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Update on New Anticoagulants Antiplatelet Agents: How to Clear the Confusion

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Despite great advances with these therapies, associated high risks for thrombosis and hemorrhage remain as the result of complex interactions. The large number of recent studies investigating various antithrombotic treatments necessitates a re-review of their role in managing patients with acute coronary syndromes (ACS).

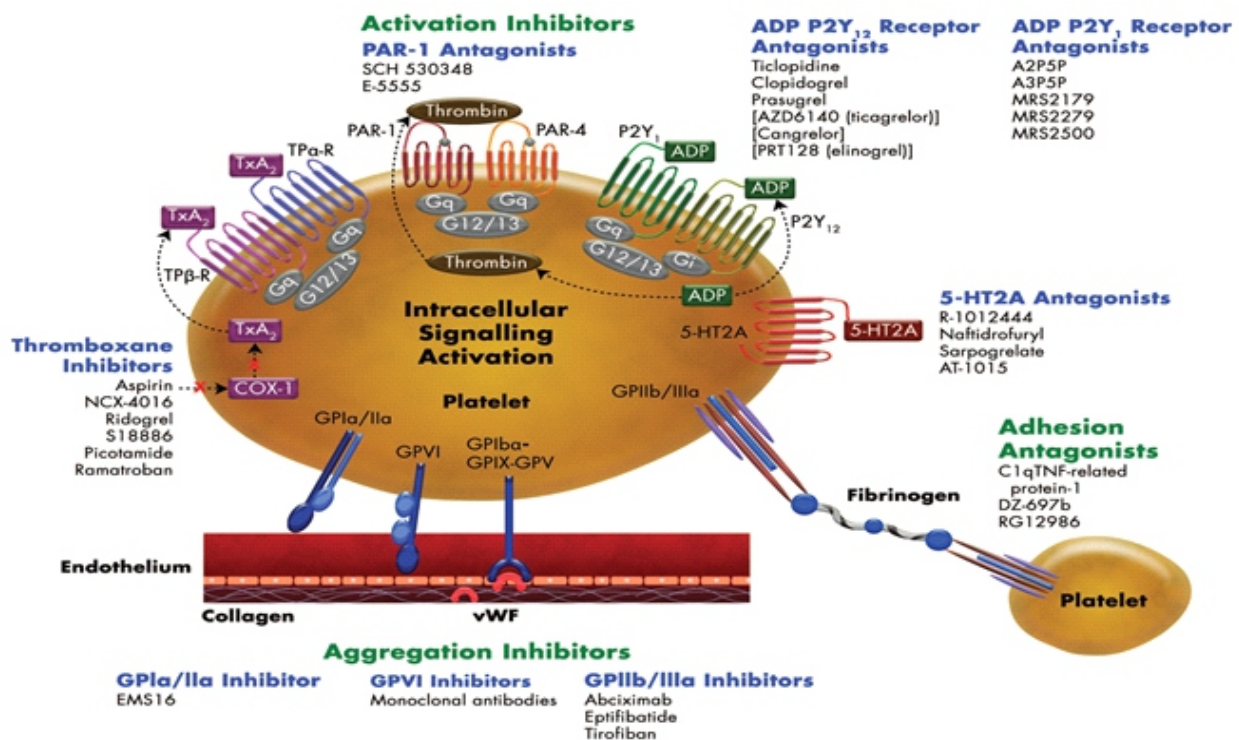


Figure1: Potential Mechanisms for Platelet Activation and Inhibitors

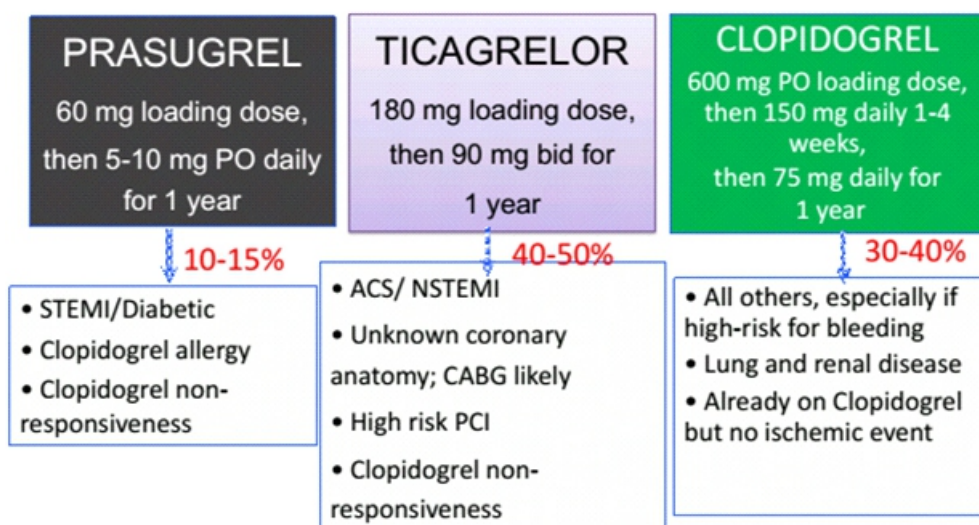


Figure 2: Choice of Oral Antiplatelet Therapy in ACS/PCI Patients

Take Home Messages

- ◆ Clopidogrel load (600mg) should be administered prior to or immediately following primary or non-primary PCI for STEMI as well as elective PCI and followed by 75mg daily.
- ◆ Patients on clopidogrel or prasugrel needing elective surgery, reasonable to switch to ticagrelor 5 to 7 days earlier.
- ◆ Prasugrel's LD (60 mg) is more effective at preventing periprocedural ischemic events compared to the FDA approved clopidogrel LD (300 mg)
- ◆ Prasugrel's MD (10 mg) is more effective in preventing ischemic events during long-term follow up compared to the FDA approved clopidogrel MD (75 mg)
- ◆ Prasugrel's MD is associated with an increased risk of bleeding compared to clopidogrel's MD
- ◆ Efforts to minimize the risk of bleeding, predominantly during the MD phase, may be helpful to maximize the clinical benefits of prasugrel
- ◆ Premature discontinuation of Prasugrel increases risk of stent thrombosis, MI, and death
- ◆ Avoid Prasugrel in Elderly and wt.<60 kg.
- ◆ Ticagrelor may be preferred where CABG is probable
- ◆ Ticagrelor may be the first drug of choice in ACS/AMI patients
- ◆ Avoid prasugrel and ticagrelor in those with history of stroke or TIA (some increase in hemorrhagic stroke)
- ◆ Avoid ticagrelor in with COPD, hyperuricemia, bradyarrhythmias without pacemakers, history of syncope

Anti-coagulants include:

- ◆ Vitamin K Antagonist (Warfarin, Acenocoumarol, Phenprocoumon)
- ◆ Oral Factor IIa/Direct Thrombin Inhibitor (Dabigatran, Rivoroxaban,)
- ◆ Oral Factor Xa Inhibitor (Apixaban)
- ◆ Parenteral FIIa/FXa Inhibitor (Unfractionated Heparin, Enoxaparin)
- ◆ Parenteral FXa Inhibitor (Fondaparinux)
- ◆ Parenteral Factor IIa/Direct Thrombin Inhibitor (Bivalirudin, Argatroban)

Apixaban	Rivaroxaban	Dabigatran
• Drugs expected to significantly increase bleeding risk if coadministered: • Systemic treatment with strong inhibitors of both CYP3A4 and P-gp (e.g., ritonavir, ketoconazole) • Other anticoagulants • Antiplatelet agents and NSAIDs including ASA	• Drugs expected to significantly increase bleeding risk if coadministered: • Systemic treatment with strong inhibitors of both CYP3A4 and P-gp (e.g., ritonavir, ketoconazole) • Other anticoagulants • Dual antiplatelet therapy (ASA plus a thienopyridine) • Caution to be taken when coadministering NSAIDs, including ASA • Not recommended owing to lack of data: • Dronedarone	• Drugs expected to significantly increase bleeding risk if coadministered: • Systemic treatment with ketoconazole, cyclosporine, itraconazole, or tacrolimus, or quinidine • Other anticoagulants • Contraindicated: • Dronedarone • Dose reduction recommended in patients with moderate renal impairment: • Receiving comedications that are strong P-gp inhibitors • Taking verapamil, ASA, and/or clopidogrel

Google Glass-Implications on Medical and Patient Care using Google Glass-Hands

Free Technology

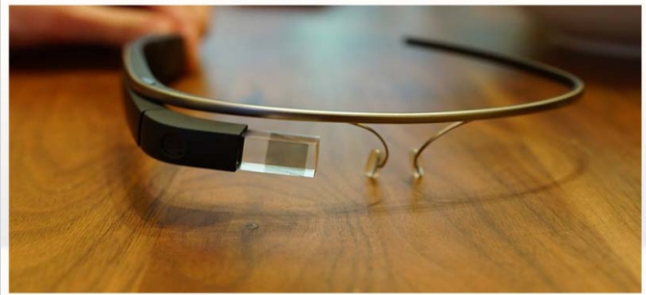
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Emerging technologies originally developed for the consumer sector often find their way into professional environments such as the use of smartphones and tablet computers in combination with medical-related apps in hospitals. Glass is another new and promising device with an optical head-mounted display developed by Google with a mission of producing mass-market computers. Glass is currently being used and developed in the field of hand surgery with revolutionary potential as its voice and gesture control functionalities allow an almost hands-free mode of operations.

PROJECT GLASS:GOOGLE GLASSES



Glass is technically designed using Android 4.0.4 with 5 mp camera, 640 X 360 display and 1.2 Ghz dual core processor. It is also embedded with wifi, bluetooth, 682 MB RAM, 16 GB storage. In addition to this it also consists of 3 axis accelerometer and magnetometer, ambient light sensing and proximity sensor and bone conduction transducer.

Working of Google Glass uses display technology instead of placing data in front (or at least, to the upper right) of your vision courtesy of a prism screen. The complete operating of the Google Glass depends upon the user voice commands itself. Various components of it include:

- ◆ Camera- A video camera senses the atmosphere and acknowledges the objects and folks around by either clicking a photo or recording a video.
- ◆ Button-on the side of the frame for physical touch input.
- ◆ Microphone- for taking voice commands and having telephonic communications.
- ◆ Speaker- designed for the ear to make or receive calls
- ◆ Battery-that supports a full day typical use.



- ◆ In cath lab it aids to have live angiographic projections while performing procedures.
- ◆ For Follow up/Patient check up
- ◆ For Medical rounds
- ◆ For In-patient status
- ◆ For Medical Conferences
- ◆ For Telemedicine as it offers a direct view to the physician or medical professional
- ◆ For understanding live cases across the world.
- ◆ For tutoring the recorded surgery cases.
- ◆ Accessing a pre-surgery safety checklist

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Augmented Reality (AR) is a view of the physical, real-life world whose elements are augmented or enhanced by computer generated sensory input such as sound, graphics, video or GPS data. A viewer is clearly able to separate the real world from the virtual world when using AR. When you use your smartphone to find a restaurant close to your location and read reviews about it, you are practicing AR. This is separate from Virtual Reality (VR) where the viewer is completely immersed in a virtual world and cannot easily distinguish it from the real world. AR holds great promise in healthcare delivery and education as the tools are better developed and easier to use. Google Glass is a great example of AR as it attempts to bring the technology closer to the human and more seamless and intuitive. We will review how Google Glass works and look at some of its applications in healthcare and medical education.

This image shows a blank sheet of white paper with ten sets of horizontal dashed lines. Each set consists of two parallel lines, creating nine equal-sized rectangular sections for writing or drawing. The lines are evenly spaced and extend across the full width of the page.

Trials of 2014 which Changed My Clinical Practice

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(1) Twelve or 30 Months of Dual Antiplatelet Therapy after Drug-Eluting Stents

Laura Mauri, M.D., For the DAPT Study Investigators, NEJM Nov 16, 2014

Background

Dual antiplatelet therapy is recommended after coronary stenting to prevent thrombotic complications, yet the benefits and risks of treatment beyond 1 year are uncertain.

Methods

Patients were enrolled after they had undergone a coronary stent procedure in which a drug-eluting stent was placed. After 12 months of treatment with a thienopyridine drug (clopidogrel or prasugrel) and aspirin, patients were randomly assigned to continue receiving thienopyridine treatment or to receive placebo for another 18 months; all patients continued receiving aspirin. The coprimary efficacy end points were stent thrombosis and major adverse cardiovascular and cerebrovascular events (a composite of death, myocardial infarction, or stroke) during the period from 12 to 30 months. The primary safety end point was moderate or severe bleeding.

Results

A total of 9961 patients were randomly assigned to continue thienopyridine treatment or to receive placebo. Continued treatment with thienopyridine, as compared with placebo, reduced the rates of stent thrombosis (0.4% vs. 1.4%; hazard ratio, 0.29 [95% confidence interval {CI}, 0.17 to 0.48]; $P < 0.001$) and major adverse cardiovascular and cerebrovascular events (4.3% vs. 5.9%; hazard ratio, 0.71 [95% CI, 0.59 to 0.85]; $P < 0.001$). The rate of myocardial infarction was lower with thienopyridine treatment than with placebo (2.1% vs. 4.1%; hazard ratio, 0.47; $P < 0.001$).

The rate of death from any cause was 2.0% in the group that continued thienopyridine therapy and 1.5% in the placebo group (hazard ratio, 1.36 [95% CI, 1.00 to 1.85]; $P = 0.05$). The rate of moderate or severe bleeding was increased with continued thienopyridine treatment (2.5% vs. 1.6%, $P = 0.001$). An elevated risk of stent thrombosis and myocardial infarction was observed in both groups during the 3 months after discontinuation of thienopyridine treatment.

Conclusions

Dual antiplatelet therapy beyond 1 year after placement of a drug-eluting stent, as compared with aspirin therapy alone, significantly reduced the risks of stent thrombosis and major adverse cardiovascular and cerebrovascular events but was associated with an increased risk of bleeding.

(2) Improve-It: Ezetimibe/Simvastatin vs. Simvastatin Monotherapy on CV Outcomes After ACS Presented at AHA 2014

Description:

Although low-density lipoprotein (LDL) lowering has been the mainstay of therapy for primary and secondary cardiovascular (CV) prevention, the data have been primarily for statins. Other nonstatin agents such as fibrates, niacin, and high-density lipoprotein (HDL)-raising agents have all failed to show a clinical benefit when added to statins. The current trial sought to study the safety and efficacy of ezetimibe/simvastatin compared with simvastatin alone in reducing CV events in patients at high risk.

Hypothesis:

Ezetimibe/simvastatin would be superior to simvastatin alone in reducing CV events in patients with recent acute coronary syndrome (ACS).

Drugs/Procedures Used:

Patients with recent ACS were randomized in a 1:1 fashion to either ezetimibe 10 mg/simvastatin 40 mg or simvastatin 40 mg.

Principal Findings:

A total of 18,144 patients were randomized at 1,158 sites in 39 countries, 9,067 to ezetimibe/simvastatin and 9,077 to simvastatin alone. Baseline characteristics were fairly similar between the two arms. Approximately 27% had diabetes mellitus and 21% had a history of prior myocardial infarction (MI). Presentation was ST-segment elevation MI (STEMI) in 29%, NSTEMI in 47%, and unstable angina (UA) in 24%. Nearly 88% underwent diagnostic angiography and 70% underwent percutaneous coronary intervention. Uptitration to 80 mg simvastatin occurred in 27% of the simvastatin arm and 6% of the ezetimibe/simvastatin arm. Premature discontinuation was observed in 42% of patients in both arms. Baseline LDL cholesterol (LDL-C) levels were 95 mg/dl in both arms; the median follow-up average was 53.7 mg/dl versus 69.5 mg/dl in the ezetimibe/simvastatin and simvastatin arms, respectively. LDL lowering was observed as early as 1 month, and appeared sustained over the duration of follow-up. At 1 year, triglycerides were also lowered by 16.7 mg/dl in the combination arm, while HDL was increased by 0.6 mg/dl. The primary endpoint of CV death/MI/UA/coronary revascularization beyond 30 days/stroke was significantly lower in the ezetimibe/simvastatin arm compared with the simvastatin arm over the

duration of follow-up (32.7% vs. 34.7%, hazard ratio [HR] 0.94, 95% confidence interval [CI] 0.89-0.99; $p = 0.016$). This corresponded to a number needed to treat (NNT) of 50 patients to prevent one event.

Other endpoints including MI (13.1% vs. 14.8%, $p = 0.002$), stroke (4.2% vs. 4.8%, $p = 0.05$), ischemic stroke (3.4% vs. 4.1%, $p = 0.008$), and CV death/MI/stroke (20.4% vs. 22.2%, $p = 0.003$) were all significantly lower in the ezetimibe/simvastatin arm; no differences were noted for all-cause mortality (15.4% vs. 15.3%, $p = 0.78$), CV mortality (6.9% vs. 6.8%, $p = 0.99$) and need for coronary revascularization (21.8% vs. 23.4%, $p = 0.11$). On subgroup analysis, patients with diabetes had a greater benefit with ezetimibe/simvastatin (HR = 0.86, p for interaction = 0.023). On-treatment analysis confirmed and further embellished the primary intention-to-treat analyses; the primary endpoint was significantly reduced in the ezetimibe/simvastatin arm compared with placebo (29.8% vs. 32.4%, HR 0.92, 95% CI 0.87-0.98, $p = 0.012$; NNT = 38). No differences were observed in cancer incidence (10.2% vs. 10.2%, $p = 0.57$), myopathy (0.2% vs. 0.1%, $p = 0.32$), or transaminitis (2.5% vs. 2.3%, $p = 0.43$).

Interpretation:

The results of the landmark IMPROVE-IT trial indicate that in patients post high-risk ACS, ezetimibe 10 mg/simvastatin 40 mg is superior to simvastatin 40 mg alone in reducing CV events. This is the first study powered for clinical outcomes to show a benefit with a nonstatin agent when added to a statin. This trial included patients who had an LDL-C of <125 mg/dl at the time of ACS, in keeping with the ability of simvastatin and ezetimibe/simvastatin to achieve an LDL-C of <70 mg/dl, based on prevailing lipid guidelines at the time of its design.

The other interesting findings in this trial are that it reaffirms the “lower is better” hypothesis with LDL-C (and with a non-statin approach), with mean levels of LDL-C <60 mg/dl in the combination arm. Thus, there appears to be a direct correlation between degree of benefit and efficacy of LDL-C lowering. Future guidelines will need to factor in the findings of this trial in patients requiring lipid therapy for secondary prevention.

(3) Angiotensin–Neprilysin Inhibition versus Enalapril in Heart Failure

John J.V. McMurray, M.D., For the PARADIGM-HF Investigators and Committees, N Engl J Med 2014;371:993-1004

Background

We compared the angiotensin receptor–neprilysin inhibitor LCZ696 with enalapril in patients who had heart failure with a reduced ejection fraction. In previous studies, enalapril improved survival in such patients.

Methods

In this double-blind trial, we randomly assigned 8442 patients with class II, III, or IV heart failure and an ejection fraction of 40% or less to receive either LCZ696 (at a dose of 200 mg twice daily) or enalapril (at a dose of 10 mg twice daily), in addition to recommended therapy. The primary outcome was a composite of death from cardiovascular causes or hospitalization for heart failure, but the trial was designed to detect a difference in the rates of death from cardiovascular causes.

Results

The trial was stopped early, according to prespecified rules, after a median followup of 27 months, because the boundary for an overwhelming benefit with LCZ696 had been crossed. At the time of study closure, the primary outcome had occurred in 914 patients (21.8%) in the LCZ696 group and 1117 patients (26.5%) in the enalapril group (hazard ratio in the LCZ696 group, 0.80; 95% confidence interval [CI], 0.73 to 0.87; $P < 0.001$). A total of 711 patients (17.0%) receiving LCZ696 and 835 patients (19.8%) receiving enalapril died (hazard ratio for death from any cause, 0.84; 95% CI, 0.76 to 0.93; $P < 0.001$); of these patients, 558 (13.3%) and 693 (16.5%), respectively, died from cardiovascular causes (hazard ratio, 0.80; 95% CI, 0.71 to 0.89; $P < 0.001$). As compared with enalapril, LCZ696 also reduced the risk of hospitalization for heart failure by 21% ($P < 0.001$) and decreased the symptoms and physical limitations of heart failure ($P = 0.001$). The LCZ696 group had higher proportions of patients with hypotension and nonserious angioedema but lower proportions with renal impairment, hyperkalemia, and cough than the enalapril group.

Conclusions

LCZ696 was superior to enalapril in reducing the risks of death and of hospitalization for heart failure.

(4) Avoid Trial: Air Versus Oxygen in ST-Elevation Myocardial Infarction **Presented at AHA 2014**

Description:

Supplemental oxygen is routinely used in the treatment of patients with suspected myocardial infarction (MI), and is considered a Class I indication by current guidelines. The current trial sought to compare supplemental oxygen therapy with no oxygen therapy in normoxic patients presenting with ST-segment elevation MI (STEMI).

Hypothesis:

Supplemental oxygen would be harmful compared with no supplemental oxygen in normoxic patients presenting with STEMI.

Drugs/Procedures Used:

Patients presenting with STEMI undergoing primary percutaneous coronary intervention (PPCI) and with baseline oxygen saturation of $\geq 94\%$ were randomized in a 1:1 fashion to receive supplemental oxygen (8 L/min via face mask) or no oxygen. This was started in the emergency room and continued in the catheterization laboratory.

Principal Findings:

A total of 441 patients were randomized, 218 to oxygen and 223 to no oxygen. Baseline characteristics were fairly similar between the two arms. About 15% had diabetes. About 89% were Killip class I, and 35% had anterior MI on electrocardiogram (ECG). About 5% were in cardiogenic shock and 4% had experienced cardiac arrest. Oxygen saturation was higher in the oxygen therapy arm from time of arrival in the hospital to 12 hours post-procedure. A drug-eluting stent (DES) was implanted in 51% of patients, and thrombus aspiration was performed in 48%. The median door-to-balloon time was 55 minutes, and median ischemic time was 155 minutes.

Mean peak creatine kinase level was significantly higher in the oxygen arm compared with the no oxygen arm (1,948 vs. 1,543, $p = 0.01$, p for area under curve = 0.04). Mean troponin I levels were similarly numerically higher (57.4 vs. 48.0, $p = 0.18$). On cardiac magnetic resonance (CMR) at 6 months, median infarct size was higher in the oxygen arm (20.3 vs. 13.1 g, $p = 0.04$; 12.6% vs. 9.0% of left ventricular mass, $p = 0.08$). Recurrent in-hospital MI was higher (5.5% vs. 0.9%, $p < 0.0001$), but mortality was numerically lower (1.8% vs. 4.5%, $p = 0.11$). At 6 months, recurrent MIs were still numerically higher (7.6% vs. 3.6%, $p = 0.07$), but mortality was similar (3.8% vs. 5.9%, $p = 0.32$). On subgroup analysis, females had a greater evidence of harm with oxygen (relative risk 2.11, 95% confidence interval 1.42-3.14, $p < 0.001$).

Interpretation:

The results of this trial indicate that high-dose supplemental oxygen is potentially harmful in normoxic patients presenting with mostly low-risk STEMI. Potentially detrimental effects include increased myocardial injury and recurrent MI. This is probably due to the detrimental effects of free radicals and superoxides. These results may lead to a change in guidelines with respect to oxygen administration in patients with STEMI, although most physicians do not routinely place normoxic patients on 8 L/min oxygen as was done in this trial (typically 2 L/min). It is unclear if lower doses of oxygen would have the same toxic effects.

(5) Cryptogenic Stroke and Underlying Atrial Fibrillation**Tommaso Sanna, M.D., For the CRYSTAL AF Investigators., N Engl J Med 2014;370:2478-86****Background**

Current guidelines recommend at least 24 hours of electrocardiographic (ECG) monitoring after an ischemic stroke to rule out atrial fibrillation. However, the most effective duration and type of monitoring have not been established, and the cause of ischemic stroke remains uncertain despite a complete diagnostic evaluation in 20 to 40% of cases (cryptogenic stroke). Detection of atrial fibrillation after cryptogenic stroke has therapeutic implications.

Methods

We conducted a randomized, controlled study of 441 patients to assess whether long-term monitoring with an insertable cardiac monitor (ICM) is more effective than conventional follow-up (control) for detecting atrial fibrillation in patients with cryptogenic stroke. Patients 40 years of age or older with no evidence of atrial fibrillation during at least 24 hours of ECG monitoring underwent randomization within 90 days after the index event. The primary end point was the time to first detection of atrial fibrillation (lasting >30 seconds) within 6 months. Among the secondary end points was the time to first detection of atrial fibrillation within 12 months. Data were analyzed according to the intention-to-treat principle.

Results

By 6 months, atrial fibrillation had been detected in 8.9% of patients in the ICM group (19 patients) versus 1.4% of patients in the control group (3 patients) (hazard ratio, 6.4; 95% confidence interval [CI], 1.9 to 21.7; $P < 0.001$). By 12 months, atrial fibrillation had been detected in 12.4% of patients in the ICM group (29 patients) versus 2.0% of patients in the control group (4 patients) (hazard ratio, 7.3; 95% CI, 2.6 to 20.8; $P < 0.001$).

Conclusions

ECG monitoring with an ICM was superior to conventional follow-up for detecting atrial fibrillation after cryptogenic stroke.

(6) Fractional Flow Reserve–Guided PCI for Stable Coronary Artery Disease**Bernard De Bruyne, M.D., For the FAME 2 Trial Investigators, N Engl J Med 2014;371:1208-17****Background**

We hypothesized that in patients with stable coronary artery disease and stenosis, percutaneous coronary intervention (PCI) performed on the basis of the fractional flow reserve (FFR) would be superior to medical therapy.

Methods

In 1220 patients with stable coronary artery disease, we assessed the FFR in all stenosis that were visible on angiography. Patients who had at least one stenosis with an FFR of 0.80 or less were randomly assigned to undergo FFR-guided PCI plus medical therapy or to receive medical therapy alone. Patients in whom all stenosis had an FFR of more than 0.80 received medical therapy alone and were included in a registry. The primary end point was a composite of death from any cause, nonfatal myocardial infarction, or urgent revascularization within 2 years.

Results

The rate of the primary end point was significantly lower in the PCI group than in the medical-therapy group (8.1% vs. 19.5%; hazard ratio, 0.39; 95% confidence interval [CI], 0.26 to 0.57; $P < 0.001$). This reduction was driven by a lower rate of urgent revascularization in the PCI group (4.0% vs. 16.3%; hazard ratio, 0.23; 95% CI, 0.14 to 0.38; $P < 0.001$), with no significant between-group differences in the rates of death and myocardial infarction. Urgent revascularizations that were triggered by myocardial infarction or ischemic changes on electrocardiography were less frequent in the PCI group (3.4% vs. 7.0%, $P = 0.01$). In a landmark analysis, the rate of death or myocardial infarction from 8 days to 2 years was lower in the PCI group than in the medical-therapy group (4.6% vs. 8.0%, $P = 0.04$). Among registry patients, the rate of the primary end point was 9.0% at 2 years.

