and T 0.24. There was complete linkage disequilibrium between −1639G>A and 1173C>T (r^2 = 0.98, D' = 1.0, LOD = 74.02).
The wild type (GG and CC) of VKORC1 required a mean acenocoumarol dose of 2.78 mg, a moderately higher dose as compared to 2.39 mg for heterozygous GA and CT and 2.29 mg for homozygous AA and TT (p value 0.023). Only in male patients, bearing A allele of VKORC1 gene independently increased the odds of requiring a low dosage of acenocoumarol (adjusted OR 1.65 at 95% CI, class interval 0.99-2.76, p value-0.05). Both the wild type and alleles had a lower mean dose requirement when the patients were concomitantly prescribed Furosemide and Digoxin.
Conclusions: Heterozygous patients were more common in our study cohort compared to previous studies on Indian population and require a lower mean acenocoumarol dosage. Male patients bearing 'A' allele and patients concomitantly using Furosemide and Digoxin require a lower dosage. However co-prescribing low dose aspirin has no influence on the mean dose requirement.

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C-reactive protein at admission as an independent predictor of major complications, need for urgent surgery and mortality in infective endocarditis patients: A protocol-based prospective analysis

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Background: Major complications in infective endocarditis (IE) remain high even in the current era of critical cardiac care. A reliable parameter that predicts complications and identifies patients requiring urgent surgery is lacking.
Purpose: Our aim was to study the value of baseline clinical, laboratory and microbiological parameters in IE patients. We focussed on the independent utility of inflammatory markers like leukocyte count (TLC), erythrocyte sedimentation ratio (ESR) and C-reactive protein (CRP) regardless of blood culture positivity or vegetation size.
Methods: This was a prospective study on consecutive IE patients (by modified Duke criteria) who were admitted to our tertiary care centre between 2012 and 2015. Predefined laboratory-microbiological sampling protocols and antibiotic-initiation protocols were followed. Peak levels of CRP and ESR in the first 3 days of admission were documented.
Results: Out of 101 patients treated, 71 patients with definite IE by Duke criteria were analysed. Mean age was 43 ± 16 years. Blood cultures were positive in 55% (n = 39) of which Staphylococcus was the most common. Major complications occurred in 72% (n = 53) and in-hospital mortality was 31% (n = 22). Mean ESR and CRP levels were 102 ± 31 mm/hr and 51 ± 20 mg/l respectively. In multivariate analysis, high CRP levels were independently predictive of poor outcomes ($p < 0.001$) including major complications, embolic events and need for urgent surgery. A CRP >30 mg/l predicted complications with a sensitivity of 91% and specificity of 82%. CRP level >40 mg/l predicted mortality (relative risk = 8.12, p = 0.003).
Conclusion: Major complications and mortality continue to remain high for IE. The interim results identify the independent value of CRP levels as a marker for early risk-stratification of IE patients. A biomarker based algorithm at admission may favourably impact treatment outcomes in IE. This study has set the stage for further randomised trials in this regard.

A rare case of severe juvenile rheumatic triple valve disease

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Case presentation: A 13 years old girl presented to us with history of dyspnea on exertion since 15days. On examination she had a pansystolic murmur in mitral area and an ejection systolic murmur in aortic area. ECG done showed RBBB with features suggestive of biatrial enlargement. Patient did not give any previous history of rheumatic fever. Patient was diagnosed to have rheumatic heart disease and was advised to get 2D echocardiography. 2D echo showed dilated LA, RA and RV. The anterior mitral leaflet was thick and domed with restricted movement of PML and Doppler interrogation revealed a peak gradient of 31 mm Hg and mean gradient of 22 mm of Hg. Colour Doppler study showed severe mitral regurgitation. Aortic valve was thickened and was showing restricted movement. Doppler study showed mild AR with severe AS (peak gradient 82 mm of Hg and mean gradient of 47 mm of Hg). There was organic tricuspid valve disease with severe TR and severe TS (peak gradient 14 mm of Hg and mean gradient of 7 mm of Hg). Pulmonary valve was normal except for mild PR probably due to associated severe PAH. Patient also had LV concentric hypertrophy with normal LVEF. Final diagnosis of rheumatic heart disease with severe triple valve involvement with severe PAH was made and patient was sent for surgery.
Discussion: Rheumatic heart disease in India is characterized by rapid progression and death at younger age. Nearly 32% of patients die before the age of 20 years. In an autopsy study conducted on 144 children below the age of 18 years mitral valve was affected in 100% of cases. Involvement of aortic, tricuspid and pulmonary valves was seen in 63.89%, 54.86% and 12.5% respectively. Multivalvular disease was noted in 75.69% cases; but double valve and triple valve disease which possibly would have required surgery was present in only 8.33% and 3.5% cases respectively. This case showed severe rheumatic involvement of aortic, mitral, and tricuspid valve in a juvenile patient with is very rarely seen.
Conclusion: In India, rheumatic fever is endemic and remains one of the major causes of cardiovascular disease, accounting for nearly 25–45% of the acquired heart disease. This case demonstrates smoldering rheumatic activity that can be seen in Indian children at a very young age leading to triple valve involvement. Not only the cost of treatment in such patients are phenomenal, the morbidity and mortality is also enormous. Hence "**Prevention is better than cure**" is very apt for rheumatic fever.

