bilateral crepitations.

Lab data demonstrated slightly elevated leucocyte count(12,400/mm³) without peripheral eosinophilia, Hb 13 gm/dl, ESR 10 mm/hr. Rest of the hematological profile (including vasculitic profile) and biochemistry profile was normal. Serum was negative for HIV antibodies. Induced sputum for acid-fast bacilli, Aspergillus was negative on multiple occasions. Sputum for culture grew Pseudomonas . Serum α -Antitrypsin levels and total IgE (125U/ml) was normal. Spirometry revealed a mixed obstructive-restrictive pattern He gave a negative consent for bronchoscopy.

Chest radiograph revealed multiple ring shadows in lungs, almost symmetrical in distribution, more apparent in mid and lower zones. HRCT Thorax revealed cystic and varicose bronchiectasis bilaterally predominantly in mid/lower zones. Collapse of bronchi with distal air trapping(the result of excessively compliant bronchi) was also present. Based on history, clinico-radiological findings and laboratory testing a diagnosis of William Campbell Syndrome was made.

Conclusion : Although a rare syndrome, Williams–Campbell syndrome should be included in the differential diagnosis of bronchiectasis. Characteristic HRCT features along with clinical presentation gives a clue in diagnosing but a definite diagnosis can be made only after detailed workup and excluding the other common causes of bronchiectasis.

Keywords: Bronchiectasis, bronchomalacia.



Comparison of Paracetamol infusion with Diclofenac infusion for perioperative analgesia

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Introduction: Effective analgesia peri operatively is very much essential for managing any surgical cases. Opioid was commonly used for managing these cases but due to its known side effects an alternative drug was selected and studied.

Aim: To compare the peri operative analgesic efficacy of paracetamol with diclofenac infusion in patients undergoing abdominal surgery.

Patients and methods: 60 ASA grade I & II patients undergoing abdominal surgery was randomly selected and divided into two groups. At the time of rectus abdominis muscle closure Gp P received paracetamol infusion and Gp D received diclofenac infusion. Post operatively all patients were assessed with VAS score and side effects were noticed. VAS >7 received rescue analgesia.

Result: The time to request for rescue analgesia after infusion of paracetamol approximately 3 times than with diclofenac infusion, with no serious complications. This indicates that i.v. paracetamol infusion has better analgesia than i.v. diclofenac infusion for acute post operative pain.

A Case of Chronic Cough And Dyspnoea In A Young Female

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Here is a story of 32 year married female resident of Jamnagar who presented to Bombay hospital in 2008 with chief complaints of breathlessness on exertion, generalized weakness, recurrent cough and cold for 2 years. All symptoms exaggerated with seasonal changes. She gave history of taking recurrent bronchodilators for the same from local private doctors. She had no sleep disturbances, skin lesions or change in weight. She had no any co-morbidities like hypertension, diabetes or ischemic heart disease .On examination only positive finding was bilateral extensive wheeze.

At Bombay hospital following investigations done:

Routine blood investigations- Normal

2D-echo-Normal, ejection fraction-60%

Spirometry

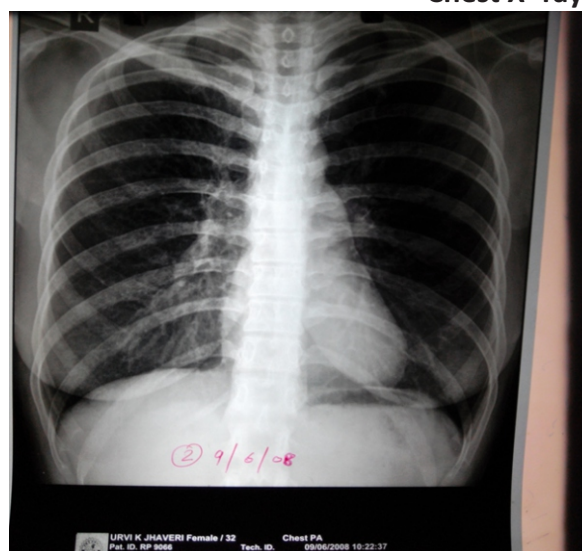
	PRE BROCHODILATOR			POST BRONCHODILATOR		
	PREDICTED	ACTUAL	%PREDICTED	ACTUAL	%PREDICTED	%CHANGE
FVC	3.25	2.41	74	2.74	84	14
FEV1	2.82	1.15	41	1.74	62	51
FEV1/FVC	83	48		63		33

Interpretation: Moderate Obstruction with Good Bronchodilator Reversibility.