Conclusions

In patients with stable coronary artery disease, FFR-guided PCI, as compared with medical therapy alone, improved the outcome. Patients without ischemia had a favourable outcome with medical therapy alone.

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This presentation is focused on a description of three key modalities of atherosclerosis imaging used in clinical interventional cardiology practice. These include intravascular ultrasound (IVUS), optical coherence tomography (OCT), and near infrared spectroscopy (NIRS). IVUS is most frequently utilized modality and is used to optimize PCI outcomes and assess intermediate coronary lesions. OCT is mainly used to assess optimal stent deployment and characterize coronary atheroma, and NIRS is primarily a research tool, gaining greater acceptance for detecting lipid rich plaque.

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Acute Coronary Syndrome: Blood Thinner Cocktail: Pre and Post Intervention

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Acute thrombosis and downstream embolization following an abrupt rupture of a coronary plaque is a fundamental event leading to Acute Coronary Syndrome. Many antiplatelet (oral and parenteral) and anticoagulant agents (mainly parenteral) have been developed to be used in such circumstances to reduce acute and long-term ischemic events like myocardial infarction, stroke and cardiovascular death. These all agents are of paramount importance to achieve tissue level nutrient flow with microcirculatory reperfusion when a patient is undergoing percutaneous intervention aimed at restoring patency in the epicardial artery.

Aspirin, P2Y₁₂ receptor inhibitors (Clopidogrel, Prasugrel, Ticagrelor and others), glycoprotein receptor inhibitors, unfractionated and low-molecular weight heparins, direct thrombin inhibitors (Bivalirudin, Hirudin and others) and few other agents have undergone extensive clinical research. Many of them have made their place in different clinical subsets and patient profiles.

Improvement in interventional techniques and refinement in antithrombotic therapy have led to decline in ischemic complications following PCI. That's why further iterations in antithrombotic strategies can be considered “two-edged sword”, with improved prevention of ischemic complications potentially leading to an increased bleeding risk. Many trials and registry data have convincingly shown that major bleeding and / or need of blood transfusion increases short and long term risk of death and stroke/MI. Assessment of bleeding risk (age, history of stroke /TIA, history of GI bleed, impaired renal function, vascular disease, baseline hematocrite, diabetes, use of concurrent medications like VKA /NSAID etc.) is as important as assessment of ischemic risk. Patients at high bleeding risk should be carefully given antithrombotic treatment and may need dose modification as well as monitoring of effects. Performing PCI through transradial route also helps to minimize bleeding risk.

Prasugrel and Ticagrelor having faster onset of action and more consistent antiplatelet effects, have replaced clopidogrel in many ACS patients whether managed conservatively or invasively. Role of GP inhibitors in the era of these antiplatelet agents is quite marginalized. Bivalirudin, in some trials, have shown equivalent or better composite endpoints (ischemia and bleeding) than combination of heparin / LMWH plus GP inhibitor. Few trials have shown modest reduction in ischemic endpoints with increased bleeding risk when newer oral anticoagulant (factor Xa inhibitor Rivaroxaban / Apixaban) is added on top of DAPT. Their role needs to be defined further in combination with newer antiplatelet agents.

Cardiogenic Shock in Myocardial Infarction

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Cardiogenic Shock in Myocardial Infarction is mainly due to pump failure - Large Infarct or small infarct in patient with LV dysfunction in 75 % of cases and in rest due to mechanical complication like severe MR, VSD, Free Wall Rupture and Pericardial Tamponade (Figure-1)

Cardiogenic shock is manifested as systolic blood pressure < 90 mm of Hg for more than 30 minutes in absence of hypo volemia, cardiac index < 1.8 ltr per minute / m², evidence of tissue hypo perfusion in form of cold extremities, oliguria, confusion in presence of normal or increased pulmonary capillary wedge pressure. Incidence of shock in MI remain constant over years – 7 to 8 % with mortality still in the range of more than 50 % (reduction from 75 % in 1995 to 50 % in 2014).

Out of total patients with cardiogenic shock 2/3 develop shock after admission which can be due to extension of infarct / ischemia, re-infarct, development of mechanical complications like VSD or MR, in adequate hemodynamic support and some time due to iatrogenic factors like starting of beta blocker, ACE inhibitor, diuretic, vasopressor (Figure-2).

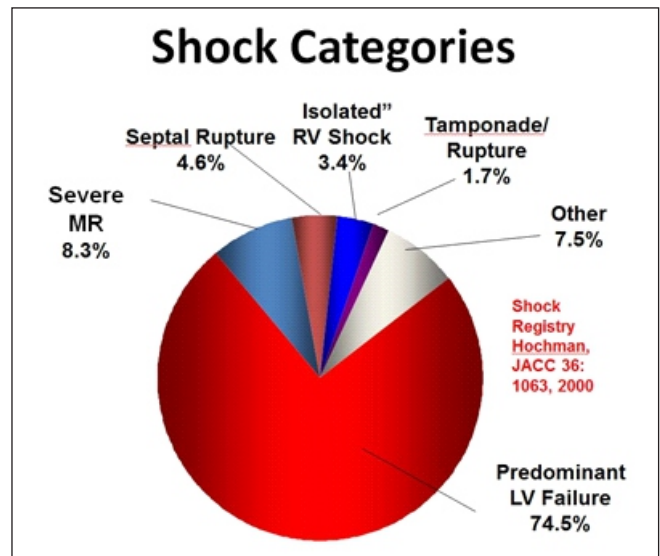


Figure-1

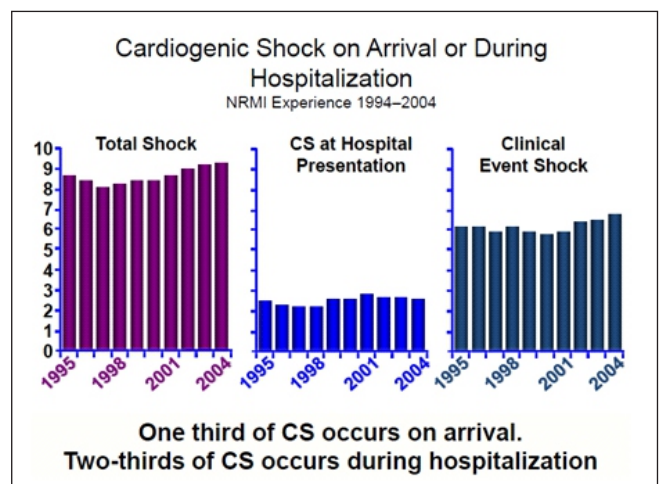


Figure-2

Cardiac power = mean arterial pressure x cardiac output / 451 was found to be most predictable parameter for mortality in patients with shock in shock registry.

In patient with cardiogenic shock early recognition, immediate hemodynamic support, relieving of ischemia by opening artery are important for better outcome. Echo is essential in all patients to rule out mechanical complication and knowing about ejection fraction (which averages between 35 to 40 % in most of the study).

Hemodynamic support in the form of Inotropic/ vasopressor agents are started early. Noradrenalin is usually the first choice with better outcome compare to dopamin and dobutamine. Ventricular support in form of bi-ventricular / invasive ventilation is started in case of hypoxia. PA wedge pressure catheter help to monitor patient before and after intervention. Emergency revascularization has found to be superior compare to medical stabilization (in shock registry) at 30 days as well as

at 1 year with 85 % of survivors in NYHA Class-I and II at 1 year (Figure-3). Same benefit persist even after 6 years in patient with emergency revascularization. Patient should be transfer immediately in ICU on Wheels to tertiary center with continuous inotropic support during transport as delay in intervention decreases chance of survival. Intervention is done immediately keeping in mind to achieve TIMI Grade-III flow (which is found to be very important for better outcome) and opening of culprit artery and may be with stage angioplasty of other vessels. Transradial approach in various single center studies have found to show better outcome and is associated with less bleeding complications and should be prefer in experience center for transradial procedure.

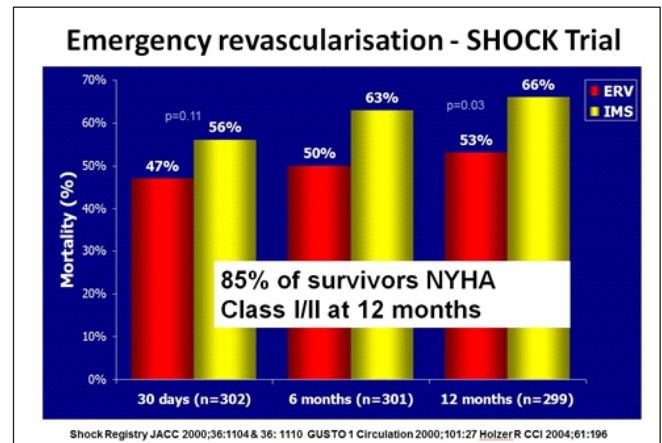


Figure-3

Various mechanical assist like Intra Aortic Balloon Pump (IABP), Tandem heart (LA to Aorta) and impella device (LV to Aorta Pump) (Figure-4) have been used alongwith intervention when inotropic support alone is not adequate.

IABP is found to be better in patient treated with thrombolytic therapy but not in patient treated with angioplasty (Figure-5). IABP may improve survival in selected patients with even angioplasty in subset of patient like left main disease, multi vessel disease extensive myocardial infarction, late presentation, MR

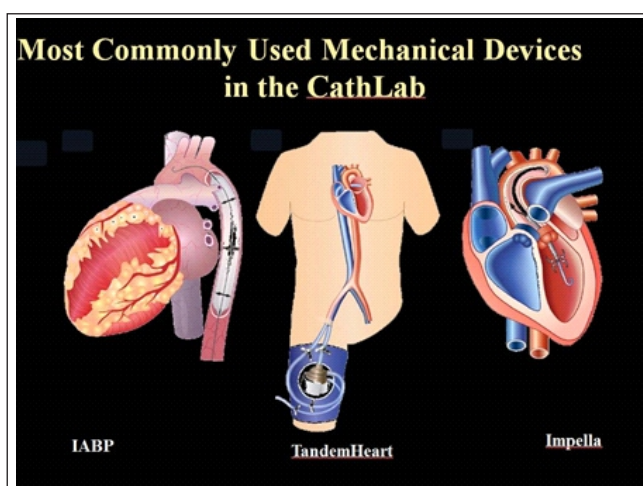


Figure-4

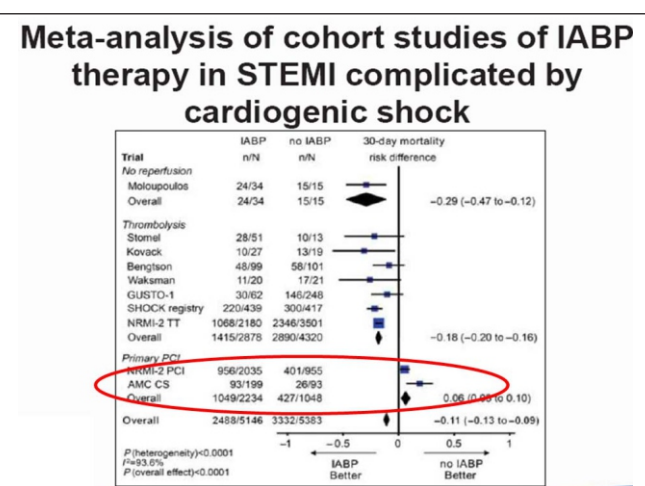


Figure-5

and VSD. Impella Device and Tandam Heart Device have been found to improve hemodynamics better than IABP but does not improve overall survival (Figure-6) and is associated with more complication than IABP.

Severe Refractory Cardiogenic Shock (SRCS) has very high mortality and LV assist device / ECMO (Extracorporeal Membrane Oxygenation) have been tried and found to be beneficial.

ESC guideline (2011) suggest angioplasty and IABP as Class-I indication whereas PA pressure monitoring, Inotropic support, as Class-IIa indication in patient with cardiogenic shock in setting of acute MI (Figure-7).

Percutaneous Circulatory Assist Devices in Cardiogenic Shock: A Meta-analysis

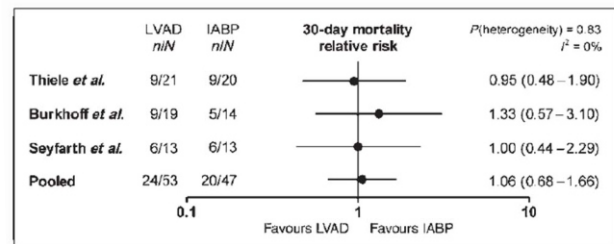


Figure-6

ESC Guidelines for the Management of Cardiogenic Shock

	CLASS	LOE
Early revascularization	I	B
IABP	I	C
Dopamine	IIb	B
Dobutamine	Ia	C
PA catheter	Ib	C

Figure-7

Conclusion: High degree of suspicion is very important in patients of acute MI who may develop cardiogenic shock as 2/3 of patients initially may look relatively stable. Delay in treatment is not good and decreases the chance of survival. As outcome is much better with tertiary center patient must be transferred to tertiary center with ICU on Wheels. Reasonable number of patients who survive cardiogenic shock has good active life for years to come.

BMS or DES or BVS- Where are we Now and What is the Future?

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Bare Metal Stent or BMS offers benefit of scaffolding when needed; very low rate of late stent thrombosis, shorter duration of dual antiplatelet therapy (DAPT) and are inexpensive. However, show high rate of restenosis and the device remains permanently in the body.

Drug Eluting Stent (DES) prevent restenosis by decreasing neointimal hyperplasia, however, it causes late stent thrombosis and requires the need for long term DAPT. Further, DES interferes with future CABG anastomotic sites and non-invasive imaging.

BVS is the 4th generation stent specifically designed to be resorbed by the natural metabolic process in the body thereby leaving no remarks of it over time. Since, BVS disappear struts, issues related to very late persistent strut malapposition and chronically uncovered struts become irrelevant.

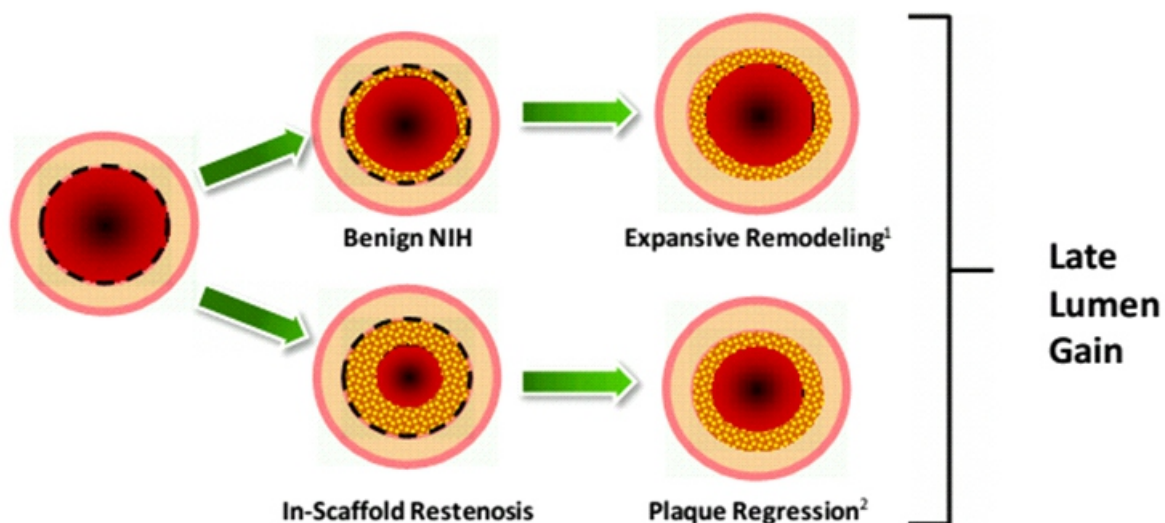


Figure 1: Potential of a fully Bioresorbable Vascular Scaffold

ABSORB is beneficial to-

- ◆ First time young patients, who in future may need intervention that can be complicated or compromised by a permanent implant
- ◆ Patients at risk for multi vessel/multi lesion where BVS offers to preserve more treatment options for future intervention
- ◆ For non-invasive assessment
- ◆ For patients with metal allergy

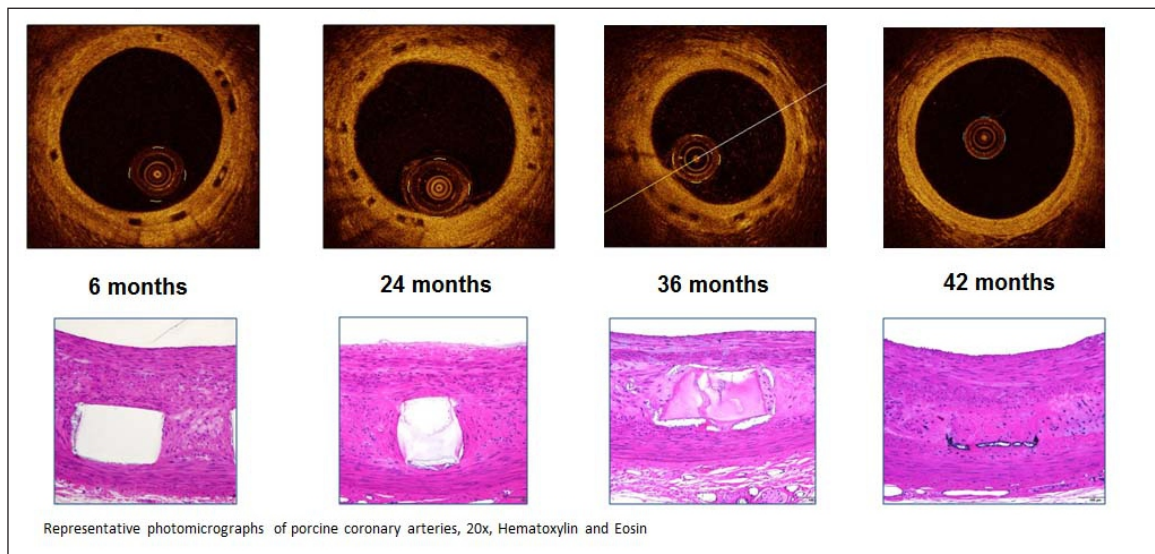


Figure : 2 Resorption : Vascular

BVS promises-

- ◆ Low rates of cardiac adverse events in patients during long-term follow-up to 5 Years
- ◆ Complete biodegradation of the device-providing transient scaffolding and drug delivery, but then allowing the vessel to return to its normal state
- ◆ Positive remodeling with enlarging lumen at 2 years
- ◆ Un-jailing of side-branches after 1-2 years
- ◆ Reduced risk of very late polymer reactions
- ◆ Restoration of normal shear stress and cyclic strain

CIMS team is one of the Global Centre for “Absorb Extend Study” which has deployed 200+ BVS in more than 150 patients till now. Many cases performed where 5 and 6 BVS deployed in same patients.

Bariatric Surgery – Evidence for Benefit Beyond Weight Reduction

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In 2025 Obesity is going to be No. 1 health problem through the world and also in India. Diet, exercise program, anorectic drug and better lifestyle have been found to be not effective as specially in BMI > 35. Goal of bariatric surgery is not only to reduce the weight, but more importantly to improve the associated comorbid conditions in long run. Bariatric surgery concept is very old with initial paper of reduction in diabetes with gastrectomy found even in 1920's. In recent years different type of bariatric surgeries with laparoscopic approach have been found to be useful in different proportion for sustained reduction of weight over 20 years and improving overall mortality in long run (Figure-1).

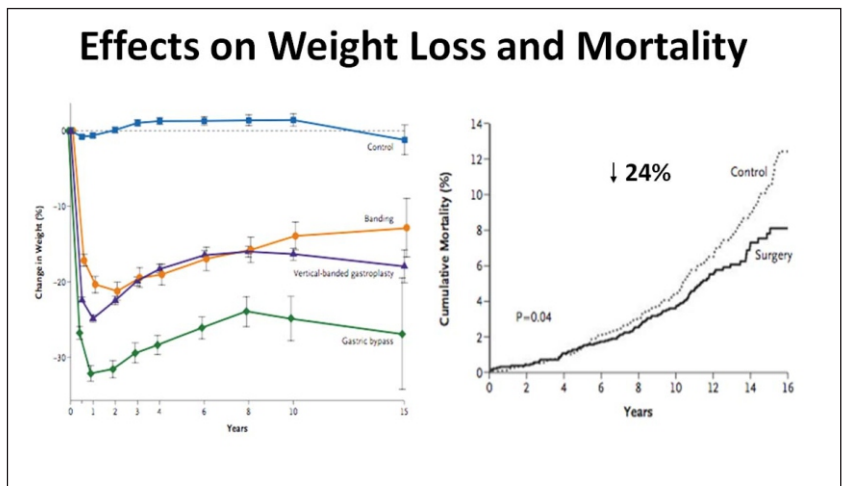


Figure-1

Comorbid condition associated with obesity are diabetes (20%) coronary artery disease (15 to 20 %) hypertension (50 to 60 %) and dyslipidemia (20 to 30 %). 60 % of diabetic population is not having good diabetes control (HBA1C < 7 %) with diet, exercise and even with modern anti diabetic medicine. Annual mortality with medical treatment in diabetes is in the range of 4 to 8 %. Mainly two type of bariatric procedure are done – (1)

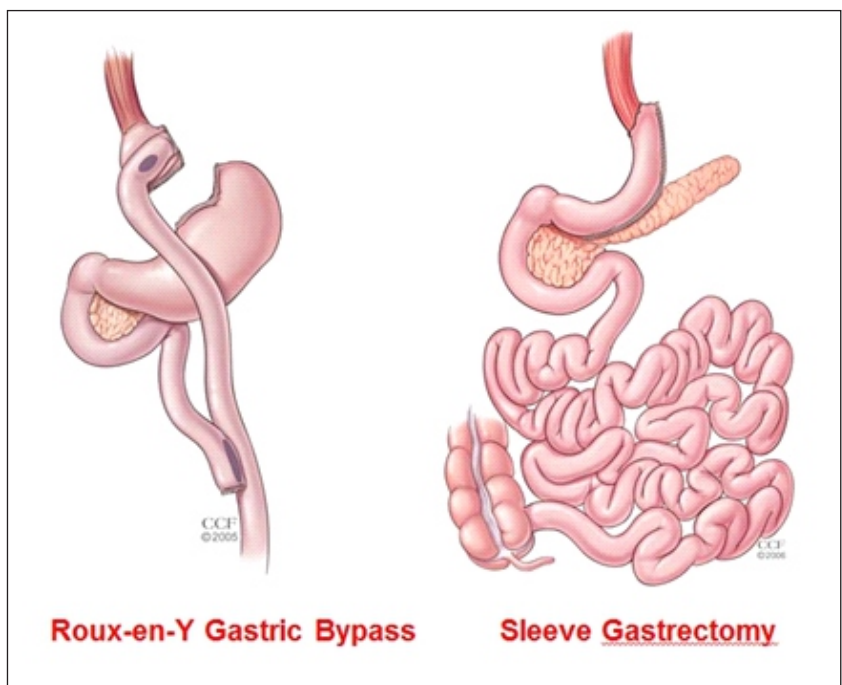


Figure-2

restrictive procedure like Vertical banded gastroplasty (VBG), Adjustable gastric banding (AGB), Sleeve gastrectomy (SG) – and (2) Malabsorptive procedures, Roux-en-Y gastric bypass (RYGB) (Figure-2).

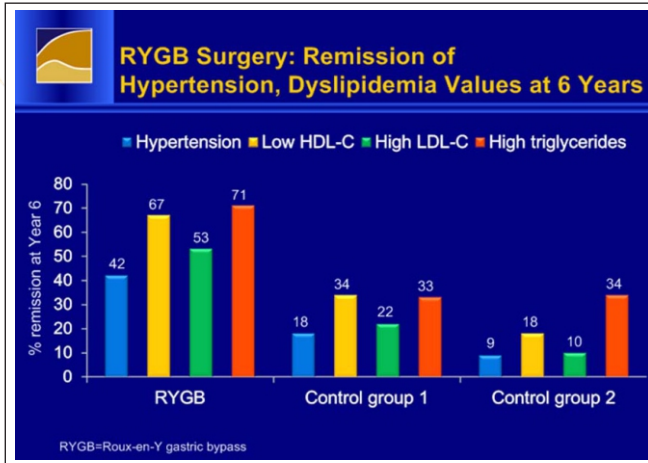


Figure-3

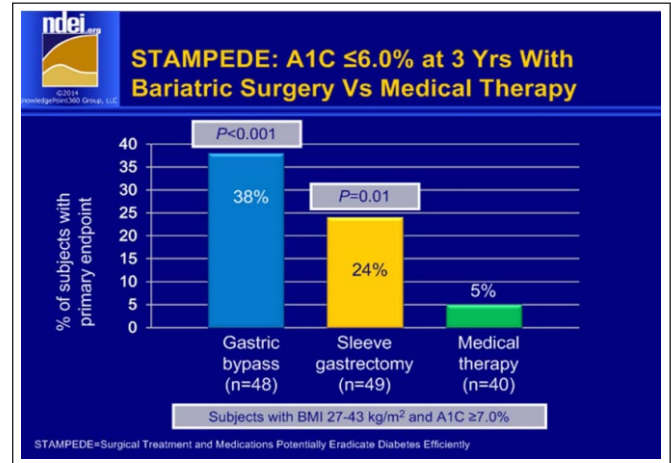


Figure-4

Roux-en-Y Gastric Bypass (RYGB) improves not only obesity but diabetes, hypertension and dyslipidemia in long run (Figure-3). RYGB has also been tried in mild obesity BMI between 30 to 35 with uncontrolled diabetes and found to be useful. Resolution of diabetes is in the range of 70 to 90 % with gastric bypass surgery and 60 to 70 % with Gastrectomy surgery (Table-1) **STAMPEDE TRIAL** compared medical treatment with bariatric surgery for biochemical parameter of diabetes mellitus and also compared overall benefit according to type of surgery. Both type of bariatric surgery sleeve gastrectomy and Roux-en-Y Gastric Bypass found to be effective in controlling biochemical parameters like HBA1C(Figure-4), fasting blood sugar, need of antidiabetic medicine and quality of life at the end of 3 years with RYGB slightly better than sleeve gastrectomy.