Percutaneous balloon mitral valvuloplasty during pregnancy: Retrospective analysis of pregnancy and neonatal outcomes

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Introduction: Rheumatic mitral valve stenosis is most common lesion and important contributor of mortality in pregnancy. Percutaneous balloon mitral valvuloplasty (BMV) is the intervention of choice during pregnancy. Given the procedural complexities and

hazards of radiation, we retrospectively evaluated pregnancy and neonatal outcomes after BMV.
Methods: During January 2002 to January 2015, eighty-four BMV interventions during pregnancy were observed. Data on pregnancy and neonatal outcome was evaluated.
Results: Mean maternal age of all patients was 25.21 ± 7.66 years with maximum number of women in 18–25 years (67.86%) age group. Primigravida (36.90%) and second gravida (42.86%) were common.
Mean gestational age at which BMV performed was 22.43 ± 5.70 weeks with majority of interventions during second trimester (84.52%). Significant increase in mitral valve area was observed after BMV (baseline: 0.92 ± 0.2 cm^2; post-BMV: 2.06 ± 0.3 cm^2 $p < 0.0001$). One-third (56/84) pregnancies had full-term birth (≥37 weeks of gestation), twenty-four (28.57.%) had preterm delivery, three patients had medical termination of pregnancy and one was macerated still birth. Birth weight of majority of newborn babies (76/81, 93.82%) was 2.5 kg and above with only five (6.17%) babies weighing below 2.5 kg. APGAR scores (mean ± SD) at 1 minute, 5 minute and 10 minute were 5.98 ± 0.68, 6.98 ± 0.72 and 8.23 ± 0.45.
Discussion and conclusion: BMV during second trimester of pregnancy is feasible and safe. A good success rate was observed in our experience. No adverse outcomes were observed for pregnancy and in neonates. With experienced hands, BMV is the choice of intervention for severe mitral stenosis in pregnancy.

A study of indications, complications of prosthetic valves and prognosis after treatment of stuck valve

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50 Patients who came to the emergency department with stuck valve were taken and assessed.
Of these 80% came with shortness of breath, 20% with palpitations, tachycardia was seen in 80% of the patients, blood pressure was below 100/70 in 80%, hemoglobin was less than 8 in 60%, serum bilurubin elevated in 45%, most of them are asymptomatic for 6 yrs and there is lack of compliance in 90% of patients. Drug used is acitrom 2 mg in 90% and drug interaction with digoxin is seen in 4% and INR was low in most of the patients.Cardiomegaly in 60%, 2D Echo showed global hypokinesia in 60%.
Commonest indication for valve replacement is mitral stenosis in 60%, mitral regurgitation in 20%.
Aortic regurgitation and aortic stenosis in 10%, combined mitral and tricuspid replacements in 10%. Commonest valve is St. Jude 90%, most of them have gradients 45/20 mm of hg at mitral level.
In about 90% gradients decreased after thrombolysis. Thrombus is seen in 50% patients, pannus in 10%, complications like hemiparesis in 4% patients, death in 5% patients before thrombolysis, after thrombolysis 4% patients.

Myocardial infarction with angiographically normal coronary arteries in a young woman: A normal vessel, but not the muscle

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Introduction: Acute myocardial infarction (AMI) is commonly caused by atherothrombotic events. But MI with angiographically normal coronary arteries (MINCA) could be found in young population with AMI, leading to further investigation of other intriguing causes.
Case illustration: A 35-year-old female presented with an acute chest pain. Before the event, she was generally healthy. The initial ECG showed an anterior ST-segment elevation MI (STEMI). The troponin-T was significantly elevated. Echocardiography showed akinetic of segmental walls with ejection fraction (EF) 47%. A diagnosis of STEMI was made then, and she was treated conservatively.
Three months later, she was admitted to emergency room with severe shortness of breath and atypical chest pain. Bilateral basal rales, S3 gallops, elevated jugular venous pulsation, and peripheral edema were found on physical examination. The ECG showed sinus tachycardia with anterior prior MI. The echocardiography showed dilated all cardiac chambers with EF 27%. She was managed then as an acute decompensated heart failure. During hospital stay, she had recurrent ventricular tachycardia (VT) with unstable hemodynamic those were successfully managed by repetitive cardioversion. Coronary angiography was performed at the day after and showed normal coronary flow. We considered myocarditis as the cause in this case, and managed to optimize the medical therapy of heart failure for her. Implantable cardioverter defribillator was planned then.
Conclusion: We have reported a case of AMI in a young woman with angiographically normal coronary. We considered acute myocarditis as the cause of previous STEMI and currently clinical symptoms of heart failure and recurrent VT.