She was diagnosed as 'asthamatic bronchitis' at Bombay hospital. Standard and optimal treatment was given.

Patient continued treatment for asthmatic bronchitis around three years but patient was not satisfied with the treatment and her symptoms were worsening uptill before she came to RESPIRATORY MEDICINE DEPARTMENT,G.G HOSPITAL JAMNAGAR first time on 11/4/11 as fourth reference. At that time she had same complaints of breathlessness which was progressive and worsening even with little exertion .She had recurrent coughing. She mentioned that she had all symptoms starting just after delivery of her younger daughter who was 5 years then and worsening of all symptoms during

Chest X -ray



and around each menstrual period. On examination only positive findings were drop of saturation of oxygen from 93% at rest to 78% with exertion and on auscultation bilateral extensive wheeze. Following investigations done:

ANA Profile: Negative X Ray; Skull AP and Lateral View : Normal

2D Echo: Mild PAH EF:58%

USG Abdomen : Renal Angiomyolipoma

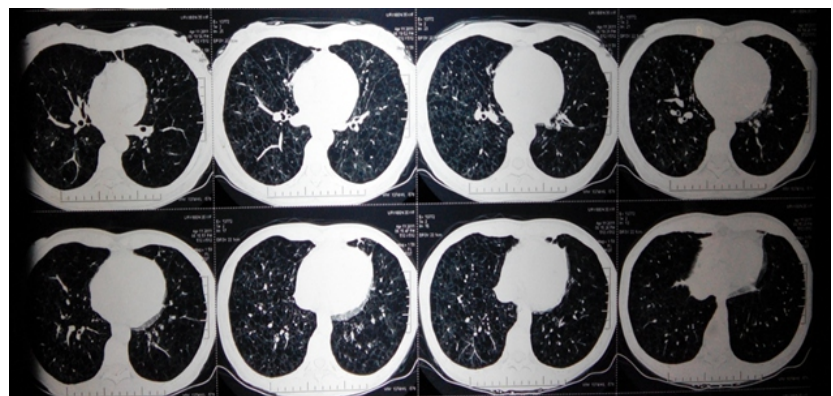
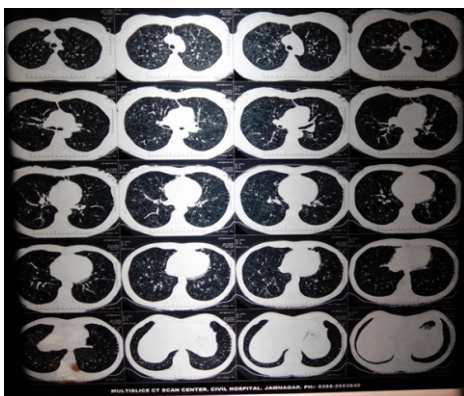
Spirometry:

PRE BRONCHODILATOR			
	PREDICTED	ACTUAL	%PREDICTED
FVC	2.67	1.87	70
FEV1	2.82	0.67	24
FEV1/FVC	82	36	44

Interpretation : severe obstruction

Chest - Ray

On the basis of clinical history, chest X ray and above mentioned investigations differential diagnosis made was lymphangioleiomyomatosis, langerhans cell histiocytosis and alpha 1 antitrypsin deficiency. finally spiral HRCT DONE



Typical findings of lymphangioleiomyomatosis were seen. Multiple thin walled rounded cysts of variable sizes in bilateral lung parenchyma distributed diffusely with mediastinal lymph node.

And then the final diagnosis made was "LYMPHANGIOLEIOMYOMATOSIS"

Patient was given standard medical treatment and was offered surgical treatment .Patient had refused surgical treatment.

Thus we must suspect LYMPHANGIOLEIOMYOMATOSIS in young females who are not responding to standard and optimal treatment of asthmatic bronchitis.



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