Bariatric Surgery and Diabetes Resolution

Author	Intervention	Resolution	Non-resolution associated with....
Pories et.al. 1995	Gastric Bypass	89%	Older patients; long standing disease
Torquati et al 2005	Gastric Bypass	74%	Waist Circumference; insulin usage
Schauer et.al. 2003	Gastric Bypass	82%	Long standing disease; disease severity; insulin usage
Sugerman et al 2003	Gastric Bypass	86%	Older patients; greater weight
Dixon et.al 2003	Lap Band	64%	Less weight loss; long standing disease
Gagner (unpublished)	Sleeve Gastrectomy	65%	Higher initial weight

Table-1

SOS (Swedish Obese Subjects) study involving 20,000 patients was designed to see benefit of bariatric surgery for diabetic remission, both macro and micro vascular complication of diabetes, myocardial infarction and stroke. Significant reduction at the end of 10 years was found in weight, diabetes level and major Cardiovascular (CV) event, micro vascular and macro vascular complication (Figure-5). Another study published in JAMA in 2014 have shown better remission rate of diabetes in patient with duration of diabetes < 1 year compare to those with diabetes more than 4 years. More benefit was observed as far as

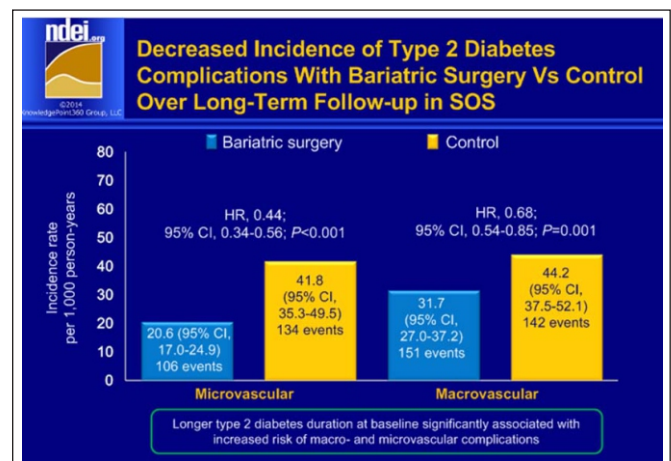


Figure-5

reduction in macro and micro vascular complication of diabetes for patients having < 1 year duration of diabetes compare to longer duration (Figure-6).

Physiological basis for diabetes control with bariatric surgery

Bariatric surgery control diabetes due to activation of adipo insulin axis where reduction in visceral obesity following surgery improves insulin resistant and diabetes.

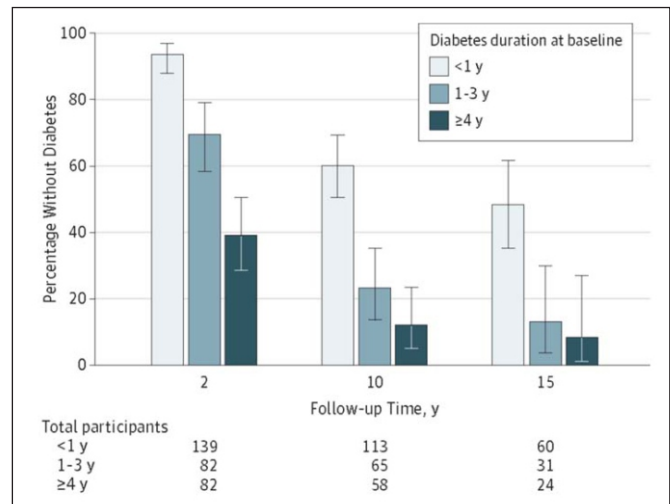


Figure-6

Exclusion of the duodenum results in inhibition of a “putative” signal that is responsible for insulin resistance and/or abnormal glycemic control (T2DM). The more rapid delivery of undigested nutrients to the distal bowel upregulates the production of L-cell derivatives like GLP-1 which also improves control of diabetes.

AHA / ACC / TPS obesity guideline confirm benefit of bariatric surgery with BMI > 35. 20 to 35 % reduction in weight helps in achieving good diabetes, hypertension and cholesterol control. It also confirms better control of co-morbid condition with gastric bypass surgery than restrictive surgery like gastrectomy.

ADA 2014 guideline recommends benefit of bariatric surgery for control of diabetes with BMI > 35 kg/m² especially with co-morbid condition and poor control with anti-diabetic medicine. Lifelong lifestyle support, medical monitoring is essential necessary post-surgery. BMI between 30 to 35 kg/m² bariatric surgery may be recommended in only selected patients.

Tachycardiomyopathy: Causes and Management

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Definition:

Tachycardia-induced cardiomyopathy or tachycardiomyopathy refers to impairment in LV function secondary to chronic tachycardia, which is partially or completely reversible after normalization of heart rate and/or rhythm irregularity.

An abnormality of systolic or diastolic function of the heart, or both, usually resulting in heart dilatation and ultimately in heart failure caused by a high and/or irregular ventricular rate.

This high and/or irregular ventricular rate may result from any type of cardiac arrhythmia

Classification:

- ◆ Pure type - occurs in underlying normal heart and LV dysfunction completely recovers after termination of the tachycardia
- ◆ Impure type – occurs in underlying structural heart disease, and the LV dysfunction may only recover incompletely after termination of the tachycardia.

The incomplete recovery of LV function might be the result of long-term tachycardia inducing irreversible myocardial injury.

Diagnosis difficult, often retrospective

- ◆ Dilatation of the heart or heart failure,
- ◆ Chronic or very frequent cardiac arrhythmias, including incessant SVT, AF, or flutter or incessant ventricular tachycardia.

Occurrence of chronic tachycardia for more than 10-15% of the day, with a ventricular rate of more than 150% of that predicted for age predisposes to tachycardiomyopathy.

Almost any tachyarrhythmia including premature beats can result in tachycardiomyopathy

Management

- ◆ **AV nodal blocking drugs** – beta-blockers, digoxin
 - ☐ Avoid calcium channel blockers
 - ☐ Often needed in high doses
 - ☐ Often combined with AAD
- ◆ **Anti-arrhythmic drugs** – amiodarone
 - ☐ Useful for both rate and rhythm control
 - ☐ Use other drugs like flecainide or propafenone with caution
 - ☐ May be required for long term for maintenance of sinus rhythm in AF or AFL
- ◆ **Cardioversion**
 - ☐ Most effective means of restoring sinus rhythm in AF and AFL
 - ☐ Ineffective in automatic arrhythmias
 - ☐ Recurrence rate high
- ◆ **Catheter ablation**
 - ☐ Highly effective in AT, AFL, SVTs, VPCs and VT
 - ☐ Most definitive therapy
 - ☐ Low recurrence rates in experienced centers

Conclusions

- ◆ Tachycardiomyopathy is a reversible cause of LV dysfunction that occurs due to rapid and/or irregular ventricular rate and rhythm
- ◆ Strong index of suspicion in a patient with chronic tachycardia and LV dysfunction is important to avoid missing the diagnosis
- ◆ Treatment by controlling the ventricular rate and rhythm by drugs or radiofrequency ablation is definitive and improves prognosis

Predicting Recurrent Stroke: Comparison of CHADS2 to CHA2DS2-VASC Scale among Patients With and Without Atrial Fibrillation at a Designated Primary Community Hospital Stroke Center

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Background

CHADS2 and CHA2DS2-VASC are predictors of thromboembolic events for atrial fibrillation (AF). There is limited data on using CHA2DS2-VASC to evaluate stroke recurrence in community hospitals. This study compared the utility of CHADS2 and CHA2DS2-VASC to predict recurrent stroke risk in a community hospital setting.

Methods

- ◆ The study population included all ischemic stroke cases from July 2006 to July 2014.
- ◆ Demographics including age, gender, ethnicity; co-morbidities including hypertension, dyslipidemia and diabetes and neurological-impairment-on-arrival were considered as confounders. The outcome was number of recurrent strokes over the eight year period.
- ◆ CHADS2 and CHA2DS2-VASC were analyzed as continuous variables.

Results

- ◆ Of 1,986 ischemic stroke patients, 468 had AF either prior to hospitalization, at admission or at discharge.
- ◆ In our patient population, CHADS2 was a more sensitive predictor recurrent stroke predictor compared to CHA2DS2-VASC (c-statistic: 0.85 and 0.78 respectively).
- ◆ Average CHADS2 score of patients with recurrent stroke was 2.9 vs. 1.4 in patients with no recurrent stroke.
- ◆ Average CHA2DS2-VASC score of patients with recurrent stroke was 4.2 vs. 2.7 in patients with no recurrent stroke.
- ◆ With every one point increase in CHADS2 patients were six times as likely to have a recurrent stroke, while with every one point increase in CHA2DS2-VASC, patients were 2.5 times as likely to have a recurrent stroke.
- ◆ Vascular disease ($p=0.62$) and gender ($p=0.87$) did not affect recurrent stroke. Hypertension ($p<0.0001$) and congestive heart failure ($p<0.0001$) were most significant predictors of recurrent stroke.

Conclusion

- ◆ At our community hospital, CHADS2 was the better predictor of recurrent strokes.
 - ◆ While composite scores are clinically useful, vascular disease and gender were not strong predictors of recurrent stroke in our population.
-
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Ethics in Medical Practice

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Ethics refers to standards of behavior that tell us how human beings ought to act in many situations in which they find themselves as friends, parents, children, citizens, businesspeople, teachers, professionals, and so on. The Hippocratic Oath also says a physician must recognize responsibility to patients first and foremost, as well as to society, to other health professionals, and to self. These are not laws, but standards of conduct which define the essentials of honorable behavior for the physician. Ethics encompass many areas beyond economics and they are knowledge, skill, attitude etc. Ethics basically includes autonomy, beneficence, non-maleficence and justice. These are useful but by themselves are not adequate for ethical decision making. Ethics has moral, social and commercial dimensions. Medicine is a distinguished profession with a special moral duty of care to save lives and to relieve suffering. For self-regulation, the profession needs to abide by a strict code of conduct which includes high ethical values, protects patients' interests, and upholds professional integrity. Trust is essential to the practice of medicine. The patient's trust imposes upon doctors corresponding duty to be trustworthy and accountable.

Code of medical ethics have been revised by MCI in May 2014 to better define and to regulate the conduct of medical services, and to regulate the professional conduct, etiquette and ethics for medical practitioners. In addition to emphasizing on duties and responsibilities of doctors, it defines unethical acts, professional misconduct rendering them liable for disciplinary action and provision of disciplinary actions. Many modern situations exist in which the personal interest of the HCP may not be aligned with that of the patient. Ethical choices must be made by the HCP in these situations. We must all have the courage to challenge ourselves and each other to attain and maintain unassailable ethical reputations through bullet-proof behavior. When patients are the first consideration in all things, ethical dilemmas shrink precipitously and physician self-interest cannot be a deciding factor.

The government has also started taking steps to curb allegedly unethical marketing practices of pharma companies by spelling out a uniform code of conduct for them. Doling out freebies, cruise tickets, paid vacations and sponsorships to educational conferences and seminars for doctors by pharmaceutical companies have been banned from January, 2015. The code will be voluntary to start with. It will be reviewed after six months; if not implemented "effectively", the government will consider" making it mandatory. Similarly, strict code of conduct is needed for health care providing organizations also.

In the matter of establishing, and implementing code of conduct for all related to providing healthcare, India seemingly lacks behind many western countries. We all should be careful to practice medicine with humanism and professionalism; otherwise medicine will become just another commodity in life's marketplace.

Newer Anticoagulants and Antithrombotic in CAD

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This presentation is focused on the following key practice guidelines for optimal management of patients presenting treated with novel oral anticoagulants (NOACs):

- ◆ Description of class effect and mechanism of action of Dabigatran, Rivaroxaban, Apixaban and Edoxaban
- ◆ Application of direct thrombin inhibitors, ideal patient selection, side effects and monitoring
- ◆ Description of class effect and mechanism of action of PAR1 receptor bloker, Vorapaxar and its role in secondary prevention of cardiovascular and peripheral vascular events
- ◆ Emerging guideline recommendations o selection of the above agents and comparative studies with warfarin.

Atrial Fibrillation: How Aggressively do I Pursue Rhythm Maintenance?

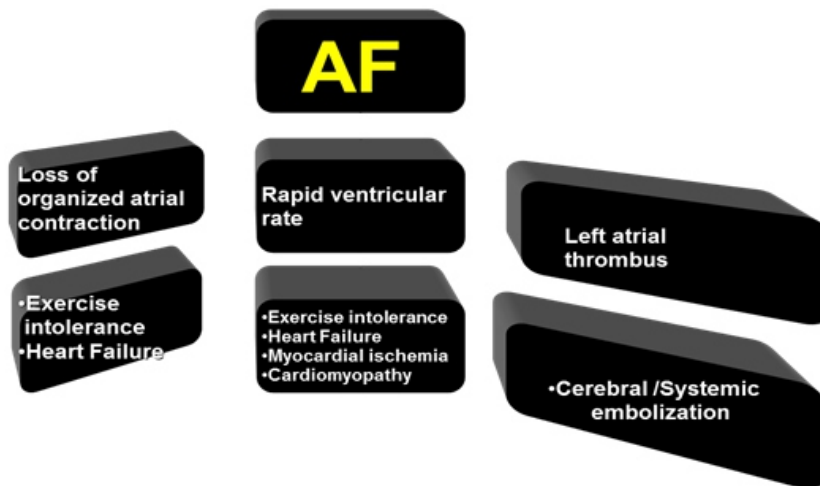
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Major consequences of AF



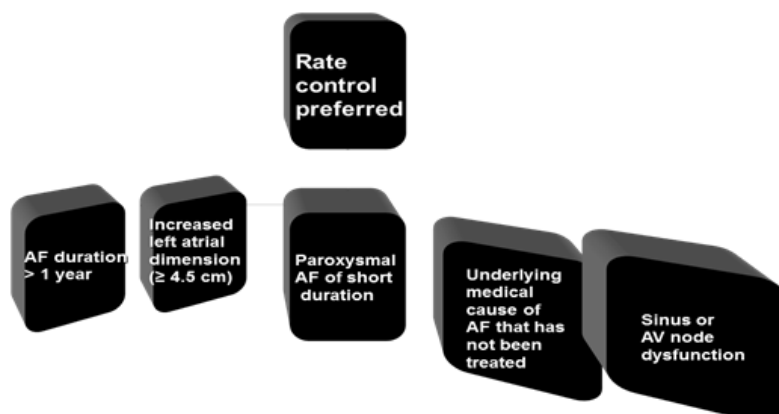
Rationale for Rate control

- ◆ To avoid hemodynamic instability
- ◆ To alleviate symptoms of palpitations, lightheadedness, dyspnea and angina
- ◆ To prevent complications of HF and tachycardia-mediated cardiomyopathy

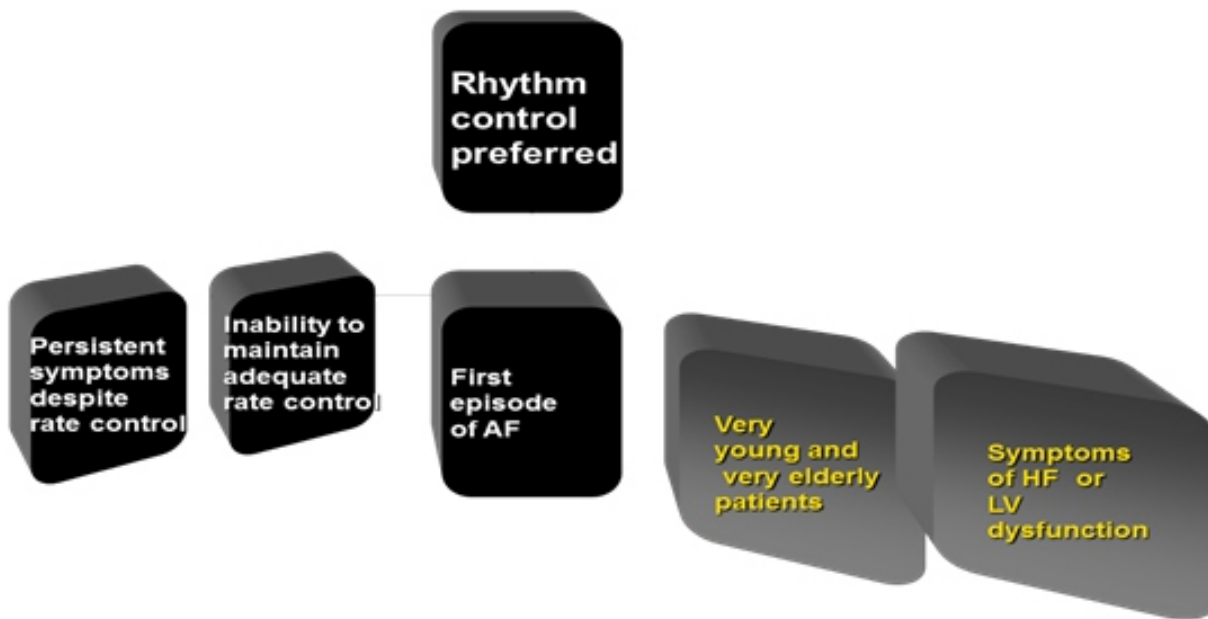
Rationale for Rhythm maintenance

- ◆ To avoid hemodynamic instability
- ◆ To alleviate symptoms that remain despite adequate rate control
- ◆ To further improve exercise capacity and quality of life
- ◆ To prevent complications of HF and tachycardiomyopathy

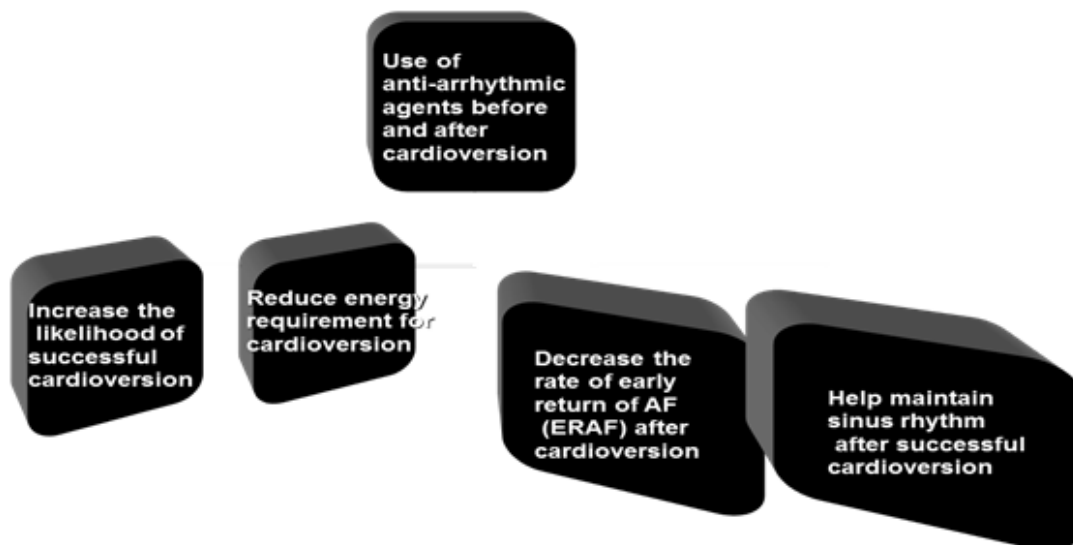
Candidates for Rate control



Candidates for Rhythm Maintenance



Rhythm control and Cardioversion



Conclusions:

- ◆ Based on data from large randomized controlled trials, the majority of AF patients should begin with a rate control strategy.
- ◆ A rhythm control strategy should be considered for pts who fail rate control, elderly pts, those with HF and those presenting with an initial episode of AF.
- ◆ Regardless of whether rate or rhythm control is selected, anticoagulation remains an important component of therapy in AF.

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Newer Anticoagulants Enter the Ring

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Prevalence and Incidence of AF globally

- ◆ The overall prevalence of AF in the general population is 0.4% to 1%¹
- ◆ It is estimated that more than 5 million people are affected in the US² and over 6 million in Europe³
- ◆ The number of patients with AF increases with age, particularly after age 60¹
 - Approximately 8% of people >80 years have NVAF*
 - The median age of AF patients is about 75; about 70% are between 65 and 85
- ◆ Since life expectancy and the age-adjusted incidence of AF are rising in the US, it is estimated that there will be a threefold increase in the number of persons with AF over the next 50 years²

Advantages and Disadvantages of Vit K Antagonist (VKA) therapy

- ◆ VKA therapy has been shown to be very effective in reducing the risk of stroke in patients with AF but it has multiple challenges

Advantages	Disadvantages
• Proven efficacy for stroke prevention • Historical standard of care • Long half-life, once-daily dosing • Availability of an antidote • Ability to measure anticoagulant effect • Low drug cost	• Risk of bleeding complications, including ICH • Routine monitoring required • Dose adjustments frequently needed • Slow onset of action • Narrow therapeutic window • Dietary restrictions • Numerous drug interactions • Variability in patient response • in the west

Underuse and Improper Use of Oral Anticoagulants

- Despite the guideline recommendations, percentage of patients with AF actually using OAC is suboptimal.
 - According to a global AF registry, in most countries, oral anticoagulation use is <65% in patients with CHADS₂ > 2
 - According to the same registry, INR control is poor in most of the countries
 - Aspirin and Dual antiplatelet therapy with aspirin and clopidogrel has been studied as a

potential alternative anticoagulant for AF patients: noted to be inferior to warfarin in preventing strokes.

Characteristics of Warfarin and Newer Oral Anticoagulants (NOACS):

	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

NOACs in SPAF:

- ◆ Hemorrhagic stroke is reduced compared to warfarin by all NOACs
- ◆ Some NOACs reduce total stroke and stroke/SEE vs. warfarin
 - Only dabigatran 150 mg bid reduced ischemic stroke vs. warfarin
- ◆ Some categories of bleeding were reduced by all NOACs
 - Intracranial bleeding reduced by all NOACs vs warfarin
 - Major bleeding reduced by apixaban and dabigatran 110 mg bid
 - Life-threatening/fatal/critical bleeding reduced by dabigatran 150 and 110 mg bid and rivaroxaban, no data for apixaban
 - GI bleeding increased with dabigatran and rivaroxaban

NOACs offer better options to prevent strokes with more convenience and a similar or better safety profile

Conclusions:

- ◆ 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

Re-Emphasizing CHADS₂ and CHA₂DS₂VASc Scores in AF Management

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CHADS₂ risk of Stroke score in Atrial Fibrillation

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

Limitations of CHADS₂ score:

- CHADS₂ is simple but most now agree that it does not include many common stroke risk factors and its limitations have been highlighted
- For example, vascular disease (not included in the CHADS₂ score) is an independent risk factor for stroke in AF
- The risk of stroke also increases from age ≥ 65 years, with even greater risk at age 75 years or older
- Many patients classified as 'low-risk' using CHADS₂ (score = 0) have stroke rates >1.5%/year and a CHADS₂ score of 0 does not reliably identify AF patients who are 'truly low-risk'

CHA₂DS₂-VASc 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

Stroke risk increases with higher CHA₂DS₂ VASc score

CHA ₂ DS ₂ – VASc score	Patients (n=1084)	TE events (n=25)	TE rate during 1 yr (% [95% CI])*	TE rate during 1 yr, adjusted for aspirin prescription (%)
0	103	0	0	0
1	162	1	0.6 (0.0, 3.4)	0.7
2	184	3	1.6 (0.3, 4.7)	1.9
3	203	8	3.9 (1.7, 7.6)	4.7
4	208	4	1.9 (0.5, 4.9)	2.3
5	95	3	3.2 (0.7, 9.0)	3.9
6	57	2	3.6 (0.4, 12.3)	4.5
7	25	2	8.0 (1.0, 26.0)	10.1
8	9	1	11.1 (0.3, 48.3)	14.2
9	1	1	100 (2.5, 100)	100

- [illegible]

BNP - Pathophysiology and Clinical Application in Critically ill Patients

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The natriuretic peptide system impacts salt and water handling and pressure regulation and may influence myocardial structure and function. Brain natriuretic peptide (BNP) is a natriuretic hormone initially identified in the brain but released primarily from the heart, particularly the ventricles. Cleavage of the prohormone proBNP produces biologically active 32 amino acid BNP as well as biologically inert 76 amino acid N-terminal pro-BNP (NT-proBNP). The application of BNP for heart failure (HF) is widely known. Apart from HF BNP levels are also elevated in some patients with coronary heart disease, valvular heart disease, constrictive pericarditis, pulmonary hypertension, pulmonary embolism, sleep apnea and sepsis. The diagnostic and prognostic value of measuring plasma BNP and NT-proBNP in critically ill non-HF conditions will be discussed during this presentation.

Guidelines: STEMI - 15 Points to Remember for Physicians

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This presentation is focused on the following key practice guidelines for optimal reperfusion of patients presenting with STEMI:

- ◆ Reperfusion therapy should be given to all eligible patients with STEMI, whether percutaneous coronary intervention (PCI) or fibrinolytic therapy, in a timely manner
- ◆ For patients with STEMI who present to a non-PCI capable hospital, transfer should be considered either for primary PCI, or if anticipated time to PCI is greater than two hours, after fibrinolysis
- ◆ Patients with STEMI who suffer a cardiac arrest and are resuscitated should receive reperfusion therapy if possible
- ◆ Communities should maintain a regional system of STEMI care that includes continuous quality assessment of the EMS and hospital systems
- ◆ Performance of a 12 lead ECG by EMS personnel at the site of first medical contact should be performed on patients suspected of STEMI
- ◆ Primary PCI is the preferred strategy of reperfusion
- ◆ The use of stents is recommended in patients undergoing PCI for STEMI

Appropriate antithrombotic therapy, including dual antiplatelet and anticoagulant therapy, should be used during and after reperfusion therapy; options include clopidogrel, prasugrel and ticagrelor.

Valve Guideline- Points to Remember

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Ref. : Nishimura RA, Otto CM, Bonow RO, et al. .2014 AHA/ACC Guideline for the Management of Patients With Valvular Heart Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

The following are 10 areas with important changes to remember:

1. **Stages of heart valve disease.** The revised guidelines include a new classification of heart valve diseases with four progressive stages: A, at risk; B, progressive; C, asymptomatic severe; and D, symptomatic severe. For each valve lesion, stages are based on valve anatomy, valve hemodynamics, hemodynamic consequences, and symptoms.
2. **The heart valve team.** The guidelines recommend (Class I) that the management of patients with severe heart valve disease is best achieved by a heart valve team, composed minimally of a cardiologist and a cardiac surgeon; but potentially including cardiologists, structural valve interventionalists, cardiovascular imaging specialists, cardiovascular surgeons, anesthesiologists, and nurses, all of whom have expertise in the management and outcome of patients with severe heart valve disease.
3. **Heart valve centers of excellence.** The guidelines recommend (Class IIa) that consultation with or referral to a heart valve center of excellence is reasonable for asymptomatic patients with severe valve disease, patients with disease that could be best treated with valve repair rather than replacement, and patients with multiple comorbidities in whom valve intervention is considered. Specific criteria for a heart valve center of excellence include experienced providers from multiple disciplines, an ability to offer all available options for diagnosis and management, participation in regional or national outcome registries, demonstrated adherence to guidelines, ongoing quality improvement processes, and public reporting of intervention mortality and success rates.
4. **Evaluation of surgical and interventional risk.** The guidelines provide specific recommendations for the assessment of surgical and interventional risks that include the Society of Thoracic Surgeons (STS) predicted risk of mortality (PROM) calculator, patient frailty (e.g., Katz Activities of Daily Living and independence), the number of compromised major organ systems, and procedure-specific impediments.
5. **Exercise testing.** The guidelines place increased emphasis (Class IIa) on the use of exercise testing in the evaluation of asymptomatic patients with severe heart valve disease (notably including asymptomatic severe aortic stenosis [AS] and asymptomatic severe primary mitral regurgitation [MR]); aimed at confirmation of the absence of symptoms, assessment of the hemodynamic response to exercise, and assessment of prognosis.

6. **Aortic stenosis.** Changes were made in the characterization of and indications for intervention for AS:
- ◆ Two important changes were made in the characterization of AS: i) 'very severe' AS is defined as aortic $V_{\max} \geq 5$ m/s or mean gradient ≥ 60 mm Hg; and ii) symptomatic severe AS is subdivided into high gradient ($V_{\max} \geq 4$ m/s or mean gradient ≥ 40 mm Hg), low-flow low-gradient (LFLG) with reduced left ventricular ejection fraction (LVEF) (severe leaflet calcification with severely reduced motion, effective orifice area [EOA] ≤ 1.0 cm², and $V_{\max} < 4$ m/s or gradient < 40 mm Hg with LVEF $< 50\%$, and EOA remaining ≤ 1.0 cm², but $V_{\max} \geq 4$ m/s at any flow rate during dobutamine echocardiography), and LFLG with normal LVEF (or paradoxical LFLG severe AS; severe leaflet calcification with severely reduced motion, EOA ≤ 1.0 cm² and $V_{\max} < 4$ m/s or gradient < 40 mm Hg with LVEF $\geq 50\%$).
 - ◆ Indications for intervention are expanded from previous to include patients with very severe AS (above) and low surgical risk (Class IIa); asymptomatic severe AS and decreased exercise tolerance or exercise-related decrease in blood pressure (Class IIa); and symptomatic patients with LFLG severe AS and normal LVEF if clinical, hemodynamic, and anatomic data support valve obstruction as the likely cause of symptoms (Class IIa).
7. **Transcatheter aortic valve replacement.** Surgical aortic valve replacement (AVR) remains the intervention of choice for patients with an indication for AVR and low or intermediate operative risk (Class I). Transcatheter AVR (TAVR) is recommended for patients with an indication for AVR, but a prohibitive surgical risk (Class I). TAVR is a reasonable alternative to surgical AVR in patients with an indication for AVR and high surgical risk (Class IIa). Notably, members of a heart valve team should collaborate in order to optimize patient care for patients in whom TAVR or high-risk surgical AVR are being considered (Class I).
8. **Management of primary MR.** A clear distinction is drawn between chronic primary (degenerative) MR, with pathology of one or more components of the valve (leaflets, annulus, chordae, papillary muscles); and chronic secondary (functional) MR. Intervention for severe chronic primary MR remains indicated (all Class I) for symptoms, LV dysfunction (LVEF $\leq 60\%$ and/or systolic diameter ≥ 40 mm), and at the time of other cardiac surgical intervention. Changes in the recommendations for mitral valve repair (MVR) include the following:
- ◆ MVR is recommended over mitral valve replacement (MVR) when pathology is limited to the posterior leaflet (Class I);
 - ◆ MVR is recommended over MVR when pathology involves the anterior or both leaflets and a successful and durable repair can be accomplished (Class I);
 - ◆ Prophylactic' MVR (repair in an asymptomatic patient with preserved LV function) is reasonable when performed at a heart valve center of excellence and the likelihood of successful and durable repair without residual MR is $> 95\%$ and operative mortality risk is $< 1\%$ (Class IIa);

- ◆ MVR is reasonable in an asymptomatic patient with severe nonrheumatic MR and preserved LV function in the setting of new-onset atrial fibrillation or resting pulmonary artery systolic pressure >50 mm Hg (Class IIa); and
- ◆ MVR may be considered in the setting of rheumatic mitral valve disease when surgery is indicated and either successful repair is likely or when long-term anticoagulation management appears unreliable (Class IIb). There is a Class III (harm) indication for MVR in the setting of isolated disease involving less than half of the posterior mitral leaflet unless repair was attempted and was unsuccessful.
- ◆ Finally, transcatheter MVR may be considered in severely symptomatic patients who have favorable anatomy and a reasonable life expectancy and a prohibitive surgical risk due to comorbidities, and remain severely symptomatic despite optimal medical therapy (Class IIb).

9. **Management of secondary MR.** Chronic secondary (functional) MR occurs as a result of abnormalities of the LV, and has more differences than similarities with chronic primary MR (above). The treatment of chronic secondary MR involves treatment of the underlying cardiomyopathy (Class I) and cardiac resynchronization therapy if indicated (Class I). Intervention for chronic secondary MR is reasonable at the time of coronary artery bypass grafting or other cardiac surgery if MR is severe (Class IIa) and not unreasonable if MR is moderate (Class IIb). Surgical intervention performed primarily for chronic secondary MR remains limited to severely (New York Heart Association class III-IV) symptomatic patients with persistent symptoms despite optimal medical therapy for heart failure (Class IIb); new in these guidelines is acceptance of equivalence among these patients between MVR and MVR.

10. **Low molecular weight heparin (LMWH) 'bridging' of patients with a mechanical heart valve prosthesis.** Low LMWH 'bridging' is now considered to be appropriate (Class I) among patients with a mechanical valve at high risk of thrombosis when warfarin needs to be interrupted in the context of an invasive or surgical procedure (previously Class IIb).

Outcomes of Stroke Patients with Chronic Kidney Disease, Atrial Fibrillation and on Anticoagulant Therapy in a Community Hospital Setting

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Background

There is a high incidence of stroke in patients with chronic kidney disease (CKD). This is further complicated by cardiovascular disease and atrial arrhythmia, mainly atrial fibrillation (AF). Studies have examined use of anticoagulants for stroke prevention in this population, but there is limited outcomes data. We examine the effect of anticoagulants on CKD and AF patient outcomes in a community hospital setting.

Methods

- ◆ Retrospective cohort study including stroke patients with CKD ($\geq$ Stage III; creatinine >1.9 mg/dL; GFR <60 ml/min/1.73m²) from 2006-2013.
- ◆ AF was present at admission or had a history of AF. Anticoagulant use was either current/prior use. Study outcomes were: mortality, discharge disposition (Home vs. SNF/Acute Rehab) and stroke recurrence. Patient demographics and stroke severity were considered confounders.
- ◆ Analyses included logistic regression, chi-squared tests for categorical and t-tests for continuous variables, using R version 3.0.2.

Results

- ◆ Of 283 stroke patients with CKD, 69.6% (n=143) had AF of which 60.8% (n=87) were on anticoagulants (mainly warfarin).
- ◆ There were no significant differences in recurrent stroke rate and discharge disposition for patients on anticoagulants and not on anticoagulants. However patients on anticoagulants were 20% more likely to expire compared to AF patients not on anticoagulants (R.R. 1.2, 95% C.I. 0.2-6.8)

Conclusion

Anticoagulant use in CKD/AF stroke patient population increased the risk of mortality in our community setting. Etiology of the high incidence of mortality is unclear and may be associated with a higher risk of bleeding in this population. Further evaluation is being done in our study population to determine associated causes of mortality.

Guidelines in Atrial Fibrillation: Points to Remember for the Physicians

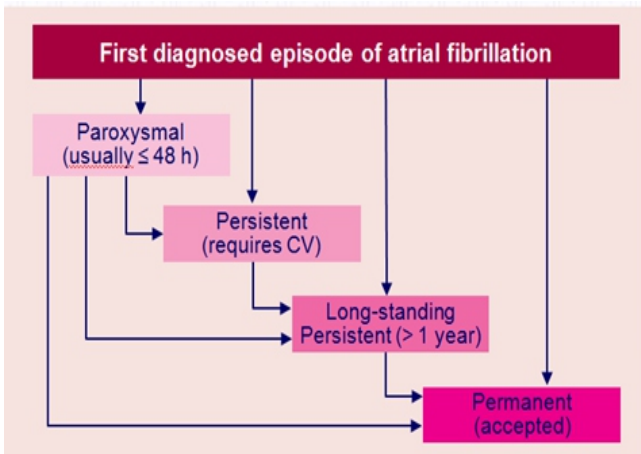
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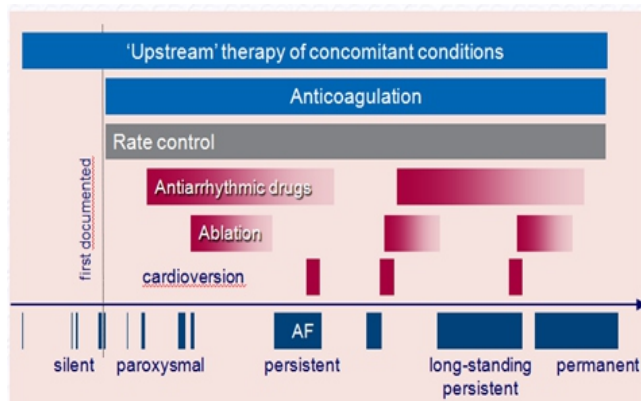
Types of Atrial Fibrillation (AF)



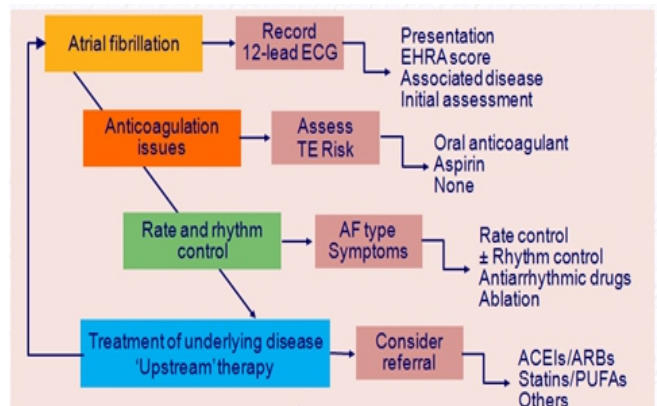
Clinical Evaluation

- Acute ventricular rate control.
- Immediate assessment of the need for anticoagulation.
- First decision to add rhythm control therapy to the management based on symptoms (may be reassessed later).
- Treatment of underlying heart disease.

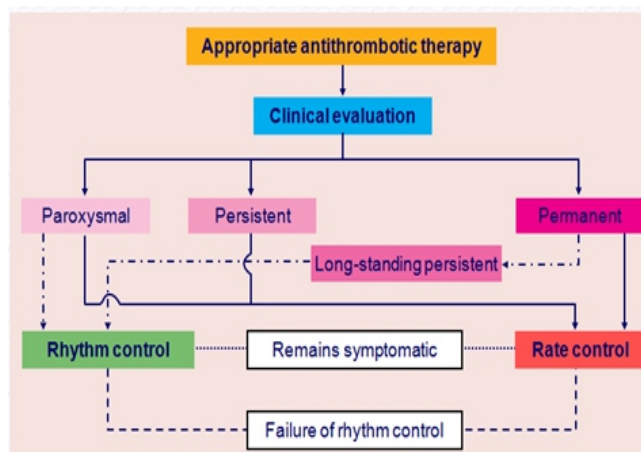
Natural time course of AF



Management cascade for patients with AF



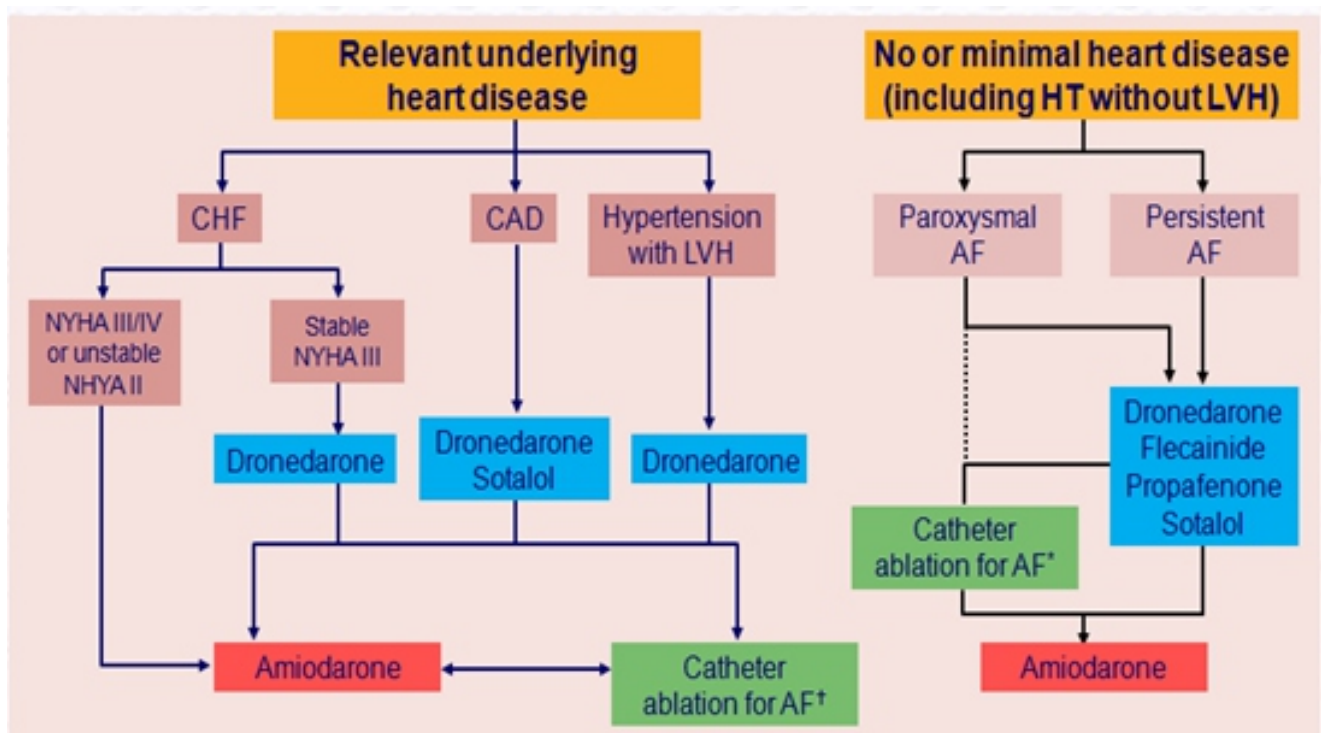
Choice of rate and rhythm control management of AF



Principles of AntiArrhythmic Drug therapy for AF

1. Treatment is motivated by attempts to reduce AF-related symptoms.
2. Efficacy of antiarrhythmic drugs to maintain sinus rhythm is modest.
3. Clinically successful antiarrhythmic drug therapy may reduce rather than eliminate recurrence of AF.
4. If one antiarrhythmic drug 'fails' a clinically acceptable response may be achieved with another agent.
5. Drug-induced proarrhythmia or extra-cardiac side-effects are frequent.
6. Safety rather than efficacy considerations should primarily guide the choice of antiarrhythmic agent.

(6) Ablation vs. AAD in management of AF



The J-wave Spectrum: From Early Repolarization to Idiopathic VF

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J wave & J wave Syndromes - History

1938	Tomaszewski	1 st description of hypothermic J wave in a frozen man
1953	Osborn	"Current of injury" in acidotic hypothermic dogs that fibrillated at temperatures < 25°C
1936	Shipley & Hallarn	1 st described ER pattern on ECG
1961	Wasserburger & Alt	Redefined ER as an elevated takeoff of ST segment at the J Junction along with concave ST segment
1984	Otto et al	Three cases of VF during sleep in normal heart males who had prominent J waves and ST elevation
1998	Munger RG	Manila Philippines - "bangungut" SCD cases
1992	Pedro & Josep Brugada	SCD in 8 patients with RBBB & ST Elevation in V1-V3
1996	Antzelevitch C	Named Brugada Syndrome
1999	Gussak & Antzelevitch	Suggested that ERS can be malignant
2008	Haissaguerre et al, Nam et al	Association between J waves with ERS and VF

J wave Syndromes : Classification

- Inherited
 - Early Repolarization Syndrome
 - Type 1 (lateral leads)
 - Type 2 (inferior or inferolateral leads)
 - Type 3 (global)
 - Brugada Syndrome
- Acquired
 - Ischemia mediated VT/VF
 - Hypothermia mediated VT/VF

Early Repolarization Syndrome & Idiopathic VF

- Considered as a "benign" ECG manifestation for long
- Now, data suggests that ER pattern is associated with risk for VT that depends on
 - Location of ER pattern
 - Magnitude of the J wave
 - Degree of ST elevation
- Many cases of previously labeled idiopathic VF display a prominent J wave and ER pattern in inferior leads or globally

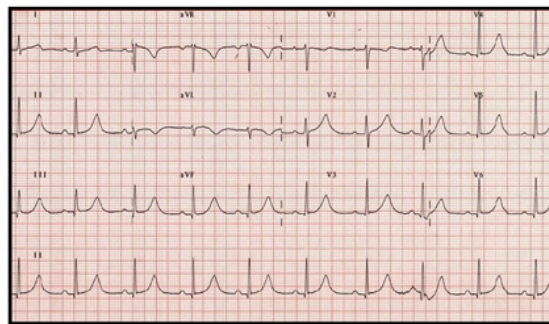
ERS - Subtypes

- Type 1 ERS
 - ER pattern in lateral precordial leads
 - Seen in healthy male athletes
 - Rarely seen in VF survivors
- Type 2 ERS
 - ER pattern in the inferior or infero-lateral leads
 - Higher risk of VF and SCD
 - Many idiopathic VF patients have this pattern
 - Also seen in healthy young males
- Type 3 ERS
 - ER pattern globally in inferior, lateral & right precordial leads
 - Highest level of risk of VF
 - Often associated with VF storms

ERS type 2



ERS type 3



J wave Syndromes

	Inherited	Early repolarization in lateral leads (ERS type 1)	Early repolarization in inferior or inferolateral leads (ERS type 2)	Global early repolarization (ERS type 3)	Brugada syndrome	Acquired	Ischemia-mediated VT/VF	Hypothermia-mediated VT/VF
Anatomic location responsible for chief electrophysiologic manifestations	Anterolateral left ventricle	Inferior left ventricle	Left and right ventricles	Right ventricle	Left and right ventricles	Left and right ventricles	Left and right ventricles	Left and right ventricles
Leads displaying J point/2-wave abnormalities	I, V ₁ -V ₄	II, III, aVF	Global	V ₁ -V ₄	Any of the 12 leads	Any of the 12 leads	Any of the 12 leads	Any of the 12 leads
Response of J-wave amplitude/ST elevation to:								
Bradycardia or pause	Increase	Increase	Increase	Increase	N/A	N/A	N/A	N/A
Sodium channel blockers	Little or no change	Little or no change	Little or no change	Little or no change	N/A	N/A	N/A	N/A
Gender dominance	Male	Male	Male	Male	Male	Male	Male	Male
Response to quinidine	Yes ^{1,2,3}	Yes ^{1,2,3}	Yes ^{1,2,3}	Yes ^{1,2,3}	Yes ^{1,2,3}	Yes ^{1,2,3}	Yes ^{1,2,3}	Yes ^{1,2,3}
Response to isoproterenol	Normalization of J-point elevation and inhibition of VT/VF	Normalization of J-point elevation and inhibition of VT/VF	Normalization of J-point elevation and inhibition of VT/VF	Normalization of J-point elevation and inhibition of VT/VF	Normalization of J-point elevation and inhibition of VT/VF	Normalization of J-point elevation and inhibition of VT/VF	Normalization of J-point elevation and inhibition of VT/VF	Normalization of J-point elevation and inhibition of VT/VF
Gene mutations	SCN5A, CACNA1C, CACNB2B ¹⁷	SCN5A, CACNA1C, CACNB2B ¹⁷	SCN5A, CACNA1C, CACNB2B ¹⁷	SCN5A, CACNA1C, CACNB2B ¹⁷	SCN5A, CACNA1C, CACNB2B ¹⁷	SCN5A ¹⁷	SCN5A ¹⁷	SCN5A ¹⁷

Scar Related VT: Problem and Solutions

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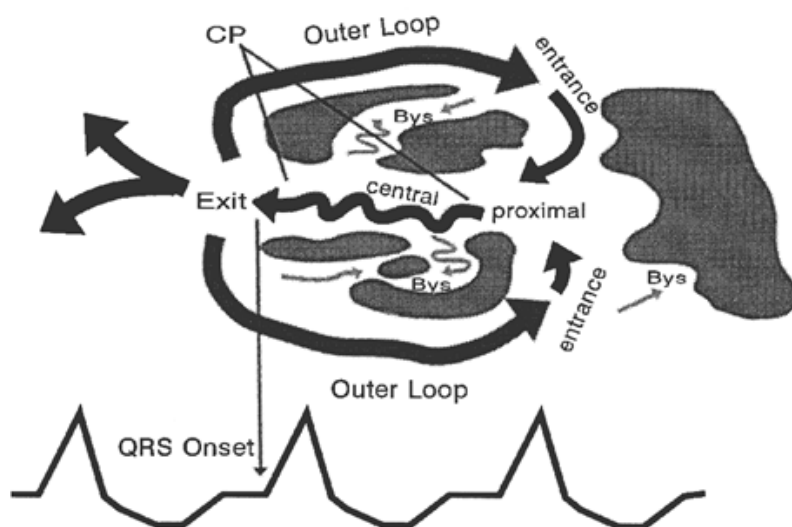
Etiopathology in Scar related Ventricular Tachycardia (VT)

1. Post Myocardial infarction
2. Non ischemic cardiomyopathy

Dilated cardiomyopathy

- ◆ Post Myocarditis
- ◆ ARVD
- ◆ RV Cardiomyopathy
- ◆ Sarcoidosis
- ◆ Hypertrophic CMP

MI-related Sustained Monomorphic VT circuit



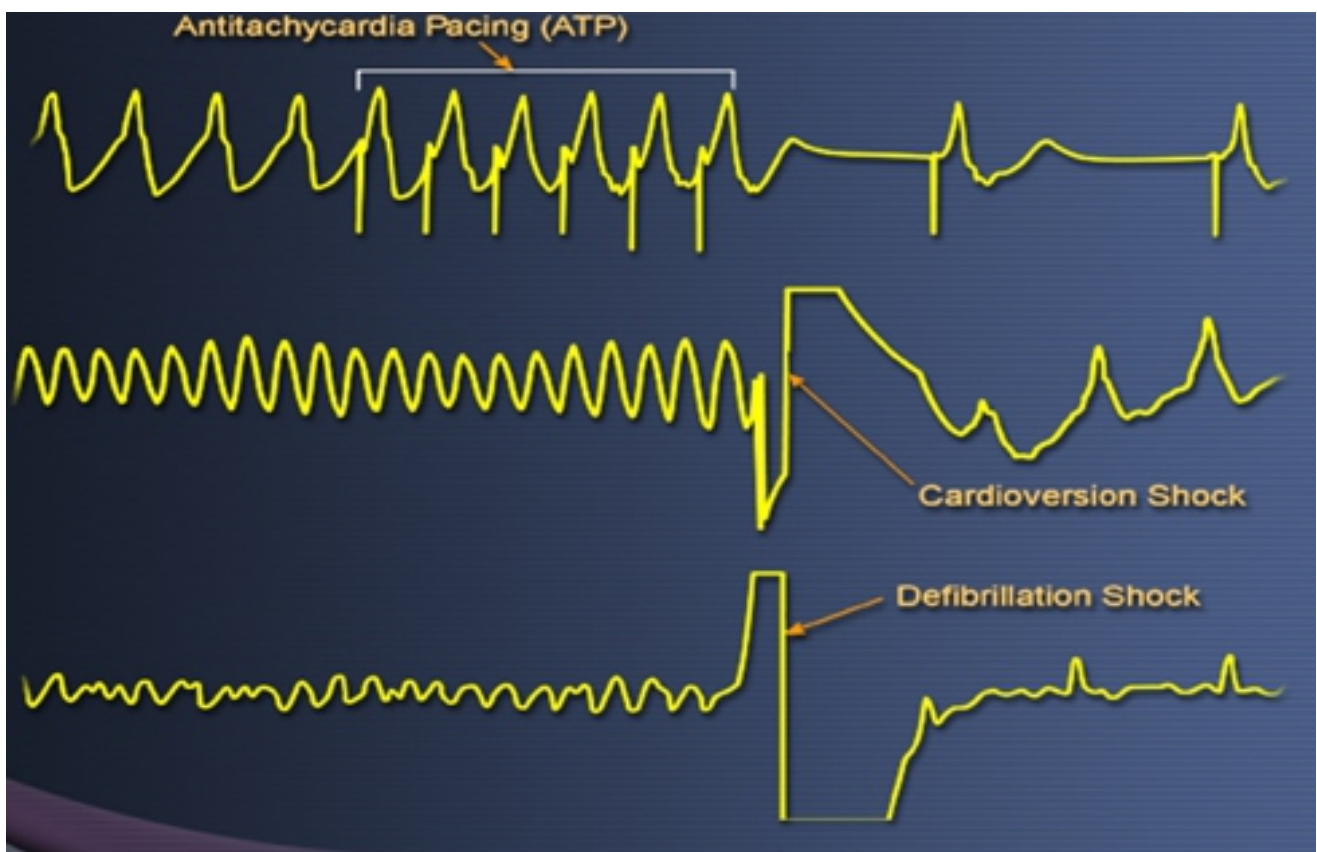
Tools to recognize scars

- ◆ 1. ECG- Q waves
- ◆ 2. Echo- Akinetic/ dyskinetic segments
- ◆ 3. LV angiogram- Aneurysms
- ◆ 4. Nuclear scans- Non viable territories
- ◆ 5. Cardiac MRI- Late Gadolinium enhancement
- ◆ 6. EPS- Inducible Monomorphic VT
- ◆ 3-D Mapping- Low voltage, non excitable areas

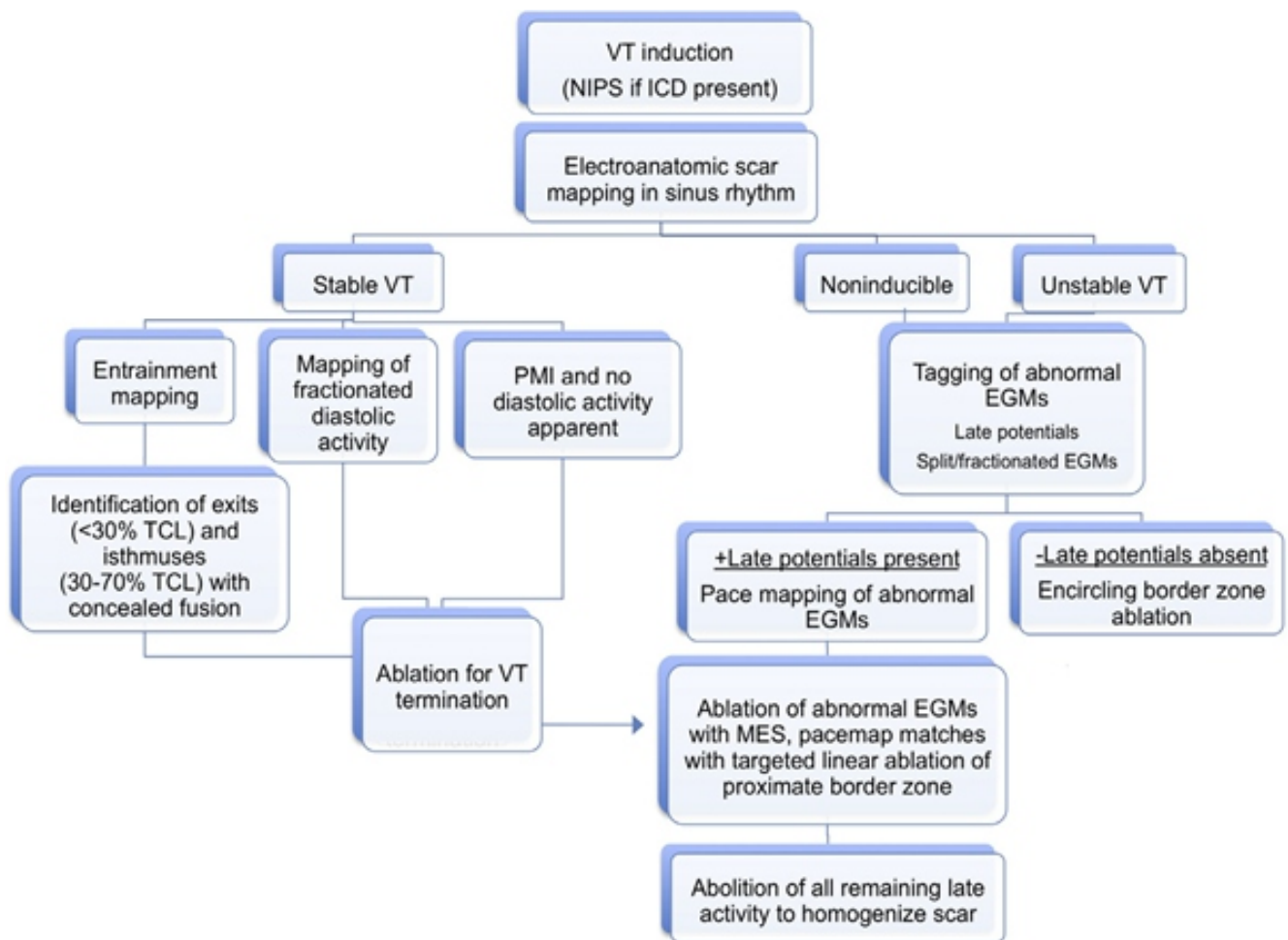
Beta Blockers reduced SCD in IHD

Study	N=	LVEF	Beta blocker	Dosage
US Carvedilol	1094	< 35	Carvedilol	6.25 to 50 mg twice daily
CIBIS II	2647	< 35	Bisoprolol	10 mg once daily
MERIT HF	3991	< 40	Metoprolol CR/XL	200 mg once daily
BEST	2708	< 35	Bucindolol	50-100 mg twice daily
COPERNICUS	2289		Carvedilol	25 mg twice daily

Tiered therapy by ICD



Strategy for Ablation of Scar related VT



Conclusions:

- ◆ Scar VT typically involves post Myocardial infarction patients.
- ◆ It may include other substrates, as in NICM, Sarcoidosis.
- ◆ It is a risk factor for Sudden death.
- ◆ Cardiac MRI has evolved as a reliable tool.

Approach to a Patient with Hypertension, Diabetes, Heart Failure and Chronic Kidney Disease

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CKD is a serious health problem worldwide that leads to devastating CHD morbidity and mortality. The mechanisms that lead to these events are diverse and far more complicated than in patients with normal renal function. CHD is uniquely different in CKD from that in the general population, with earlier onset in life, more rapid progression, closer association with calcification, increased vascular stiffness, resistance to statin medications, higher complications with percutaneous and surgical revascularization, and higher rates of sudden death. As renal function deteriorates, certain physiologic changes occur (perhaps due to hemodynamic, inflammatory, or metabolic changes) that decrease oxygen-carrying capacity of the blood by virtue of anemia, make blood vessels stiffer by altering collagen or through medial calcinosis, raise the blood pressure, increase shearing stresses, or alter the constituents of atherosclerotic plaque or the balance of thrombogenesis and thrombolysis.

Because traditional risk factors fail to fully account for the elevated CV risk in CKD, there has been a great deal of interest lately in emerging risk factors that are unique to this population (inflammation and C-reactive protein [CRP], oxidative stress, nitric oxide availability, hyperhomocysteinemia, hyperphosphatemia, vascular calcification, increased vascular stiffness, LVH, anemia, endothelial dysfunction, volume overload and electrolyte imbalance, and timing of dialysis), in the hope that modulation of these factors might improve outcomes in CKD patients.

Chronic kidney disease (CKD) is increasingly prevalent in patients with chronic systolic heart failure. Evidence-based therapies are more and more being used in patients with some degree of renal dysfunction. Unfortunately, most randomized clinical trials specifically excluded patients with (moderate to severe) renal dysfunction. The benefit of these evidence-based therapies in this high-risk patient group is largely unknown. On reviewing, most evidence-based therapies have been found to have consistent outcome benefit in patients with moderate renal insufficiency (stage 3 CKD), whereas there are very scarce data on patients with severe (stage 4 to 5 CKD) renal insufficiency. The outcome benefit might be even greater in stage 3 CKD compared with those with relatively preserved renal function. However, prescription of therapies should be individualized with consideration of possible harm and benefit, especially in those with stage 4 to 5 CKD where limited data are available.

Similarly patients with CKD are usually excluded from prospective randomized controlled trials and are often denied coronary angiography and PCI for fear of worsening renal function. The published studies on patients with CKD who undergo revascularization are usually small, single-centered, and retrospective. On overall, patients with CKD do get benefits out of revascularization, but complications are higher and survival is less. Peri procedure acute kidney injury needing short term and long term dialysis is a specific complication in these patients.

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Pulmonary Hypertension (PH) is recognized as increase pressure in pulmonary circulation. Pulmonary arterial hypertension (PAH) is a condition in which pressure is predominantly increased in pulmonary arterial circulation. PAH is rare disease with 1-2 cases / million per year incident rate in US. Idiopathic PAH is rare entity but PAH associated with diseases like HIV, connective tissue disease, thromboembolic phenomena are increasing and more recognized. PAH is associated with significant morbidity and mortality. In fact classic Idiopathic PAH is rapidly fatal if untreated. During this symposium we will discuss about latest classification of PH and new modalities to treat PAH in case based approach.

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Physicians Approach to Peripheral Artery Disease (PAD)

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This presentation is focused on the following key practice guidelines for optimal management of patients presenting with symptomatic PAD:

- ◆ PAD is highly prevalent in patients with cardiovascular risk factors, especially with increasing age, tobacco use and diabetes mellitus
- ◆ Medical treatment of PAD with antiplatelet, lipid lowering and renin-angiotensin axis blocking agents and supervised exercise therapy is crucial
- ◆ Endovascular treatment of PAD is becoming the mainstream, especially due to its minimally invasive nature and low complication rates
- ◆ Superficial femoral artery CTO is the main target of intervention in both claudicants and CLI
- ◆ Wire-catheter and dedicated crossing device are equally effective in achieving procedural success
- ◆ Drug-coated balloons and stents are being increasingly used in PAD interventions

Optimal antiplatelet regimen remains undefined in patients following endovascular intervention for PAD

Incessant WCT, Cardiogenic Shock, Hepatic Dysfunction and Coagulopathy in A Young Gentleman with DCMP Causing Limb Necrosis

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Background and Aim

A 25-year-old gentleman with severe dyspnea for past 12 hours was transferred by ambulance from a hospital 300 kms away and arrived in the emergency room at 5 am.

The patient was in Cardiogenic shock, pulse was rapid and feeble, blood pressure was 60 mmHg. ECG showed a Wide Complex Tachycardia (WCT) with LBBB pattern at 180 bpm (Figure 1). Echocardiogram revealed dilated Left Ventricle (LV) with severe LV dysfunction, LVEF was 20%.

Methods

DC cardioversion was performed with successful restoration of sinus rhythm. There was underlying sinus tachycardia (rate 120 bpm) with LBBB. There was no pre-excitation, there were frequent premature beats. Despite IV Beta blockers and Amiodarone, the patient was in near-incessant tachycardia due to frequent premature beats repeatedly re-initiating the tachycardia. Even during sinus rhythm, the BP was 70 mmHg.

Figure-1



Figure-2

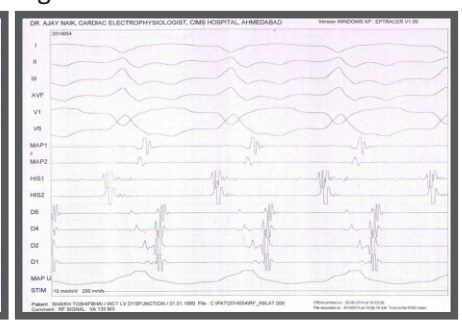
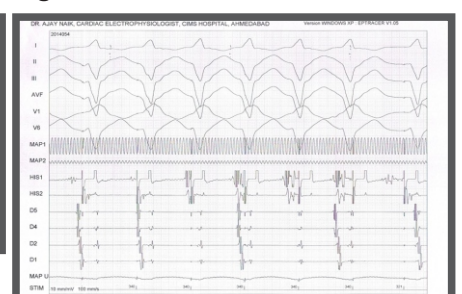


Figure-3



Figure-4



The patient was taken to the Electrophysiology laboratory in emergency. The WCT was an Orthodromic tachycardia (OAVRT) mediated via Concealed Left Posterolateral Accessory pathway with LBBB aberrancy (Figure 2). RF

ablation was performed by retrograde transaortic route and AP conduction was abolished within 20 minutes of patient being taken in the Catheterization Laboratory (Figure 3). There was concentric VA conduction retrogradely via AV node post ablation (Figure 4).

Despite restoration of stable sinus rhythm (Figure 5), the patient continued to be in severe hypotension, hence IABP was introduced via Right femoral artery, endotracheal intubation was performed and patient was kept on ventilator in the ICU (Figure 6A).

Laboratory investigations revealed leukocytosis (23000/cmm), thrombocytopenia, liver dysfunction and altered coagulation parameters. The patient stabilized over the next 36 hours, extubation was performed and IABP was removed. The ambient BP was 100 mmHg with preserved renal function. However, the right lower limb showed ischemia and calf compartment syndrome (Figure 6B). Femoral artery embolectomy (Figure 6C) and calf fasciotomy surgery was performed to relieve the compartment syndrome (Figure 6D). Over next few days, the total count remained persistently high, the limb continued to show necrotic deep tissue on successive debridement procedures. Despite all efforts to salvage the limb, an above-knee amputation had to be performed.

Following rehabilitation and improvement in laboratory reports, the patient was discharged from the hospital after 2 weeks stay. The echo continued to show severe LV dysfunction and dilated LV.

Results

At one-month follow up, the patient was doing well and was processed for prosthetic limb attachment. The LVEF had improved to 40 % at 4 months follow up visit (Figure 7), however the LBBB pattern persists (Figure 8).

He will be reevaluated for CRT implantation if there is no further improvement in LV function due to reversal of the tachycardiomyopathy element.

Conclusion

This young 25-year-old gentleman had DCMP, severe LV dysfunction and a concealed accessory pathway causing rapid incessant OAVRT and WCT due to underlying LBBB resulting in Cardiogenic shock. An emergency ablation saved the patient's life, however due to coagulopathy, there was limb ischemia and amputation had to be performed. The incessant tachycardia and DCMP resulted in catastrophic presentation in cardiogenic shock and was managed with an emergency ablation procedure.

Figure-5



Figure-6

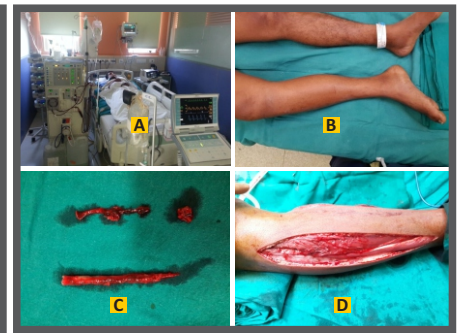
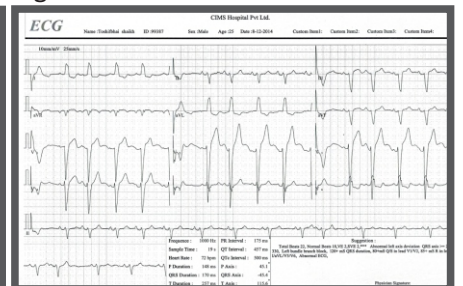


Figure-7

Echo : LVEF improved to 40 %				
	14.4.2014	29.4.2014	10.6.2014	12.8.2014
Aorta mm	34	31	30	28
LA mm	44	42	37	31
LVIDd mm	56	52	52	48
LVIDs mm	42	34	34	32
LVEF %	20	25	25	40
MR grade	3	2	2	1
TR grade	3	1	1	0
AR grade	2	2	2	2
PH	50	50	40	32

Figure-8



Coronary Artery Disease in Elderly

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Cardiovascular disease is the most frequent diagnosis and the leading cause of death both in men and women older than 65 years. Hypertension occurs in about one half to two third of people older than 65 years and heart failure is the most frequent hospital discharge diagnosis in elderly population. The commonest cause of death in elderly population is cardiovascular followed by respiratory and malignancy.

The age itself is a non-modifiable risk factor for development of coronary artery disease in elderly peoples. Otherwise the same risk factors that predict atherosclerosis in younger adults (lipid abnormalities, smoking, hypertension, diabetes) are predictive in older individuals as well. Modification of these risk factors is effective in reducing the risk of atherosclerosis in older patients. Therefore, preventive strategies for the older patient include stopping smoking, blood pressure control, control of lipid abnormalities, and treatment of diabetes.

The presentation of ischemic symptoms in elderly may be somewhat different than younger people. Anginal symptoms are more likely to be absent or ischemia may be silent in older patients compared with young patients. Symptoms are usually termed atypical because the description differs from the classical description of substernal pressure with exertion. Symptoms may primarily be dyspnea, shoulder or back pain, weakness, fatigue, or epigastric discomfort and may be precipitated by concurrent illnesses.

Revascularization procedures in the elderly are increasing, with greater increases in the numbers of percutaneous coronary intervention (PCI) procedures than in coronary artery bypass grafting (CABG). At least half of PCI procedures and CABG are performed in patients older than 65 years, with one third in patients older than 70 years.

Risk of bleeding is higher in elderly patients with use of thrombolytics, antithrombotics and antiplatelet therapy compared to younger patients. High dose of statin may be associated with myopathy. Marked vasodilatation due to rapid absorption or higher peak effects of nitrates can exacerbate postural hypotension. Non lipophilic beta blockers (atenolol, nadolol) may produce fewer central nervous system effects. Calcium channel blockers, especially the dihydropyridines can produce pedal edema more frequently in older patients. Verapamil can exacerbate constipation, especially in inactive elderly. Both beta blockers and nondihydropyridines calcium channel blockers should be avoided in the presence of sick sinus syndrome.

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Newer Anticoagulants Enter the Ring

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Prevalence and Incidence of AF globally

- ◆ The overall prevalence of AF in the general population is 0.4% to 1%¹
- ◆ It is estimated that more than 5 million people are affected in the US² and over 6 million in Europe³
- ◆ The number of patients with AF increases with age, particularly after age 60¹
 - Approximately 8% of people >80 years have NVAf*
 - The median age of AF patients is about 75; about 70% are between 65 and 85
- ◆ Since life expectancy and the age-adjusted incidence of AF are rising in the US, it is estimated that there will be a threefold increase in the number of persons with AF over the next 50 years²

Advantages and Disadvantages of Vit K Antagonist (VKA) therapy

- ◆ VKA therapy has been shown to be very effective in reducing the risk of stroke in patients with AF but it has multiple challenges

Advantages	Disadvantages
• Proven efficacy for stroke prevention • Historical standard of care • Long half-life, once-daily dosing • Availability of an antidote • Ability to measure anticoagulant effect • Low drug cost	• Risk of bleeding complications, including ICH • Routine monitoring required • Dose adjustments frequently needed • Slow onset of action • Narrow therapeutic window • Dietary restrictions • Numerous drug interactions • Variability in patient response • in the west

Underuse and Improper Use of Oral Anticoagulants

- ◆ Despite the guideline recommendations, percentage of patients with AF actually using OAC is suboptimal.
 - According to a global AF registry, in most countries, oral anticoagulation use is <65% in patients with CHADS₂ > 2
 - According to the same registry, INR control is poor in most of the countries
 - Aspirin and Dual antiplatelet therapy with aspirin and clopidogrel has been studied as a potential alternative anticoagulant for AF patients: noted to be inferior to warfarin in preventing strokes.

Characteristics of Warfarin and Newer Oral Anticoagulants (NOACs):

	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

NOACs in SPAF:

- ◆ Hemorrhagic stroke is reduced compared to warfarin by all NOACs
- ◆ Some NOACs reduce total stroke and stroke/SEE vs. warfarin
 - Only dabigatran 150 mg bid reduced ischemic stroke vs. warfarin
- ◆ Some categories of bleeding were reduced by all NOACs
 - Intracranial bleeding reduced by all NOACs vs warfarin
 - Major bleeding reduced by apixaban and dabigatran 110 mg bid
 - Life-threatening/fatal/critical bleeding reduced by dabigatran 150 and 110 mg bid and rivaroxaban, no data for apixaban
 - GI bleeding increased with dabigatran and rivaroxaban

NOACs offer better options to prevent strokes with more convenience and a similar or better safety profile

Conclusions:

- ◆ 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.

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Fiber-optic Bronchoscopy (FOB) is a safe procedure. Complications are infrequent and usually minor. One study of more than 4000 flexible bronchoscopies performed at a university hospital showed that complications occurred in only 1.3 percent of cases. Complications may be related to the procedure itself or to adverse reactions caused by sedatives or numbing medicines. One of the important complication during FOB is bleeding which can occur, especially if a biopsy is taken during the procedure. Bleeding is more likely if the airway was inflamed or damaged by disease. Usually, bleeding is minor and stops without treatment. During this symposium we will discuss how to stop / manage bleeding if it doesn't stop spontaneously.

This image shows a full page of white paper with horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Colchicine and Heart-Pushing the Envelope

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Colchicine is the oldest known drug dating back to more than 2,000 years ago, used traditionally for the treatment of gout and as a second line treatment for pericarditis; familial Mediterranean fever and Behcet's disease. Colchicine as an adjunct therapy to NSAIDs was found to be an effective addition to treatment in idiopathic pericarditis. Pelletier and J. B. Caventou were the first to extract colchicine as the active alkaloid of colchicum.

Mechanism of Action: Colchicine inhibits microtubule polymerization by binding to tubulin, affecting any process that requires cytoskeletal changes—including cell mitosis and neutrophil motility.

Pharmacokinetic: Colchicine is a lipid-soluble drug with pKa of 12.8 that can penetrate easily into body tissues after uptake in the jejunum and ileum. After oral ingestion it has a 44% bioavailability and binds relatively weakly to albumin (32% bound). Its peak plasma concentration occurs in about 1 h, with a long terminal half-life.

Colchicine in Pericarditis: Colchicine acts as an effective adjunct therapy to NSAID's in the treatment of acute pericarditis. It acts as faster symptomatic relief than with NSAID's alone.

Colchicine in AF: Postoperative administration of colchicine from day 3 to 1 month after surgery indicated 45% reduction in the incidence of postoperative atrial fibrillation. Also colchicines, monotherapy for 3 months (16% vs. 33.5% with placebo) reduced recurrent atrial fibrillation after pulmonary vein isolation in RF Ablation.

Colchicine in CAD: One prospective trial (the LoDoCo study) found that continuous treatment with 0.5mg of

colchicine in addition to standard therapy among patients with stable CAD was associated with a lower rate of the composite endpoint of acute coronary syndrome, out-of-hospital cardiac arrest, or noncardioembolic stroke (5.3% vs. 16% at 3 years).

Colchicine in PCI: The effect of colchicine in diabetic patients who underwent PCI and could not have a drug-eluting stent implanted, received a bare-metal stent instead. In-stent restenosis rate was less than one-half in the colchicine group (16% vs. 33%) compared with placebo at 6 months after PCI.

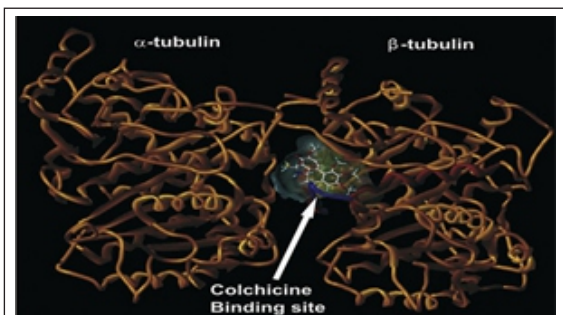


Figure 1: Colchicine Binding Site

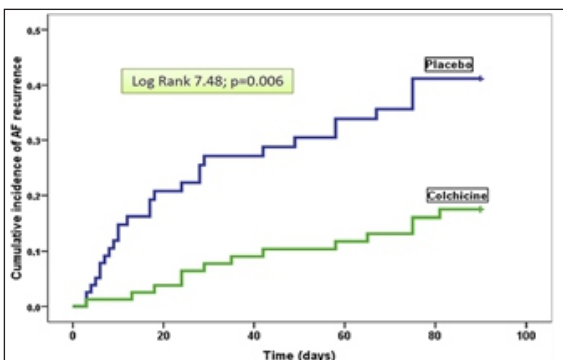


Figure 2: Colchicine for Prevention of Post-Ablation Atrial Fibrillation Recurrence



A Systemic Review of Yoga for Heart Disease

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Epidemiological and clinical studies suggest that psychosocial stress is important for pathogenesis of coronary heart disease. INTERHEART study mentioned psychosocial factor as one of the nine risk factors responsible for first heart attack.

Yoga is a holistic life style intervention which includes all components of healthy life style like physical exercise, stress management, low fat vegetarian diet, and tobacco cessation. Yoga is not merely few postures, but a complete way of life leading to physical, mental, emotional and spiritual well being. It includes Yama (restraint), Niyama (practice of observance), Asana (attaining / maintaining postures), Pranayam (control of breathing), Pratyahar (withdrawing senses), Dharana (concentration), Dhyan (meditation), Samadhi (self realization). Several scientific studies have shown that yoga can control risk factors for coronary heart disease, can lower high blood pressure, elevated blood sugar, can improve emotional well being and induce relaxation. Some studies suggest that yoga can retard the progression of advanced coronary atherosclerosis and even reverse it. Recent studies have demonstrated that yoga based rehabilitation program after coronary artery bypass surgery leads to better and faster recovery and return to daily active life. Though most of the studies are small and large randomized trials are needed to confirm the findings, yet in view of the existing knowledge, it appears that yoga may control risk factors for heart disease and retard the progression of advanced coronary heart disease. In addition to that it helps stress relief, inner peace, patience, happiness, control of anger and conquering fear, better concentration and sharpness, produces relaxation and reduces reactivity, improves job performance and interpersonal relations.

Hence, it appears appropriate to incorporate this holistic cost effective life style in the prevention and management of coronary artery disease and also for leading a stress free happy life.

IBS : A Tough to Treat Medical Situation!

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Definition:

Irritable bowel syndrome (IBS) is a functional bowel disorder in which abdominal pain or discomfort is associated with defecation or a change in bowel habit. Bloating, distension, and disordered defecation are commonly associated features.

Irritable bowel syndrome is a relapsing functional bowel disorder defined by symptom-based diagnostic criteria, in the absence of detectable organic causes. The symptomatic array is not specific for IBS, as such symptoms may be experienced occasionally by almost every individual.

Some characteristics of IBS are:

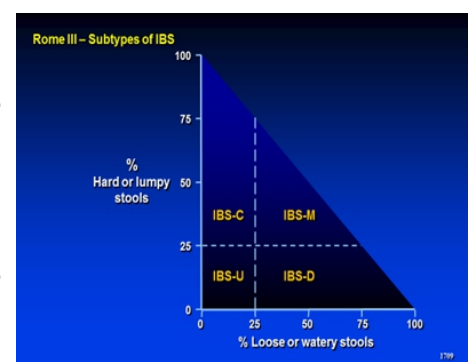
- ◆ It is not known to be associated with an increased risk for the development of cancer or inflammatory bowel disease, or with increased mortality.
- ◆ It generates significant direct and indirect health-care costs.
- ◆ No pathophysiological substrate has been demonstrated in IBS.
- ◆ A transition of IBS to, and overlap with, other symptomatic gastrointestinal disorders (e.g., gastroesophageal reflux disease, dyspepsia, and functional constipation) may occur.
- ◆ The condition usually causes long-term symptoms:
 - o May occur in episodes.
 - o Symptoms vary and may be meal-related.
 - o Symptoms interfere with daily life and social functioning in many patients.
 - o Symptoms sometimes seem to develop as a consequence of a severe intestinal infection or to be precipitated by major life events, or in a period of considerable stress.

Management of IBS:

Management depends on predominant symptom, diarrhoea or constipation or mixed phenotype.

For Constipation Predominant phenotype: Dietary fiber, Fiber rich diet, Bulk forming laxatives combined with sufficient fluid intake. Osmotic laxatives and Lubiprostone are useful. Probiotics have increasing role nowadays.

For Diarrhoea predominant phenotype: Loperamide and Alosetron and intestinally acting antibiotic (Rifaximin) have important role.



Other medications for pain, Bloating and distension: Selective

serotonin reuptake inhibitors, Tricyclic antidepressants, probiotics, prebiotics, Rifaximin and antispasmodics have been useful.



Electromagnetic Navigational Bronchoscopy (ENB)

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Recently, an advanced CT imaging technology has been innovatively combined with an electromagnetic navigation system to guide the biopsy of PPN that lie beyond the reach of standard flexible bronchoscopy. Electromagnetic navigational bronchoscopy (ENB), Peripheral EBUS, Virtual Bronchoscopy (VB), ultrathin bronchoscopy and their combination has significantly increased the diagnostic value of FB for peripheral lesions, with an acceptably low complication rate of bleeding and pneumothorax.

The ENB system uses low-frequency electromagnetic waves transmitted from a magnetic board placed below the patient's chest. As a result, the lesion can be visualized in real-time with computer-generated guidance in three dimensions.

ENB is performed in several steps. The first step is planning the procedure by uploading high-quality CT images into the planning software. The software will generate the planner markers from the main carina to the lesion via multiple bronchial sub-segments. The next step is aligning the virtual images to the patient's endobronchial anatomy, which is called the "registration" phase. Then, the navigation is conducted by driving the locatable guide (LG) probe with its extended working channel (EWC) to the lesion, by following the three dimensional CT images and the "tip-view". Once the lesion is reached, the LG probe is removed leaving the EWC in place. The position of the tip of the EWC may be confirmed by using the radial EBUS probe to determine the location of the lesion [Figure 22-9]. Various diagnostic tools such as a needle, brush, or forceps for biopsy can be used through the EWC to obtain a tissue specimen. In terms of diagnostic value, ENB can successfully diagnose almost $\frac{3}{4}$ of peripheral lesions, but pneumothorax occurs in about 3.5% of such cases. The combination of radial probe EBUS with ENB can further increase the diagnostic value.

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Chronic thromboembolic pulmonary hypertension (CTEPH) is being recognized more and more as awareness of pulmonary hypertension and pulmonary arterial hypertension is increasing. The cumulative incidence of CTEPH amongst patients who survive pulmonary embolism (PE) has been estimated to be 0.57% to 3.8%. Without surgical intervention survival of CTEPH is poor and inversely related to degree of pulmonary HTN and time of diagnosis. Apart from surgical intervention few other therapies have found to be useful too. During this symposium we will discuss about diagnostic and therapeutic approach for patient of CTEPH.

[illegible]

Aerosol Therapies in ICU Real Help, Harm or a Waste

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- ◆ Mankind has utilized respiratory tract as a conduit for drug delivery for centuries (more than two thousand years) for inhaling aerosols, smoke, steam for treatment of disease, pleasure and spiritual enlightenment. In recent years, respiratory system has been rediscovered as a site for drug delivery in order to maximize effectiveness and reduce systemic toxicity
- ◆ An aerosol is a stable suspension of solid or liquid particles dispersed in air as a fine mist. aerosol therapy can be bland or pharmacologically active.
- ◆ They are used in critical care unit for various indication like
 - ☐ Bronchodilator and anti-inflammatory effect.
 - ☐ Nosocomial pneumonia – VAP (ventilator associated pneumonia)
Therapy and prophylaxis for MDR bacteria
 - ☐ Secretion management – mobilization
 - ☐ Delivery of resuscitation drugs – (evidence less supportive now)
 - ☐ Selective pulmonary vasodilation (iNo esp. in infants)

But evidence of benefits are in selected clinical conditions.

- ◆ Furthermore, Plethora of Aerosol delivery device (mainly two type in ICU 1). Create, deliver wet particle (jet, ultrasonic nebuliser) 2). Deliver preformed particle (pressurized MDI) with or without auxillary delivery system (spacer) are available.
- ◆ Multiple factors affecting particle size, distribution and deposited mass of aerosol therapies challenges efficiency of therapy and creates confusion among users.

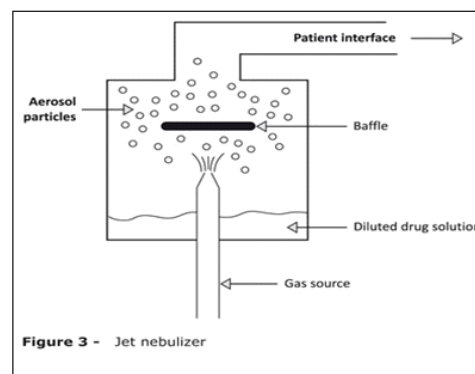
1) JET Nebulizer

Strength

- ☐ Easy to use
- ☐ Inexpensive

Weakness

- ☐ Rely on gas supply / Interfere with ventilatory settings
- ☐ Labor intensive
- ☐ Less / variable efficiency



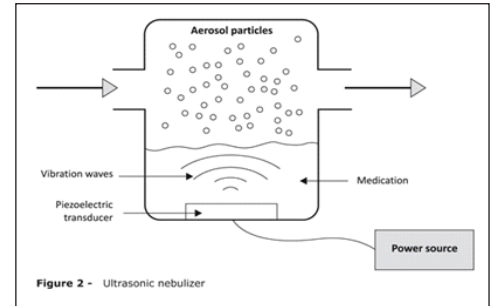
2) Ultrasonic Nebulizer

Strength

- ☐ Noise free
- ☐ No gas supply need / No Interference with ventilator setting

Weakness

- ☐ Bulky
- ☐ Expensive
- ☐ Denatures some drug



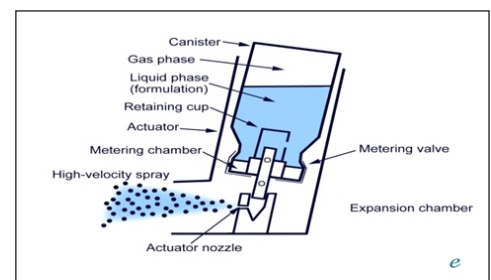
3) pMDI

Strength

- ☐ Convenient
- ☐ Less dose – cost
- ☐ Least disconnection – less risk of infection, derecruitment of lung
- ☐ Less affected by Inspiratory time
- ☐ Decreased risk of damaging flow sensor

Weakness

- ☐ Only few drug available in this form (bronchodilator, steroids)



- ◆ On mechanical ventilation, key variables of drug deposition, hence efficacy are
 1. Use of pMDI with spacing chamber
 2. Dry air
 3. Attachment of inhalation device in inspiratory line 30 cm. from endotracheal tube
 4. High tidal volume, low respiratory rate, low inspiratory flow rate. (long duty cycle)
 5. Mode of ventilation (spontaneous ventilation provides aerosol more effective delivery then controlled, VCV > PCV). Flow pattern (decelerating ramp better than square wave flow pattern)
- ◆ Factor influencing drug delivery during NPPV are not well understood, further research is needed for same.
- ◆ Aerosol therapy in ICU, especially on mechanically ventilated patient is complex. Understanding pathophysiology of patient, potentially beneficial indication, aerosol delivery devices and factors affecting its efficacy are important to provide real help and no harm. If not well- executed the therapy could not only be wasteful but has potential to harm patient (like bronchospasm, reaction to drug, risk of infection, delivering too much or little drug to patient), environment and others (patient – Cross infection, health care provider providing medication like ribavarin) - conjunctivitis, teratogenicity). Hence, It needs special care, precaution and vigilance to make inhalation therapies, really effective and beneficial.

Lung Transplantation for Emphysema

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Emphysema is a major cause of morbidity and mortality through out the world. Despite optimal medical therapy, smoking cessation, and pulmonary rehabilitation, a large number of patients remain symptomatic with a poor quality of life. Selected patients with end-stage disease can benefit from treatments like Endobronchial Volume Reduction, bullectomy, lung volume reduction, or lung transplantation (LTx). The latter is now an accepted modality for the management of various forms of end-stage lung disorders with clear improvement in survival and quality of life. With recent introduction of Lung Allocation Score (LAS) system Emphysema is now the second most indication for Lung Transplantation behind IPF.

Symptomatic patients with emphysema are the candidate for transplantation when the optimal medical therapy fails and have a predicted survival of less than 2 years (BODE score 7-10). Patients should be motivated; have adequate psychosocial support and be free of malignancies for 2-5 years and other major comorbidities. Smoking cessation for at least 6 months prior to the enlistment is a prerequisite. Prior surgical procedures such as LVRS, pleurectomy, or pleurodesis are not a contraindication. The usual age limit for lung transplantation is 65 yet; even older patients have successfully undergone the procedure. Patients who do not qualify for LVRS could qualify for LTx. Either single or bilateral LTx could potentially be performed in emphysema patients with a high degree of success rate, depending upon the availability of donor organs. Peri-operative mortality from LTx in emphysema patients remains less than 10% as most do not require cardiopulmonary bypass support.

Combination of Tacrolimus, Mycophenolate and Prednisone is the most common regimen use to prevent rejection. Close to 40% of patients develop acute rejection during the first year after the LTx. Chronic rejection remains the most common detriment to the long term survival following LTx. One and five years survival following LTx ranges between 80-90% and 40-58% respectively. Bilateral lung transplantation does provide better survival than the single, especially in the younger patients. Survival benefit form LTx in Emphysema patients yet remains to be proven. Recent ISHLT data does suggest that younger patients (<50 years) with Alpha 1 Anti-trypsin Deficiency undergoing bilateral lung transplnmtation may experience survival benefit.

Obstructive Sleep Apnea - A Heart Disease

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Obstructive sleep apnea is a growing problem in obesity pandemic. Prevalence rate of OSA in US is ranging from 4-16%. By far OSA was considered to be a sleep problem although in last decade significant association is found with HTN, CAD, MI, stroke, arrhythmia which is responsible for morbidity and mortality. By treating OSA effectively all these co-morbid conditions can be effectively prevented and treated and perhaps by treating OSA it reduced mortality too. In this symposium we will discuss about association of OSA with heart disease and impact of treatment of OSA in reducing cardiovascular morbidity and mortality.

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P-101: A Case of Pulmonary AV Fistula

Gangajalia Chirag, Parikh Pujan

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A 20 years old boy was brought unconscious in emergency department. On routine investigations and chest x-ray he was found to have massive right sided pleural effusion for which Inter Costal Drainage tube was inserted and it was found out to be hemothorax. On CT pulmonary angiography, a pulmonary AV fistula was found to be draining blood inside the pleural cavity than fistula closure was done by coiling. P-

P-102: Fulminant Hypersensitive Pneumonitis

Mehta Niraj, Agarwal Mohit, Ghanchi Firoz, Chatterjee Iva

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30 year young male farmer by occupation and associated with cattle feeding was referred to chest medicine department of G G hospital Jamnagar from private hospital for very low oxygen saturation and haemoptysis of only 5 days duration.

On Examination: At time of indoor He was febrile, having laborious breathing, haemoptysis and oxygen saturation 70% @room air. Auscultation revealed bilateral crepitations. his blood pressure was around 160 /90mm Hg. His liver enzymes are severely altered and kidney function also deteriorated. No any skin lesion. Chest X ray(PA view)showed bilateral diffuse homogenous opacities.

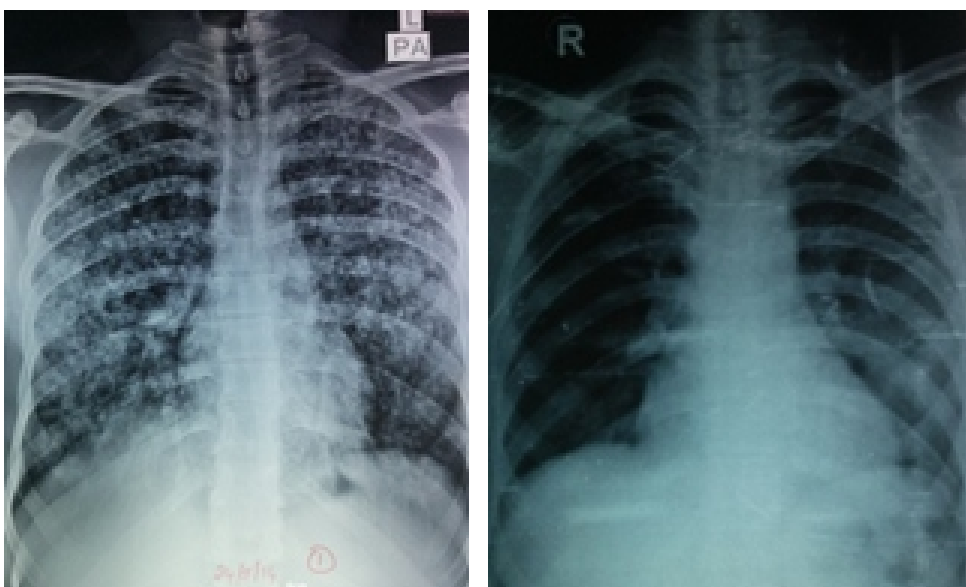


Figure-1 : Chest xray Before and After treatment

He was suspected of having acute interstitial pneumonitis and CT scan (figure -2) also revealed bilateral diffuse bronchocentric homogenous opacities with few areas of air trapping.

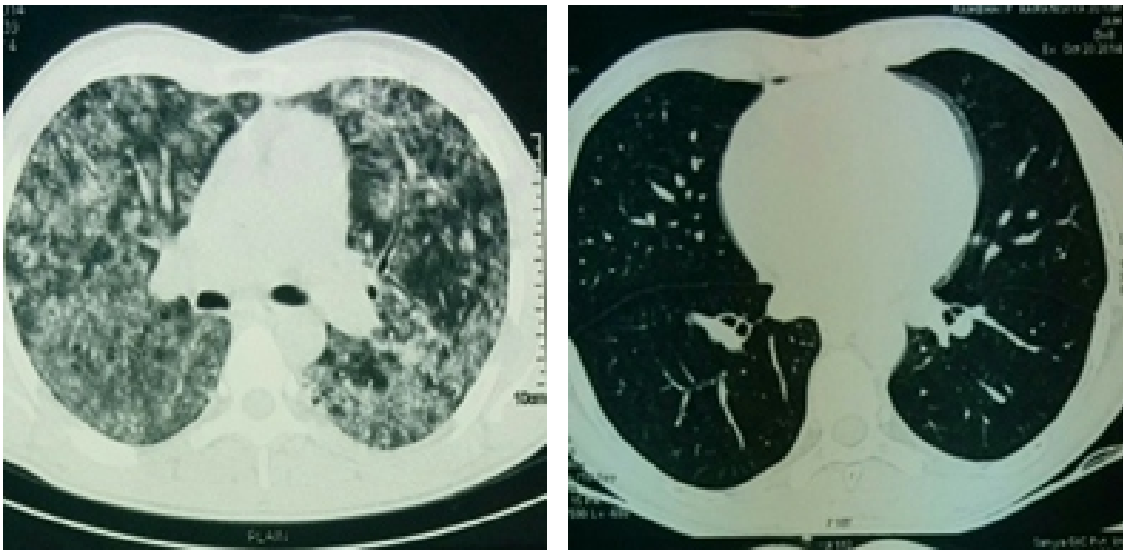


Figure-2 : CT Images – Before and after treatment

Pulse therapy of methyl prednisone given and supportive therapy for improving liver and kidney function was given. Breathlessness and Oxygen saturation dramatically improved after steroid therapy and gradually liver and kidney function also came back to normal. follow up CT scan (figure -2) done which was clear with no any opacities.

Conclusion: Unexplained short history of breathlessness with bilateral diffuse opacities with sudden deterioration and history of animal contacts should think of acute hypersensitive pneumonitis and steroids are immediate and only life saving measure from life threatening phase.

P-103: PMS2 Gene Mutation in A Patient Of Acute Lymphoblastic Leukemia: A Journey From Congestive Cardiac Failure to Neural Tumours

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Acute lymphoblastic leukemia is the most common malignancy in children. However, the presentation may differ from high grade fever, bleeding manifestations, weakness, lethargy and weight loss.

We report a case of 8 year old female child admitted in civil hospital with congestive cardiac failure. Routine work up revealed severe anemia and thrombocytopenia with cardiomegaly. After stabilization, child was referred to GCRI. Bone marrow examination was suggestive of Acute Lymphoblastic Leukemia. Patient was started on MCP 841 treatment protocol for ALL. Patient completed treatment course and was kept under surveillance with regular follow up. 5 years after treatment completion patient

presented with weakness of left sided hemiplegia. MR imaging of the brain revealed solid / cystic space occupying lesion in right parietal region. Patient underwent parietal craniotomy with near total excision of the mass. Histological examination was suggestive of Astrocytoma Grade 4. Patient was treated with chemotherapy with temozolamide and cranial irradiation. Ultimately the patient died after 10 months as a result of tumour progression.

6 months thereafter, her male sibling, a 6 year old child was admitted to the hospital with high grade fever and gum bleeding. Complete comprehensive work up revealed thrombocytopenia with 38% blasts in peripheral smear and raised LDH. Bone marrow and Immunophenotyping studies revealed Pre B Cell ALL. Patient was started on BFM 90 treatment protocol. The child had a smooth course of treatment till 6th month maintenance, after which he had complaints of backache. MRI Spine revealed altered signal intensities at D8 level with soft tissue component in left paravertebral region with possibility of infective etiology. Work up for tuberculosis revealed negative RT PCR for tuberculosis. Patient underwent laminectomy with excision the mass and screw fixation. Histological examination of the mass revealed Malignant Gangliocytoma, malignant type which was confirmed by immunohistochemistry. Genetic analysis was sent and reports revealed a homozygous deletion in exon 11 of PMS2 gene at chromosome 7 resulting in premature termination of proteins translated from PMS2 gene. The child is currently under treatment at GCRI, Ahmedabad.

P-104: A Case of Tuberous Sclerosis Complex Presenting in Adult Age

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Tuberous sclerosis complex (TSC) is a genetic disorder characterized by the growth of numerous benign tumours in many parts of the body caused by mutations involving TSC1 and TSC2 gene which forms the tumour suppressor complex. It occurs in all races and ethnic groups and both genders incidence being 1:6000 with prevalence of 1:10000. Generally it presents in childhood but can present in adulthood.

This is such a case of a 14 year old male who presented with seizures, mental retardation and developmental delay who is fulfilling 7 major and 3 minor criteria given by Diagnostic Criteria Committee of the National Tuberous Sclerosis Association (USA) such as facial angiofibroma, hypomelanotic macules, shagreen patch, cortical tubers, subependymal nodules, renal angiomyolipoma, multiple renal cyst, radial migration lines in cerebral white matter, multiple pits in dental enamel is reported.

Multiple research projects have been carried out and many going on for etiology and management of this almost incurable disease. TSC patients besides receiving symptomatic treatment should also receive better schooling and quality of life with regular follow-up to physician.

P-105: Neuropsychiatric Manifestation in Patient Having SLE

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R. P., 30 year old woman residing at Khargun, M.P., presented with complaints of abnormal behavior, decreased sleep, unable to perform routine activity and headache in psychiatry OPD. She was referred to medicine OPD for the complaints fever and skin rash. On examination, she had terminal neck rigidity, brisk deep reflexes without extensor plantars. On investigation she had pancytopenia (anemia, leucopenia, thrombocytopenia) with normal CT brain and CSF examination. ANA was positive. She had 4 positive criteria as per American college of Rheumatology Classification of SLE (updated in 1997) and thus diagnosis of SLE was made. On higher mental state examination she had poor affect, mood swings, delusions and poor judgment. Her orientation was normal. Memory and cognition appeared normal however it was difficult to test it as she did not cooperate. Patient was treated with steroid and immunosuppressive therapy and shows improvement. This suggests the importance of neurological and psychiatric examination in case of SLE.

P-106: Simpson's Right Ventricle Ejection Fraction Versus Tricuspid Annular Plane Systolic Excursion in Patients with Isolated Left Ventricle Anterior Myocardial Infarction

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Introduction: Right Ventricle (RV) dysfunction may be primarily attributed to abnormality of RV myocardium or secondary to left ventricle (LV) dysfunction, as a consequence of “Ventricular Interdependence” between the two ventricles, as they are encircled by common muscle fibres, share a common septal wall and are enclosed within a common pericardium¹. The assessment of RV function has become increasingly important because associated RV dysfunction leads to high in-hospital morbidity and mortality. Hence Earliest recognition of RV dysfunction is warranted but till today it remains a Challenging task because of complex structure and asymmetric shape of RV²

Methods: 50 patients of isolated LV AMI subdivided into two subgroups – Group-1 with stenosis of LAD and Group-2 with stenosis of both LAD and LCx artery were studied. Any associated RV infarction was excluded in all patients by ECG, Echo and Right Coronary Angiography. From apical four chamber view of echocardiography, RVEF was measured by Simpson's method and TAPSE_x was recorded with the use of 2 dimensional guided M-Mode tracings both at lateral and the septal side of Annulus.

Results: Lateral and septal tricuspid annular plane systolic excursion (TAPSEx) were reduced in both subgroups of anterior myocardial infarction. Motion of septal part of tricuspid annulus was affected more than the lateral side with significant reduction of TAPSEx in subgroup-2 ($p < 0.005$) as compared to subgroup-1 patients ($p < 0.025$) (Simpson's RVEF was not significantly different between the groups, $p > 0.05$) We also found linear positive correlation between lateral TAPSEx and LVEF ($r = 0.76$) There was no overall correlation between LVEF and RVEF ($r = 0.28$)

Discussion: RV systolic functions are dependent predominantly on, longitudinal atrioventricular plane to apex shortening. This is because myocytes are disposed longitudinally in the RV inflow region and there is preponderance of longitudinal fibres in RV, in contrast to LV having predominant circumferential fibres shortening. Therefore TAPSEx reflects truly RV systolic functions.

Conclusion: Even in patients with isolated LV anterior infarction there is RV dysfunction due to ventricular interdependence and tricuspid annular motion is simple and accurate echocardiographic parameter to assess RV functions in such patients.

P-107: A Case of von - Willebrand Disease

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von Willebrand disease is the most common inherited bleeding disorder having 1% incidence. It is characterised by excessive mucosal bleeding, epistaxis, easy bruising, menorrhagia, post partum haemorrhage. It has three subtypes:-type-1, type-2 (including subtypes A, B, M, N), type-3. Diagnosis requires von willebrand factor assay, gene typing, and factor VIII assay. Treatment includes desmopressin and fibrinolytic inhibitors.

A 14 year old female presented with menorrhagia at menarche. Patient had history of continuous menstrual bleeding for 2 months. On investigation platelets were 2,30,000 /cmm. Coagulation profile was altered having APTT: - 46.8 test and 28.9 control. On further investigation APTT became normal with normal plasma and absorbed plasma and remain deranged with aged plasma. Factor VIII activity assay revealed value of 4.3 % of normal. On von Willebrand factor assay, activity of 0.5 % was documented. Hence a diagnosis of von Willebrand disease Type 3 was made.

P-108: A Rare Case of Ascaris Lubricoides Worm in Pleural Cavity Type: Case Report

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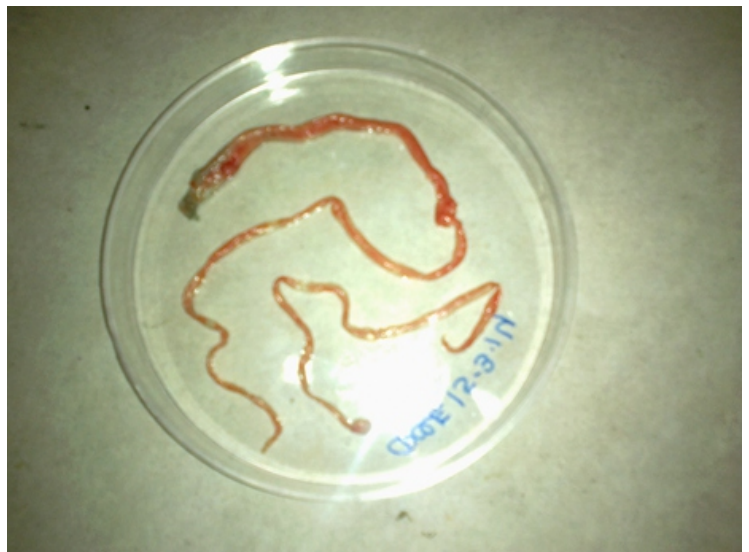
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Background: Pleural effusion is common in INDIA and most important cause is Pulmonary Tuberculosis. The importance of this case study is how a clinician can be easily misled by Age of the patient and past history of tuberculosis for other causes of pleural effusion.

Case History: An 80 year old male patient presents to out-patients with chief complaints of Breathlessness slowly progressive over the period of 2 years. Cough with expectoration over a period of 2 years, Generalised weakness over 5 days. Pt has a past history of anti-Tb drugs for tubercular disease in the lung and has been a smoker but left smoking since 10 years. X-Ray chest showing: Massive unilateral pleural effusion, An ICD was placed in situ. Pleural fluid assessment was not leading anywhere, neither were Pleuroscopy and CECT Thorax

Results: Incidentally, one day patient mentioned something crawling in ICD BAG. It was a full grown worm of Ascaris Lumbricoides. It was extracted from ICD BAG sent for microbiological assessment. Pt was given Tab Albendazole 400mgSTAT. 2 days later stool R/M and parasitic examination was sent for, came negative for ova/cysts /eggs. Tab Prednisolone(5mg) 5-0-5 was started. Pt was regularly followed up, was healthy, lost to follow up at 6 months.



Clinical Implications: Seeing the age and presentation of patient, correlating with Past history of the patient one can easily make a mistake of presuming above case to be tuberculosis induced pleural effusion or malignant effusion, but like every lock has a different key, every case has to be looked OBJECTIVELY. This is perhaps is a rare case with uncommon presentation of parasitic infestation where a fully grown worm is roaming freely in pleural cavity.

P-109: Prognostic Significance of Reciprocal ST Depression In Acute Coronary Syndrome

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Background : The characteristic elevation of ST segment is often accompanied by depression of the ST segment in leads facing the non-infarcting areas of the myocardium, called reciprocal depression. Therapeutic decisions in patients of ACS depend on accurate assessment of prognosis, and "reciprocal" ST segment depression may provide a valuable non-invasive method of classifying patients into high risk and low risk groups.

Objectives : To determine the association between the "reciprocal" ST segment depression in the admission electrocardiograms of the patients of Acute Myocardial infarction and post-MI Complications.

Material and Methods : Our study enrolled 100 first (new onset) STEMI Patients. Maximal ST depression in any of the reciprocal leads greater than 1mm was found in 60 patients such patients were taken as cases while patients with reciprocal change equal to or less than 1mm were taken as control. ; its prognostic implications during 6 month period studied. Following were regarded as major complications: Heart Failure/LV Dysfunction, Angina, Recurrent MI, Arrhythmias, CABG/PTCA intervention, Death.

Observations : Out of 60 cases, 43 (71%) patients developed complications during hospital stay. While in control patients, only 16 (40%) patients developed complications. The finding was statistically significant (P value : 0.002). In all 8 patients who developed LV dysfunction in hospital ,significant reciprocal ST depression was present. Angina was the most common complication on follow up at 1 month. Out of 30 patients who had angina, 26 had significant ST depression in reciprocal leads. In our study 13 patients developed arrhythmias in the form of heart blocks, bundle branch blocks and ventricular arrhythmia. All patients had significant "reciprocal" ST depression

Result : Reciprocal" ST depression was more often found in the inferior wall myocardial infarction than in the anterior infarctions (68.75% Vs 50%). 71% patients with significant "reciprocal" ST depression developed one or more of the major complications during hospital stay against 40% patients without "reciprocal" ST changes. 40% patients had "reciprocal" ST depression of more than 2 mm. Almost 9 out of 12 deaths had occurred in these high risk group during hospital stay. We found statistically significant relationship between reciprocal ST depression and development of LV dysfunction in hospital. There was

increased incidence of angina on follow up at 1, 3 and 6 months (86%, 95% and 95% respectively) in patients with significant reciprocal ST depression. In our study, reciprocal ST depression association with Post MI complications became strong on follow up. (P value decreased at 3 and 6 months).

Conclusions: The patients with significant "reciprocal" ST depression are at a greater risk of development of post-MI complications. Greater the magnitude of "reciprocal" ST depression, greater is the likelihood of development of serious complications. Reciprocal" ST depression mark patients at high risk of complications. Immediate availability of such information from the admission electrocardiogram is an obvious advantage when rapid decisions regarding further management has to be made.

P-110: Hypothyroidism- A Newer Risk Factor of Coronary Artery Disease-As Assessed by Exercise Stress Test

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Background:

Coronary artery disease is associated with number of traditional risk factor like hypertension, diabetes, age, smoking. Whether hypothyroid state is associated with adverse cardiovascular effect is not established. Number of studies have suggested that hypothyroidism increases risk of coronary artery disease. In our study we tried to evaluate patient of hypothyroidism by treadmill test to identify patient for inducible ischemia and compared the results with treadmill test profile of non hypothyroid patient.

Aims and Objectives:

Is to compare treadmill test profile of patient with hypothyroidism with that of non-hypothyroid patient.

Methods:

In our study we selected 50 newly diagnosed patient of hypothyroidism and evaluated them by treadmill test. Treadmill test profile of 50 patient with hypothyroidism was compared with that of 50 non-hypothyroid patient to assess whether hypothyroidism increase risk of CAD or not.

Result and Conclusion:

From above study and data we found that there is significant association between abnormal treadmill test result and hypothyroidism with odds ratio of 3.77. Pattern of TMT response is also high risk for hypothyroid group as compared to non-hypothyroid group.

Thus, hypothyroid state as a risk factor for coronary artery disease should be further evaluated.

P-111: A Case of Sturge Weber Syndrome

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Sturge Weber Syndrome is a rare, non-hereditary, developmental neuro-cutaneous syndrome caused by somatic mutation in GNAQ gene. It is characterized by capillary hamartoma of face in territory of ophthalmic division of trigeminal nerve, leptomeningeal angiomas and cerebral hemiatrophy. Patient usually presents with port-wine stains of face, contra-lateral focal seizure, ipsilateral glaucoma and mental retardation. Incidence is 1 in 50,000.

A 27 year old female presented with right sided focal seizure with secondary generalization. Patient was a known case of mental retardation and primary hypothyroidism. She suffered from intractable seizures since childhood. On general examination there was a port-wine stain on left side of face. Patient was investigated with NCCT Brain which suggested diffuse atrophy of entire left cerebral hemisphere along with dural calcification. MR Angiography revealed mild narrowing of left Middle Cerebral Artery and Posterior Cerebral Artery. EEG showed bilaterally slow activity, pronounced in left hemisphere, with epileptogenic activity in left Temporo-Parietal Region. Ophthalmological examination and Sonography of abdomen/pelvis were normal. Patient had primary hypothyroidism with S.TSH of 8.3. Based on clinical findings and neuroimaging, a diagnosis of Sturge Weber Syndrome was made. Patient was put on anti-epileptics and relatives counselled regarding disease and rehabilitation.

P-112: Isoniazid Induced Peripheral Neuropathy in 30-Year Old Male Under CAT-V Regimen for Extensive Drug Resistant Pulmonary Tuberculosis

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Introduction: CAT-V regimen under RNTCP has many drugs having grave side effects. Isoniazid which is a first line anti-tubercular drug causes Peripheral neuropathy also used in high doses as second line ATT in XDR-TB. Peripheral neuropathy is a common adverse effect associated with isoniazid, and it occurs in about 2% of patients receiving 5mg/kg body weight of drug daily. Higher doses may result in peripheral neuritis in 10-20% of patients. This usually presents with paraesthesia of hand and feet which can be accompanied by muscle aches, occasionally muscular weakness, and can progress to more severe symptoms such as ataxia. Risk factors for developing neuropathy after isoniazid therapy include old age, anaemia, slow acetylator status, diabetes, renal failure, alcoholism, malnutrition, HIV infection, chronic

hepatic failure and pregnancy. Here we report a case of acute isoniazid-induced peripheral neuropathy with predominant Sensory functional impairment.

Case Presentation: A 30 year old male with XDR-TB presented in our institute with tingling, numbness and severe pain in both lower limbs since 1 month. On examination patient had symmetrical bilateral sensory loss below knee in lower limbs. He was on CAT-V regimen for 4 months. Patient's therapy comprised of Capreomycin (0.75 gm/day-6days a week), Moxifloxacin, High dose Isoniazid (900mg/day), Clofazamine, Linezolid, Amoxiclav, Pyridoxine (100mg/day) according to > 45 kg weight band as per the PMDT guidelines. Nerve conduction study was suggestive of significant decrease in conduction velocity in bilateral Sural and Medial Planter Nerve. Further investigation revealed CBC, LFT, RFT, ECG, USG (whole abdomen), Thyroid profile and S. uric acid were WNL. Patient didn't have any comorbid condition. Isoniazid was stopped promptly and replaced by clarithromycin 500mg bd/day as per the guidelines. Neurologist was consulted and pyridoxine dose was raised to 200 mg/day.

Conclusion: Peripheral Neuritis is the most common dose dependent toxic effect of isoniazid therapy. Prophylactic administration of pyridoxine in a dose 10mg/day prevents the development of peripheral neuritis. Isoniazid neurotoxicity is treated with high doses of pyridoxine. Proper patient counselling about side effects, and regular high dose pyridoxine during CAT-V Regimen will help in prevention and prompt management of patient. If peripheral neuropathy occurs then dose limitation or discontinuation is recommended.

Keywords: Peripheral Neuropathy, Isoniazid, Tuberculosis

P-113: A Case of Mauriac Syndrome

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Mauriac syndrome is characterized by growth retardation, obesity and hepatomegaly in patients with insulin-dependent diabetes mellitus. It is associated with poor control of type 1 diabetes mellitus (T1DM) in adolescents, and may present as obesity, hepatomegaly, cushingoid facies and elevated transaminases. It is typically associated with growth failure and delayed pubertal maturation, which should alert the physician over insufficient management of diabetes mellitus and the related development of Mauriac syndrome, although these can be reversed with good glycemic control.

We report a case of 14 year old male, known case of type 1 diabetes mellitus since the age of 2 years,

presented to us with diabetic ketoacidosis. He had multiple similar episodes in the past. He was on premix insulin(30/70) and had poor compliance to the treatment. On examination he was found to be significantly short for his age (height 119 cm, less than 3rd percentile) and weight was 20 kg (less than 3rd percentile) with cushingoid features (round face and protuberant abdomen). He was at Tanner stage P1. On detailed laboratory evaluation testosterone, LH and FSH levels were below normal limits, while transaminases and HbA1C (10.6) were elevated, with hemogram, renal function test, thyroid profile, GH, cortisol, estradiol and prolactin were normal. Ultrasound abdomen shows hepatomegaly. On fundoscopic examination, there was proliferative diabetic retinopathy and bilateral anterior capsular cataract.

In the view of all clinical, laboratory and radiological findings, the final diagnosis of Mauriac syndrome was made and the patient was switched over to basal bolus regime.

References:

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P-114: Study of Prevalence of Hypertension in Children Attending OPD in Kamala Nehru Hospital, Bhopal and Its Correlation with Various Risk Factors in the Age Group 3-12 Years

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Background: Hypertension is well studied topic in adult patients. Pediatric hypertension in compared to adult hypertension still needs to be researched in India. According to western literature the prevalence of hypertension in children is less than 1 %. The various studies in india has shown a prevalence range of 2-5%.

Objective: Primary objective: To estimate the prevalence of hypertension in OPD patients in the age group 3-12 years.

Secondary objective: To identify the risk factor if any and to know the extent of correlation

Method: Study design: An observational cross- sectional study

Place and Duration of Study: Department of Paediatrics, Gandhi Medical College, Bhopal, India, from August 1, 2014 to August 31, 2014

Methodology: The study was conducted after approval by Institutional Ethical Committee and after taking consent from parents. Data were recorded on pre tested proforma and sample size comprised of all children attending the OPD, Department of Paediatrics, Kamala Nehru Hospital, Gandhi Medical College, Bhopal fulfilling inclusion criteria (children in the age group 3- 12 years), between August 1, 2014- August 31, 2014. The study included 1135 children (in the age group 3-12 years). Data including relevant history, anthropometry and blood pressure of all children were collected and filled in the proforma. The data was analysed for prevalence of hypertension and its correlation with various risk factors

Results: The prevalence of systolic hypertension in the children attending KNH OPD in the age group 3-12 years is 7.5%

The prevalence of diastolic hypertension in the children attending KNH OPD in the age group 3-12 years is 6.9%

The prevalence of systolic and diastolic hypertension is more in short stature patients

The prevalence of systolic and diastolic hypertension is more in low birth weight children

The prevalence of systolic and diastolic hypertension is more if either the father or mother is hypertensive.

As the nutritional status of the patient improves the chance for systolic hypertension increases

Conclusion:

Female gender, family history, short stature, low birth weight and increase body mass index are associated with increased prevalence of hypertension.

P-115: Unusual Presentation of Sickle Cell Disease

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Introduction- Sickle cell disease (SCD) is the most prevalent inherited blood condition worldwide and resulting from single DNA mutation within the beta globin gene and it also has a high prevalence in India especially in central and western region and poses a considerable health burden.

Case Study-

Case 1- A 54 year old female patient presented with right sided weakness , abdominal pain, generalised bodyache . lab investigations revealed HB -8.5 mg/dl , TLC -11300 . PLT -2.81. S. NA - 137, S. K - 2.9 , CREAT- 0.9. S BILURIBIN (TOTAL) -1.5. HB ELECTROPHORESI- sickle cell disease HBF -9.8 , HBS -87.8, HBA- 2.4. radiological examination revealed CVA with multiple acute infarcts in cerebellum and occipital region, B/L middle cerebellar artery occlusion ,on MRI brain with MRA and MRV. CT ABDOMEN AND PELVIS revealed splenic infarct, B/L AVN of neck of femur, microinfarction of lungs, calculus in gall bladder.

Case 2 - A 56 year old male patient presented with diffuse chest pain . dyspnoea , b/l pedal oedema. lab investigations revealed HB- 10.4 , TLC- 20,800 , PLT -0.83, S. NA -130 , S.K-5.4 , CREAT- 6.2 S. BILURUBIN (TOTAL) - 5.1. HB ELECTROPHORESIS- Sickle cell disease HBF-32.2 , HBS- 64.7 HBA2-3.1. 2d- echo showed mod pah , RA and RV dilated . E.F -60%. ABG - normal .ECG - sinus tachycardia LVH. no RWMA. radiological examination on C.T pulmonary angio showed mod pah, USG was normal and CXR revealed non homogenous opacity in b/l mid zone with mediastinal widening.

Conclusion- Determinants of severity are not well characterised but might include differences in red cell physiology caused by unknown genetic determinants and environmental factors.

P-116: A Case of CREST SYNDROME

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CREST (C-Calcinosis, R-Raynaud phenomenon, E- Esophageal dysmotility, S-Sclerodactyly, and T-Telangiectasia) SYNDROME is a member of the heterogeneous group of sclerodermas, and its name is an acronym for the cardinal clinical features of the syndrome. Females have greater incidence of disease than males. The usual age of onset is approximately 30-65 year.

A 40 year old female presented with complaint of difficulty in swallowing and generalised weakness since 3 months. She had a history of bluish discoloration of fingers on exposure to cold since 8-10 years. General examination revealed sclerodactyly and nodules on extensor surface of fingers. Serum Calcium and Phosphorus were within normal limits. Peripheral arterial Doppler was normal. S.ANA Profile was positive for SCL-70. HRCT thorax was suggestive of restrictive lung disease. Upper GI scopy and barium swallow was normal. Hence patient had four out of five cardinal symptoms that confirmed a diagnosis of CREST SYNDROME.

P-117: Disseminated Melioidosis- Young Boy Presented with Fever, Pneumonia, Liver Abscess and Para vertebral Abscess

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12 years old boy from Ahmedabad, K/C/O Thalessemia major on regular PCV transfusion and iron chelation without any other significant past medical history presented to us with 6 weeks history of high grade fever with chills and rigors, right hypochondrial pain, back pain, cough without sputum and generalized weakness. He was treated initially with a course of antibiotics without any response. On general examination, he had fever, tachycardia and tachypnea. On systemic examination, reduced breath sounds on right side, hepatosplenomegaly, gibbous over spine and tenderness present along paraspinal region at lower dorsal vertebral level. Laboratory investigations showed leucocytosis, raised liver enzymes, raised CRP and ESR, altered PT and APTT, sterile blood culture with rest of the liver and renal functions were unremarkable. USG abdomen showed hepatomegaly with multiple hypoechoic areas suggestive of either abscesses or infiltrations. CT abdomen showed multiple liver abscesses with perihepatic collection. MRI spine showed paravertebral abscess. Initially he was treated empirically with 4 drug AKT without any response. Pus from paravertebral collection was aspirated which showed growth of Burkholderia Pseudomelli and it was ultimately proved to be Disseminated Melioidosis which caused the syndrome of high grade fever, pneumonia, liver abscess and para vertebral abscess. He was treated successfully with IV ceftazidime 50 mg/kg for 14 days followed by oral cotrimoxazole which was planned to be continued for 3 months. Patient improved gradually and repeat CT abdomen and MRI spine showed significant reduction in collections. Patient was discharged in stable hemodynamic condition and remained asymptomatic on subsequent follow ups.

P-118: Viral Hemorrhagic Fever with Renal Syndrome Caused by Hanta Virus- A Rare Entity

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Previously healthy young male from Rajasthan presented with acute febrile illness with constitutional features, jaundice, abdominal discomfort and oliguria. He did not have any travel history, skin lesion, breathlessness or altered sensorium. On general examination, he had fever, tachycardia, icterus, pallor and b/l pitting pedal edema without any skin rashes or lymphadenopathy. On systemic examination, he had hepatosplenomegaly with normal sensorium without cardiac or lung involvement. Laboratory parameters were suggestive of anemia, thrombocytopenia, mildly raised liver enzymes with direct



hyperbilirubinemia, raised urea and creatinine, MP by QBC positive for P. Falciparum, normal sugar, low albumin, normal ESR and CRP, deranged PT and APTT. USG abdomen showed hepatosplenomegaly with mild ascites and mild right sided perinephric fluid collection. Looking at the clinical and laboratory parameters, our possible differentials were: Complicated P. Falciparum malaria, Viral hemorrhagic fever, Leptospirosis, Scrub typhus, HUS/TTP, Sepsis with MODS, Salmonella sepsis and Brucellosis. Accordingly patient was investigated. Dengue, Leptospira, Brucella and Scrub typhus serology were negative. Blood cultures were sterile. Hanta virus serology- IgM by EIA was significantly positive. He was treated with Ceftriaxone, Doxycycline, Antimalarials and supportive treatment. He was discharged in stable hemodynamic condition with improving laboratory parameters. He came for follow up after 10 days being absolutely asymptomatic and all reports turned absolutely normal. So it was hanta virus hemorrhagic fever with renal syndrome.

P-119: A Case of Alpha-1 Antitrypsin Deficiency

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Alpha-1 antitrypsin deficiency is a genetic disorder that causes defective production of alpha-1 antitrypsin, leading to decreased activity in the blood and lungs. It occurs in patients having co dominant trait. It presents with dyspnea, cough. Diagnosis is done by detection of alpha-1 antitrypsin level in blood. Here, we present a case report of a young male patient who presented with recurrent episodes of dyspnea and was later diagnosed as having alpha-1 antitrypsin deficiency and on HRCT Thorax had panacinar emphysema with multiple bullae and finally went for bullectomy.

P-120: CMV Pneumonitis in an Immunocompetent Host

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Young dentist from Ahmedabad without any significant past medical history presented with acute febrile illness with constitutional features followed by cough and sudden onset of breathlessness. There was no history of throat pain, joint pain, skin rash or any travel history. On examination, he had fever, tachycardia, tachypnea, hypotension and hypoxia. Systemic examination was unremarkable. Investigations showed normal sugar and renal functions with mildly elevated liver enzymes. CBC showed significant lymphocytosis. He was referred to sterling hospital in view of persistent fever of unknown origin, hypoxia and hypotension. Chest X Ray showed mild haziness in both lower zones. CRP and Procalcitonin were within normal range. ECG showed S1Q3T3 pattern with sinus tachycardia. 2D Echo showed mildly dilated RA and RV with mild RV systolic dysfunction and normal EF. Looking in to the clinical scenario and investigations, our differential were as following: Acute pulmonary embolism,

Influenza like viral infection, community acquired atypical pneumonia (mycoplasma, ligonella, etc), and Myocarditis. In view of persistent and significant lymphocytosis, possibility of Acute infectious mononucleosis syndrome was also kept. Accordingly he was evaluated. HIV, EBV was negative. Bilateral venous Doppler and CT Pulmonary Angiography ruled out possibility of DVT and pulmonary embolism respectively, and work up for hypercoagulable state was normal. CMV IgG and IgM was sent. CMV IgM was 12.71 index-positive (negative < 0.85) and CMV IgG was 38.60 AU/ml-positive. CMV viral load showed 496 copies. CT thorax showed bilateral patchy ground glass opacities. He was treated initially with ceftriaxone and Azithromycin to cover typical and atypical community acquired organisms. He improved with supportive treatment only and no antivirals were used in view of immunocompetent host and no other target organ damage apart from lung. He was discharged from the hospital in stable hemodynamic condition and he remained asymptomatic on follow up.

P-121: A Rare Cause of Secondary Amyloidosis: Common Variable Immunodeficiency Disease

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The Common Variable Immunodeficiency Disease (CVID) is a condition characterized by low serum levels of one or more Immunoglobulin (Ig) subtypes. It is the most common symptomatic primary antibody deficiency. It manifests with recurrent bacterial infections.

We report a case of 45 year male who presented to us with history of acute gastroenteritis and bilateral lower limb edema. He had history of multiple similar episodes and recurrent respiratory and skin infections including Tuberculosis over past 10 years. On routine investigations he was found to be proteinuric (urine albumin +2, 24 hour urinary protein 4 grams/ day) and hypoalbuminemic (Albumin -1.5 mg/dl). Ultrasonography revealed his kidney size to be enlarged. On further investigation the immunoglobulin levels of the patient were IgG: 1.28mg/dl, IgA : << 0.60mg/dl, IgM: << 0.40mg/dl. On basis of enlarged kidney size and nephrotic range proteinuria the patient was subjected to renal biopsy with a suspicion of AA amyloidosis which revealed amyloid (+).

In view of above clinical, radiological and laboratory parameters the Diagnosis of AA type of amyloidosis secondary to CVID was made in this patient. This suggests that early prompt and comprehensive treatment would have been beneficial.

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S. Nishi, B. Alchi, N. Imai, and F. Gejyo, "Clinical and Experimental Nephrology, vol. 12, no. 2, pp. 93-101, 2008.

P-122: A Study of CKD of Young: An Area of Concern**Rathod Mitali, Muley Arti****Department of Medicine, SBKS MlandRC, Sumandeep Vidyapeeth, Piparia, Vadodara****Corresponding Email-ID: drmitali31@gmail.com**

We carried out this study in Dhiraj General Hospital, Piparia from April 2014 to October 2014. All patients admitted with diagnosis of chronic kidney disease (CKD) in the Department of Medicine were included. Total 50 patients were included in the study. 25 (50%) were ≤ 40 years in age. Mean age at onset of CKD was 43.1 ± 15.52 years. 37 (74%) had no history of diabetes or hypertension. Amongst these, 21 (56.75%) were ≤ 40 years in age; mean age of onset of CKD was 38.64 ± 13.35 years. We divided the study population in two groups; ≤ 40 years and ≥ 40 years for further analysis. In < 40 years age group, mean Hb was 8.47 ± 2.12 mg/dl, mean blood urea and mean s. creatinine were 146.95 ± 64.71 and 9.07 ± 7.45 respectively and mean s. calcium, s. phosphorus and s. uric acid were 9.38 ± 1.02 , 4.97 ± 1.49 and 8.16 ± 2.60 respectively which were not significantly different as compared to the > 40 years group. There was a positive association between age of onset of CKD and ingestion of pulses like red gram and black gram – OR = 1.962) and non vegetarian diet (OR = 2.705) but the association was not statistically significant ($p = 0.251$ and 0.091 respectively). There have been recent reports from Srilanka, Canada and South Africa of CKD of unknown etiology (CKDu) being found more in farmers relating it to use of pesticides and dehydration. However, we found a statistically significant negative association between farmer occupation and CKD in < 40 years (OR = -0.183, $P = 0.006$). We reported that there is a surge in number of patients of CKD with onset at < 40 years and that they have similar severity as the older. It was not predominantly seen in farmers as reported in studies addressing CKDu. As CKD is chronic and expensive disease, this study highlights the need of well planned research to identify the factors associated with CKD in young so that measures can be taken at community level to contain it.

P-123: 5 Interesting Cases of Poisoning**Shukla Dhaiwat, Gupta Sapna, Patel Manish****Smt. NHL Municipal Medical College, Ahmedabad****Corresponding Email-ID: shukladhaiwat@rediffmail.com**

P-124: Presentation of Renal Amyloidosis in a Patient of Pulmonary Tuberculosis.

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Introduction: Amyloidosis is a potentially life-threatening disorder caused by deposition of insoluble fibrillar proteins in various tissues, which commonly results in organ dysfunction or failure. Amyloidosis, either primary or secondary, may be defined as a group of chronic infiltrative disorders that have in common a beta-pleated sheet configuration on X-ray diffraction examination, a fine fibrillar non-branching appearance on electron microscopy and an apple-green birefringence when examined under polarised light after staining with Congo-red. In developing countries, Tuberculosis(TB) is still the commonest underlying cause for renal amyloidosis having incidence of 9-11% among patients of Tuberculosis. The diagnosis of amyloidosis is suspected on the basis of clinical features and is established by obtaining appropriate tissue biopsy and demonstrating amyloid using appropriate stains. This study was planned to define the clinical profile of pulmonary tuberculosis(PTB) patient having renal amyloidosis.

Case Report: A 32-year old male, presented with bilateral extensive Pulmonary TB (drug sensitive) with significant bilateral pedal edema including genital swelling, facial puffiness and abdominal distension. The total duration of illness was of few months. The diagnosis of PTB was made by 2 sputum examination. Patient's investigations revealed CBC, LFT, Se. Creatinine, blood sugar, ECG and 2D-ECHO were WNL. Se. HIV and other viral markers were negative. Further investigations revealed significant proteinuria, hypercholesterolemia, hypoproteinemia, hypoalbuminemia(features suggesting Nephrotic syndrome).X-Ray(chest) and USG Thorax revealed significant bilateral Pleural effusion, USG Abdomen revealed ascites and medical renal disease. The diagnosis of renal amyloidosis was confirmed by percutaneous renal biopsy and HPE having characteristic features of renal amyloidosis. The patient was referred to Nephrologist for further management.

Conclusions: Renal amyloidosis is an important complication of PTB and should be suspected clinically in patients presenting with a triad of pedal edema, proteinuria, and medical renal disease on ultrasound. Contrary to general belief, renal amyloidosis may occur in PTB patients having disease for relatively shorter duration, and even if adequately treated. The prognosis in renal amyloidosis is relatively poor, with a median survival of 9–13 months in primary amyloidosis complicated by renal involvement, and more than 50 months in secondary amyloidosis.

Key Words: Tuberculosis, Renal amyloidosis, Complication.

P-125: Reversible Pulmonary Hypertension Due to Thiamine Deficiency

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40 year old alcoholic male patient presented us with progressive increase in breathlessness. He progressed from NYHA grade I to NYHA grade III and pain in right hypochondrium since last 10 days. On general examination we found bilateral pedal edema (pitting in nature) and raised jugular venous pressure (JVP). On systemic examination there is increase in intensity of pulmonary component of second heart sound (loud S2), on palpation tender hepatomegaly (2cm below the right costal margin). Central nervous system is normal and respiratory system is clear on auscultation. On investigations serum creatinine is 1.5 (0.7-1.3), Thiamine levels are 0.4 mg/dl (1-1.16), RBC Transketolase 22% (0-15%). As ECG shows tachycardia and chest x-ray findings suggestive of cardiomegaly we sent the patient to do 2D ECHO which shows severe pulmonary arterial hypertension with RVSP 103 mm Hg and USG (abdomen and pelvis) shows congestive hepatomegaly with minimal right-sided pleural effusion. We started the patient on parenteral THIAMINE for 7 days and oral B-complexes for 2 months, abstain from alcohol, after 3 days of therapy the patient shows decrease in pulmonary arterial pressure up to 35 mm Hg and symptoms relieved. On regular follow-up the patient is doing well. Correction of thiamine level normalized the pulmonary arterial pressure of the patient. Reversible pulmonary hypertension can be seen in patients with thiamine deficiency and Beri-Beri.

P-126: Meningioma in A Case of Chronic Myeloid Leukemia: Rare Association

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Chronic myeloid leukemia is one of the common haematological malignancies with very good outcome nowadays with drugs like imatinib.

We report a case of 28 yrs female diagnosed with chronic myeloid leukemia with bone marrow suggestive of chronic phase of chronic myeloid leukemia showing Philadelphia chromosome t (9:22) positive on conventional cytogenetics. She was started on imatinib 400mg OD for 6 months. Patient achieved complete haematological remission after 4 months. She had complaints of headache for 1 month so neuroimaging done revealed space occupying lesion in right parietal lobe. She underwent surgical excision of tumour and histopathology report suggestive of grade I meningioma.

Extensive review of literature for this did not show any case report of same case to the best of my knowledge this is the first case reported of meningioma with chronic myeloid leukemia.

P-127: Hyperthyroidism and Pulmonary Arterial Hypertension – An Important Association

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Pulmonary arterial hypertension (PAH) is an abnormal elevation of pulmonary arterial pressure that may be due to left heart failure, pulmonary parenchymal or vascular disease or thromboembolism. Some cases of PAH have association with hyperthyroidism. A 60 year old female presented with shortness of breath on exertion for 2 months and increasing shortness of breath at rest for 2 weeks. She also had history of loss of weight in past 2 months, heat intolerance and generalised weakness. On general examination, her pulse was irregularly irregular. On inspection, raised jugular venous pressure (JVP) was seen. On chest auscultation, airway was clear and increased intensity of pulmonary component of 2nd heart sound was heard. Electrocardiogram (ECG) showed atrial fibrillation (AF) which lead to 2D ECHO study that showed dilated Right Atrium (RA) and Right Ventricle (RV); raised Right Ventricular Systolic Pressure (RVSP) and moderate Tricuspid Regurgitation (TR) with normal systolic left ventricular (LV) function. Thyroid panel showed significantly suppressed TSH with raised Free T3 and Free T4 levels. Her diagnosis was made as Hyperthyroidism presented with Atrial Fibrillation and Pulmonary Arterial Hypertension. AF was controlled by anti-arrhythmic drugs and patient was put on anti-thyroid drugs. During six month follow up, she was improved symptomatically. Thus we conclude that the case of PAH with unexplained etiology should be investigated for hyperthyroidism.

P-128: Two Misdiagnosed Cases of Adenocarcinoma of Lung

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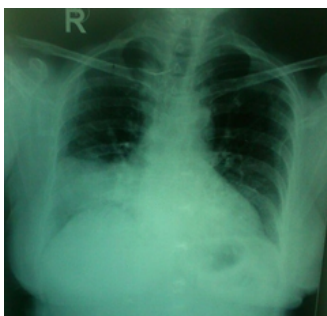
History: A 59 year old (case A) and a 62 year old (case B) female patients, both housewives, visited respiratory medicine OPD and presented with similar complaints of cough with scanty, white expectoration, dyspnoea on exertion associated with cough, hoarseness of voice with no any relevant past medical history. The symptoms were gradual in onset and progressively worsening for about 7 months to 1 year with 2-3 episodes of scanty haemoptysis.

Clinical examination: Resting pulse, respiratory rate, body temperatures and blood pressure were within normal limits. They did not have digital clubbing or enlarged lymph nodes. Auscultatory findings revealed right sided fine expiratory crepitations in both the patients.

Investigations: Hematological, biochemical, urine analysis, sputum microbiology and cytology reports were all inconclusive. Patients chest x-ray showed diffuse ground glass opacity. CT scan showed air space opacification with internal air bronchograms involving right middle lobe suggestive of consolidation changes with interstitial septal thickening within background of ground glass opacity in case A, while case B showed consolidatory mass lesion involving right lower lobe causing complete obliteration of right lower lobar bronchi with consolidation in right middle lobe. Fiber optic bronchoscopy (FOB) showed multiple patches of atrophied mucosa with bronchial lavage (BAL) being negative. Biopsy sent for histopathological examination showed mucin secreting adenocarcinoma in Case A and clusters of reactive mesothelial cells with inflammatory and hemorrhagic background suggestive of adenocarcinoma lung in Case B. Patients were referred to radiotherapy for further management.

Conclusion: Atypical presentations of adenocarcinoma lung, especially in non-smokers, has placed this malignancy in a few of the most versatile diseases to diagnose. It needs high degree of suspicion and well thought of interventions to catch it in an early stage and reduce the load of suffering on patients especially those below poverty line.

Radiological findings:



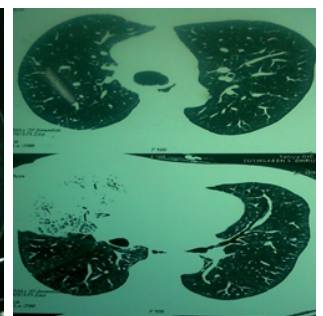
Case A: Chest X-ray
PA view (Oct 2014)



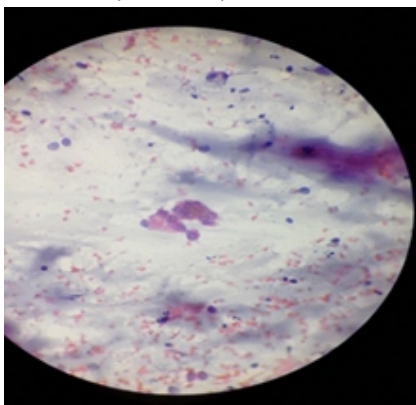
Case A: Chest X-ray
PA view (Nov 2014)



Case A: HRCT
Mediastinal window



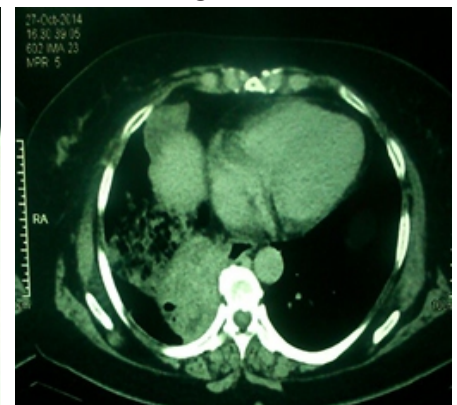
Case A: HRCT
lung window



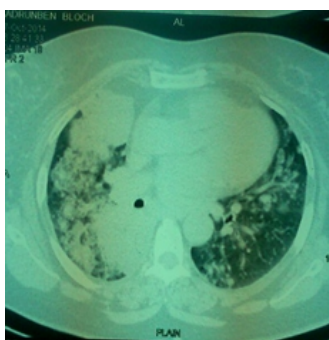
Case A: Histopathological view



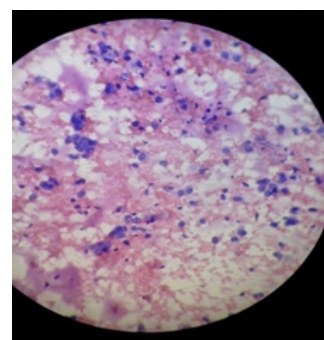
Case B: Chest X-ray PA view



Case B: HRCT Mediastinal window



Case B:
HRCT lung window



Case B:
Histopathological view

P-129: A Case Report of HIV Cholangiopathy

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Cryptosporidia are increasingly recognized as opportunistic infections in immunodeficient patients, predominantly patients with AIDS. The Cryptosporidium most commonly associated with disease in AIDS patients is Cryptosporidium Parvum. The most common clinical presentation of Cryptosporidiosis in AIDS patients is chronic diarrhoea. Cryptosporidium Parvum is a recently described species that has been reported to cause disseminated human infection including cholangitis in AIDS patients. We report a case of AIDS cholangiopathy that presented with abdominal pain and cholestatic liver tests. Stool examination for Oocyst of Cryptosporidium Parvum was positive and CECT abdomen revealed the picture of dilated bile ducts with stricture formation. The organism has been eradicated with ART and Nitazoxanide therapy but bile duct dilatation, that has already been taken place may require ERCP mediated Papillary sphincterotomy and stent placement.

P-130: Intractable Vomiting in a Patient with Hypercalcemia Secondary to Parathyroid Adenoma

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52 year old female with no past comorbidities presented with h/o persistent vomiting, swelling over the neck and dysphagia following which after extensive investigations (including Upper GI scopy) the patient was incidentally found to have hypercalcemia and raised S.TSH levels following which USG Thyroid was done which showed hypoechoic lesion posteroinferior to the right lobe of thyroid and medial to the right common carotid artery showing peripheral vascularity suggestive of parathyroid adenoma along with enlarged thyroid glands. Serum PTH levels were sent which were significantly raised. Patient was treated on the lines of hypercalcemia with diuretics, steroids, zoledronic acid along with calcitonin nasal spray and patient improved symptomatically. Subsequently Tc99 m SESTAMIBI scan confirmed the presence of right inferior parathyroid adenoma. Patient was operated upon and parathyroidectomy was done following which the patient had become symptom free during the regular follow ups.



P-131: A Case Paper of Takayasu's Arteritis

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Takayasu's arteritis is a chronic, idiopathic, medium and large vessel vasculitis involving aorta and its main branches. Frequent neurological manifestations of Takayasu's arteritis include postural syncope, seizures, and blindness. Stroke, as presenting feature of Takayasu's arteritis, is unusual. CT angiography reveals characteristic involvement of aortic arch and its branches. Involvement of intracranial vasculature is rather unusual. We are describing an unusual patient of Takayasu's arteritis who presented with low grade intermittent fever, sudden fall followed by left upper limb and lower limb weakness and altered mental state. Colour Doppler and CT angiography brain suggestive of diffuse thickening of wall of bilateral common carotid and internal carotid arteries and left proximal subclavian artery. MDCT brain suggestive of acute infarct in right frontotemporal lobe with midline shift. Patient was treated with oral corticosteroids, antiplatelets and statins. She improved remarkably after six months of follow up due to physiotherapy.

P-132: A Study of Incidence, Presentation and Outcome of Paradoxical TB-IRIS in HIV Infected Patients after Initiation of Anti-Retroviral Therapy in our Institute

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The immune reconstitution inflammatory syndrome (IRIS) in HIV infected patients initiated on ART results from restored immunity to specific infections or non-infectious antigen. A clinical worsening of known condition (paradoxical reaction) or the appearance of a new condition (Unmasking reaction) after initiation of therapy characterizes the syndrome. Mycobacterium Tuberculosis (TB) is among the most common infective pathogens associated with IRIS.

From 2012 to 2013 (pilot study), we did a prospective analysis of 100 HIV-TB co-infected patients on anti TB drugs (AKT) who were started on ART (HAART) after toleration of AKT as per NACO guidelines to evaluate incidence and course of paradoxical TB-IRIS. As no confirmatory diagnostic test available for TB-IRIS, we followed consensus case definition to diagnose TB-IRIS with available resources.

Of the 100 patients analysed, 24 patients had TB-IRIS. HAART was started after 2 weeks of AKT in 16/24 patients and after 2 months in 8/24 patients. The most common presentation was radiological worsening (7/24) followed by lymph node enlargement (6/24), serositis (5/24), CNS manifestation (4/24) new lymph node (3/24) and cold abscess (2/24). 20 TB-IRIS events occurred within 21 days of initiation of HAART. Baseline CD4 count was low in 19/24 patients. TB-IRIS was predominantly seen in males. Except one, rest all episodes of TB-IRIS were mild to moderate not requiring any treatment interruption. Only 4 patients required hospitalisation especially with CNS manifestations and serositis. Mortality rate was low (1/24).

Conclusion: A considerable proportion of patients (24%) developed TB-IRIS. Patients who developed paradoxical TB-IRIS has a low CD4 count at baseline. Most instances of TB-IRIS are manageable. The consensus case definition is a useful tool in resource limited settings for diagnosis of TB-IRIS.

Key words: HIV, TB, AKT, ART, HAART, TB-IRIS

P-133: Case of Recurrent Transverse Myelitis Associated with Anti-Ro (SSA) and Anti-La (SSB) Autoantibodies

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Transverse Myelitis, an inflammatory process involving restricted area of spinal cord, sometimes present as a medical emergency. Typically Transverse Myelitis is monophasic in nature. However some patients developed recurrent episodes, few of them have association with anti-Ro (SSA) / La (SSB) autoantibodies associated with Sjogren's syndrome. In Sjogren's syndrome, 20% cases developed CNS involvement from that only 1% case associated with Transverse Myelitis.

We report a case of recurrent Transverse Myelitis in patients diagnosed with primary Sjogrens Syndrome of last 8 year duration. 40 year old female presented to emergency ward with complain of bilateral lower limb weakness and tingling and urinary disturbance which later on progress to quadriparesis and difficulty in breathing. MRI showed changes of myelitis from C2 to D10. Extensive Lab investigation rule out infective, demyelinating and most autoimmune pathology except positive ANA and anti Ro/La autoantibodies. In past, two times same episodes developed before 6 month and 7 years respectively which were resolved with steroids. Treatment was initiated with steroids and then with plasmapheresis, but patient succumbs due to VAP after long ICU stay.

P-134: Typical Case of Pulmonary Sequestration

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35 year old nonsmoker man was referred to chest medicine department for recurrent respiratory tract infection associated with repeated productive mucoid cough, intermittent fever and infrequent trivial haemoptysis at 2-3 months interval requiring prolong treatment with antibiotics and antipyretic treatment each time. His temp 37.4°C, respiratory rate 20/min and pulse 80/min. His general examination revealed no significant abnormality. On Chest auscultation revealed left LZ coarse creptitions. His CBC, fasting blood sugar, blood urea, creatinine, bilirubin and SGPT were normal. His Chest X-ray (PA) (figure 1) suggestive of inhomogeneous infiltrations on left LZ. His sputum was negative for AFB, fungus and pyogenic organisms. His tuberculin skin test was negative. As he was symptomatic since childhood possibility of congenital lung disease arouses and decided to undergo contrast enhanced chest CT scan. It revealed that the anterobasal and posteromedio basal segment of left lower lobe were perfused via a single feeding artery originating from descending thoracic aorta (figure 2). Hence he was diagnosed as intralobar pulmonary sequestration and adviced to undergo VATS assisted left lower lobectomy.

Conclusion:

Recurrent lower respiratory tract infection associated with haemoptysis since childhood partially responded to antibiotics should undergo contrast enhanced CT study to rule out possibility of intralobar pulmonary sequestration.



Figure : chest x ray (PA)
left LZ infiltrations

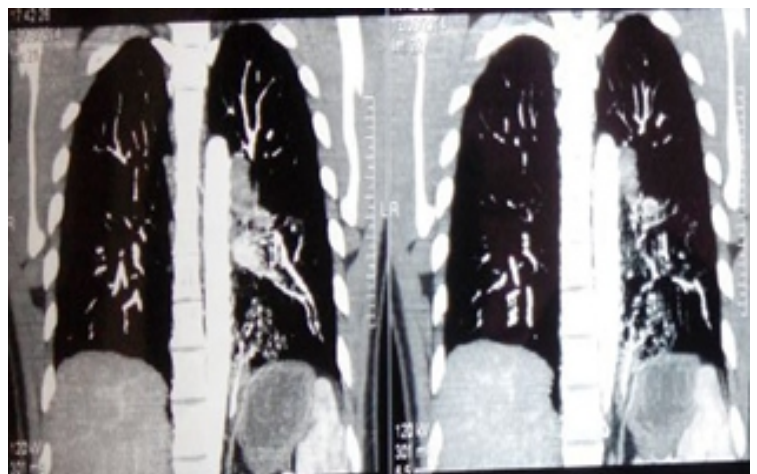


Figure : CECT chest showing feeding artery
arising from descending aorta

P-135: A Case Report of Delayed Radiation Myelopathy

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Myelopathy is rare but serious complication of radiation therapy. Radiation myelopathy is white matter damage to the spinal cord developed after application of ionizing radiation. Factors such as radiation dose and time between applications affect the occurrence as well as the severity of myelopathy. Radiation myelopathy is divided into four categories according to the clinical spectrum; acute paraplegia or quadriplegia, Lower motor neuron findings, acute transient radiation myelopathy, and chronic progressive radiation myelopathy or delayed radiation myelopathy (DRM). Delayed myelopathy typically develops after a certain latent period and ranges from months to few years following Radiotherapy. In this case report, a 35 years old male patient who received radiotherapy and chemotherapy for undifferentiated carcinoma of nasopharynx developed progressive cervical myelopathy with bowel and bladder involvement. The myelopathy was diagnosed clinically and lesions developed in cervico-dorsal spine MRI with gadolinium contrast. He was treated with steroid and physical rehabilitation without much response.

P-136: Carotid Endarterectomy Versus Stenting: When to do and What to do

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Extracranial carotid artery stenosis is a factor in $\approx 20\%$ to 30% of all strokes. Revascularization strategies using surgical carotid endarterectomy (CEA) or carotid artery stenting (CAS) offer the possibility of stroke prevention by restoring flow and mitigating the risk for future plaque-associated embolization. The available clinical outcome data have highlighted the differential risk and benefit among symptomatic versus asymptomatic patients, the impact of older age and sex, and the surgical risk for CEA related to either anatomic or medical factors. Likewise, the important issues of operator training and experience and refinement of technique for both CEA and CAS affect the interpretation of clinical trial results and the generalization of these results to broader populations of patients and operators. This review assesses the results of historical and more recent clinical trials of the comparative effectiveness of carotid revascularization in the context of these clinical issues and give idea regarding choosing the best modality in a given particular case.

P-137: Multiple Organ Dysfunction Syndrome in Paraquat Poisoning

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A 17 year old female patient allegedly consumed a pesticide which on enquiry turned out as 24% paraquat around 20ml after a quarrel at home. Patient was given gastric lavage and supportive treatment. After 3-4 days patient develops loose stools, difficulty in breathing, decreased urine output and blood stained vomiting leading to acute respiratory distress syndrome, acute kidney injury and acute hepatitis. Patient was shifted to ICU. Then hemodialysis done 3 times. There patient was on vasopressor and ventilator support for 3 days. This was followed by sudden cardiorespiratory collapse. When properly used, paraquat is widely used herbicide. This poisoning leads to death from multiple organ dysfunction and cardiovascular collapse within a week of intoxication.

P-138: Comparative Study of Intensive Care Unit Sedation Protocol for Inj. Propofol vs. Inj. Midazolam (Study of 60 Cases)

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Introduction:- Present study has been planned to structure the design of ICU sedation protocol and compare sedative property, hemodynamic stability, recovery criteria and adverse effects of these two sedative agents PROPOFOL and MIDAZOLAM.

Methods:- The study was conducted in our ICU after taking an approval from our institutional ethical committee. Sixty intubated patients of either sex and age group between 20 - 70 years were selected who required sedation during mechanical ventilation.

Inclusion criteria:

- ◆ Age between 20-70 years
- ◆ Hemodynamically stable
- ◆ Post surgical patients who required mechanical ventilation
- ◆ Snake bite, acute exacerbation of COPD, ARDS, acute LVF patients who required artificial mechanical ventilation.

Patients were equally divided in two groups (Group-P and Group-M) with 30 patients in each group.

Group P: Loading dose: Inj. Xylocard 2mg/kg i.v. followed by Inj. Propofol 0.5mg/kg i.v. over 10 mins.

Maintenance: Inj. Propofol 0.5-1.75mg/kg/hr I.V.

Group M: Loading dose: Inj. Xylocard 2mg/kg i.v. followed by Inj. Midazolam 0.1 mg/kg I.V. slowly over 10mins. Maintenance: Inj. Midazolam 0.05-0.07mg/kg/hr I.V.

After giving loading dose, maintenance dose was adjusted according to sedation score.

Target sedation score: Ramsay scale: 3 to 4, Richmond agitation and sedation score: 1 to -3.

All patients had given adequate analgesia by iv Inj. tramadol 50mg qid. Narcotics were avoided in all patients. All patients were on ventilator with IPPV mode during sedation.

Monitoring was done with Temperature, Pulse, Non invasive blood pressure, Urine out put, Respiratory rate, ECG, SPO₂. Monitoring of sedation was done with using RAMSAY SEDATION SCALE and RICHMOND AGITATION SEDATION SCALE.

Results : We found that patients of both the groups, group-P and group-M achieved target range of sedation (Ramsay scale: 3 to 4, for RAAS scale: -1 to -3) throughout the continuous infusion with weaning from propofol is faster than midazolam but time for extubation is similar for both. And there are more chances of fall in heart rate and blood pressure with propofol than midazolam.

Conclusion: It can be concluded that propofol and midazolam give effective and adequate sedation with weaning from propofol is faster than midazolam but time for extubation is similar for both.

Key words: propofol, midazolam, ramsay sedation scale, Richmond agitation sedation scale.

P-139: Recurrent Anaemia – Masquerading as Multiple Meloma in a Young Female

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Multiple myeloma generally presents an around the median age of 70 and one of presentation is chronic anaemia. Hereby we are presenting a case of a 27 year old female presenting with recurrent anaemia treated with multiple blood transfusions since last 6 months. During these 6 months patient was treated as ? haemolytic anaemia. Patient presented to the medical department with a history of bilateral fracture in the Humerus neck for past 4 days on a trivial fall. After the detailed investigation, anaemia turned out to be of chronic disease. On X ray of local parts, it showed multiple lytic lesions and fracture of pathological origin. On bone marrow evaluation and protein electrophoresis, it turned out to be multiple myeloma.

P-140: A Hospital to Home Visit Model to Ensure Medical Compliance and Reduce Complications Following Percutaneous Coronary Intervention: A Novel Global Concept

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Background

Identifying timely adverse cardiac events reduce readmissions, improving patient survival, quality of care thus lowering health care expenditure. Hospital to Home (H2H) visit post percutaneous coronary intervention (PCI), a first of its kind program was initiated to determine drug compliance to prevent early stent thrombosis and bleeding complications.

Methods

At CIMS Hospital, Ahmedabad, India since July 2012, H2H visits were initiated post PCI by trained health care personnel. Based on distance from CIMS, a total of 1066 visits were categorized as A (n=486, <70 km), B (n=330, 70-600 km), C (n=200, 600-1000 km), and D (n=50, > 1000 km). The level of patient satisfaction was scored on a scale of 0-10.

Results

In early 7 days follow up, H2H visit showed good dressing (95.5%) and hygiene conditions (98%). A total of 435 (41.2%) patients reported complaints ranging from headache (16%); fever (12%); breathlessness (4%); hematoma (2.6%); chest pain (2.8%); bleeding (0.6%) and infection (0.6%). During the visit telephonic interaction with the cardiologist resolved these complaints in 98.6% of the patients. Prescription non-compliance was corrected in 314 (29.7%) patients. Adherence to anti platelet therapy (Aspirin/Clopidogrel) was confirmed in 100% patients, adherence to remaining medications was in 966 (91.42%) patients. Adverse Drug Reactions was reported in 47 (4.44%) patients of which 40 (3.9%) were resolved. Quality of life was excellent in 50.07%; very good in 27.4%; good in 20.98% and fair in 1.53% patients. A satisfaction score greater than 8 was reported in 89% patients. Importantly there was not a single case of stent thrombosis over the 1st month post PCI. Primary prevention measures for cardiovascular disease were reinforced in obese and post-menopausal family members during the visit.

Conclusion

H2H visit following PCI is a novel, sustainable, affordable and successful healthcare model, global first of its kind initiation covering a radius of over 1000 km in a developing country like India where healthcare systems are not easily accessible. Besides reducing complications and readmissions, H2H also aims to enhance primary prevention, patient satisfaction and compliance.

P-141: International Task for Prevention of Cardiovascular Disease: Primary Prevention Outcomes

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Background: In 2020, 2.6 million Indians are predicted to die of coronary heart disease. Under the banner of “Global Network to Fight CVD”, a pilot project was initiated to assess prevalence of vascular risk factors.

Methods: A randomly derived, population based, prospective consented cohort of 2003 community participants free of cardiovascular disease was assessed between July-October 2013 using interactive PROCAM(Prospective Cardiovascular Munster) 10 year risk assessment tool for myocardial infarction at IACS-CIMS initiated primary and tertiary health care settings in Western part of India.

Results: Variables like education and income were added to the traditional PROCAM score.

Table : Subject Assessment Variables

Variables	Males N(%)=1424	Females N(%)=579	Total N(%)=2003
Mean Age (Years)	46.01 ± 13.91	47.27 ± 12.7374	46.37 ± 13.59
Positive Family History	219(15.37)	65(11.22)	284 (14.1)
Mean Weight (kg)	72 ± 18.3847	62.30 ± 12.06	68.48 ± 12.88
Mean BMI (kg/ m ²)	26.0 ± 6.48	26.01 ± 5.37	25.44 ± 4.55
SBP >125 (mm Hg)	892(62.64)	334(57.68)	1226 (61.20)
On Anti-Hypertensive therapy	351(24.64)	173(29.87)	524(26.16)
Diabetic	153(10.74)	75(12.95)	228(11.38)
Nicotine consumption	330(23.17)	1(0.17)	331(16.52)
Education < High School	621(43.60)	321(55.44)	942(47)
Income <Daily Allowance	100(7)	69(11)	169(8.43)
10 year MI Risk Assessment			
< 5 %	855(60.04)	484(83.59)	1339
5 to 9 %	237(16.64)	53(9.15)	290
10 to 14 %	98(6.88)	12(2.07)	110
15 to 19 %	70(4.9)	13(2.24)	83
= 20 %	164(11.51)	17(2.93)	181

Major contributing factors to high risk group included male gender (81%), hypertension (81%), nicotine consumption (52%), education less than high school (51%), diabetes (37%) and obesity (28%). Low income (6%) was not a major contributing factor.

Conclusion: A simple inexpensive, nearly non-invasive tool has been used to stratify Indian population into high and low-risk groups and aided in greatly improving primary prevention of cardiovascular diseases.

P-142: A Hospital to Home Health Care Initiative for Early Follow-up, Post Discharge Medication Management and Patient Self Care and Activation Following Coronary Artery Bypass Graft – First Indian Pilot Study

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Background: Identifying adverse cardiac events and reducing readmissions improves patient survival; enhances quality of care, and lowers health care expenditure. Objective of the Hospital to Home (H2H) follow up visit was to improve transition from inpatient to outpatient status for individuals hospitalized for coronary artery bypass graft (CABG) surgery.

Methods: Since July 2012, a total of 437 H2H visits were conducted following CABG surgery discharge, by trained healthcare personnel of Care Institute of Medical Sciences (CIMS), Ahmedabad, India. Based on distance the visits were categorized as A(n=198;less than 70 km);B(n=137;70-600km);C(n=82;600-1000km) and D(n=20;>1000km) respectively.

Results: At 5 days early follow up H2H visits depicted medical complications (36.56%) like wound infection (1.6%) ; poor dressing conditions (2.58%);inappropriate chest belts (8.46%) and poor hygiene(3.9%).Post discharge medication non-compliance was observed in 25.24% patients. Adverse Drug Reactions were reported in 10 (2.26%) patients of which 8 (1.94%) were resolved at visit. Although drug adherence was observed in 389 (89%) patients,18 (4.1%) patients had incomplete ordered lab work .Majority of patients (89%) revealed a satisfaction score of >8,and Good Quality of Life (97.7%).At 30 days 1.125% readmissions occurred. H2H visits reduced readmission by 15% and complications by 8% as compared to earlier data. During H2H visits patient self- care and activation was promoted by appropriate treatment and/or counseling.

Conclusion: In rural areas, where healthcare systems are not easily accessible, H2H visit is a sustainable, affordable and successful healthcare model; improving patient satisfaction, compliance to medications, reducing complications and readmissions.

Keywords: Hospital to Home visit, Coronary Artery Bypass Graft

P-143: Case of Thyroid Storm

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Thyroid storm is a rare life-threatening condition occurring as an exacerbation of hyperthyroidism, with only 1-2% prevalence among hyperthyroid patients, with 20-30% mortality even with treatment.

We report a case of 35 year old lady, a known case of hyperthyroidism since 2 years, with poor compliance to medication. She presented to us with complaints of severe breathlessness at rest (NYHA IV), abdominal pain and cough with expectoration for three days. On examination, she was found to be restless, dehydrated, febrile (101.0F) and her pulse was 300/min regular and blood pressure was 90/60mm.Hg and jugular venous pressure was raised. On chest examination, bilateral crepitations in basal lung fields were present. On neck examination, her thyroid was bilaterally enlarged without bruit. Electrocardiography showed sinus arrhythmia with very fast ventricular rate. Chest radiography showed bilateral pleural effusion. Her thyroid profile revealed suppressed serum TSH of <0.0006 uIU/ml, raised serum free T4 of 4.38ng/dl and raised serum free T3 of 9.55pg/ml. She was started on oxygen, vasopressor, carbimazole, propranolol, dexamethasone and antibiotics. She could not be treated with either propylthiouracil or Lugol's iodine because it was not available in our institute. She was discharged 10 days later with great improvement with clinically euthyroid.

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