

Telecardiology for chest pain management in Rural Bengal – A private venture model: A pilot project



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Introduction: Rural countryside do not get benefits of proper assessment in ACS for: 1. Absence of qualified and trained medical practitioner in remote places. 2. Suboptimal assessment by inadequately trained rural practitioners (RP). 3. Non-availability of 24 hours ECG facility. Telecardiology (TC), where available, has low penetration and marginal impact. Lots of discussions are done to fast track transfer of modern therapy at CCU including interventions & CABG. They remained utopian even at urban localities not to speak of inaccessible poverty-stricken rural areas.

Objectives: To ascertain feasibility study of low cost TC at individual initiative supported by NGOs working in remote areas for extending consultation and treatment to those who can at least afford/approach very basic medical supportive care only.

Methods: 1. Site selection: A remote island (267.5 sq km) in South Bengal close to Sundarban Tiger Reserve, inhabited by about 480,000 people with about 100,000 in age above 60 years. Nearest road to Kolkata, 75 km away, is assessable by only five ferry services available from 5 am to 4 pm across rivers more than two km wide at places. 2. RP Training: Classroom trainings organized and leaflets in vernacular prepared and distributed in accordance to AHA patient information leaflets. 3. One Nodal Centre made operational from March 2015 after training three local volunteers (not involved in RP) for 2 weeks on: a. Single channel digital recording by BPL 1608T, blood pressure measurement by Diamond 02277, pulse oxygen estimation by Ishnee IN111A and CBS estimation by Easy Touch ET301. b. Digital photography, transmission by email by 2G network to either of us in Kolkata by Micromax Canvas P666 Android Tab. 4. Patient selection by filling a form: chest pain at rest and exercise, chest discomfort, radiation of pain, shortness of breath, palpitation, sudden sweating, loss of consciousness, hypertension, diabetes, age > 60 yrs. c. Mobile phone alert call to either of us after successful transmission. d. Review of ECG, BP, R-CBS and Oxygen saturation information on email as a single attachment as early as possible on Apple Air Tabon 3G network. e. Call back for further history/information and advices.

Results: 22 patients assessed from March to end May 2015, all being referred by RPs who have undergone training. Two (2) cases of IHD by ECG noted. Both were known cases of inadequately controlled hypertension and diabetes. No case of ACS received. Two (2) cases of known COAD were received who were also hypertensive and had infection. Three (3) new cases of hypertension detected. All other cases were normal for parameters examined. Medical advices were given, further investigations suggested, follow up maintained by RPs. Advices for COAD given after consultation with colleagues. Average time taken to call back after receiving alert call 25 ± 5 min. All calls received between 11am and 7pm. Two cases were needed to be shuffled between us for convenience. Statistical analysis avoided as number of case too small.

Observations: 1. Public awareness need to be increased. 2. Resistance from RPs for pecuniary reasons may be overcome by involving them. 3. It is feasible to successfully operate the system at a nominal cost per case of about Rs. 70/- only excluding the primary investment on training, instrumentation and service connection. 4. Medical and social impacts remain to be assessed. 5. Multiple nodal centres and involvement of all health care providers should usher into long cherished 'health for all'.

A study of etiology, clinical features, ECG and echocardiographic findings in patients with cardiac tamponade



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Cardiac tamponade is defined as hemodynamically significant cardiac compression caused by pericardial fluid. 40 cases of cardiac tamponade were evaluated for clinical features of Beck's triad, ECG evidence of electrical alternans and etiology, biochemical analysis of pericardial fluid. Cardiac tamponade among these patients was confirmed by echocardiographic evidence apart from clinical and ECG evidence. We had 6 cases of hypothyroidism causing tamponade. Malignancy was the most common etiology followed by tuberculosis. Only 14 patients had hypotension which points to the fact that echo showed signs of cardiac tamponade prior to clinical evidence of hypotension and aids in better management of patients. Electrical alternans was present in 39 patients. We found that cases with subacute tamponade did not have hypotension but had echo evidence of tamponade. 37 patients had exudate and 3 patients had transudate effusion. We wanted to present this case series to highlight the fact that electrical alternans has high sensitivity in diagnosing tamponade and hypothyroidism as an etiology of tamponade is not that rare and patients with echocardiographic evidence of tamponade may not always be in hypotension.

Role of trace elements health & disease



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A cross sectional one time community based survey is conducted in urban area of Nellore. 68 subjects were selected between 20 to 60 years of age by using convenient sampling techniques. Detailed demographic data is collected and investigations like Lipid Profile, Blood Sugar, ECG, Periscope Study (to assess vascular stiffness), trace Elements analysis of Copper, Zinc are done apart from detailed clinical examination. ECG as per Minnesota code criteria is carried out for the diagnosis of coronary artery diseases. The diagnostic criteria for Hypertension, BMI and Hyperlipidemia as per Asian Indian hypertensive guide lines 2012 and ICMR Guidelines for diabetes mellitus is followed.

Hypertension was present in 39.7%, over weight 14.7%, obesity 27.9%, ECG abnormality as evidence of Ischemic heart disease 8.38% RBB 3.38% sinus tachycardia 3.38%. 24% had raised blood sugar and cholesterol raised in 25% subjects. Periscope study was done in the 48 samples. Vascular stiffness indices as pulse wave velocity and augmentation index increased in 75% of subjects. Trace elements analysis for Zinc and Copper was done for 49 samples.

Imbalance of trace elements either increased levels or decreased levels are present in 37 subjects. Vascular stiffness and alteration

of trace elements are correlated with the risk factors and ischemic heart disease.

Based on the above study we suggest that further detailed studies can be done to consider fortification of food with trace elements to reduce the risk of Ischemic Heart Disease.

Study to assess improvement in therapeutic outcomes by platelet inhibition with prasugrel



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Background: Despite the established short term and long term benefits of DAPT with aspirin and clopidogrel, many patients continue to have recurrent atherothrombotic events. Prasugrel is thought to inhibit ADP induced platelet aggregation more rapidly, consistently and to a greater extent than do standard and higher doses of clopidogrel. We aimed to test whether prasugrel prevents clinical ischemic events better than clopidogrel and also compared the safety (bleeding events) among the two.

Methods: A total of 136 patients were studied with a primary diagnosis of ACS (NSTEMI or STEMI) who underwent PCI. Patients were assigned into clopidogrel (600 mg LD/150 mg MD (1 month) and 75 mg (8 months)) or prasugrel receiving group (60 mg LD/10 mg MD). Primary end points studied were CV Death and ACS; Stent thrombosis and Bleeding events (GUSTO Bleeding criteria).

Results: Incidence of CV Death and ACS was 11.7% and 8.8% in clopidogrel and prasugrel group respectively ($p < 0.05$); while that of Stent thrombosis was 4.4% and 2.9% ($p < 0.05$). When studied in diabetic subgroup, incidence of CV Death and ACS was 16.7% and 8.3% ($p < 0.05$). Bleeding events in the two groups were similar, with severe or life threatening (0%), moderate (2.9%) and mild (5.8%) ($p > 0.05$).

Conclusions: Our results support the hypothesis that the greater inhibition of ADP induced platelet aggregation by prasugrel (a potent P2Y₁₂ inhibitor) is more effective at preventing ischemic events (including stent thrombosis) than is the inhibition conferred by a high dose clopidogrel regimen, with similar risks of bleeding. The results were in favor of prasugrel when studied in context of diabetic subgroup as well.

Trace element levels in coronary artery disease



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Background: Cardiovascular disease/Coronary artery disease, leading cause of global morbidity and mortality. Trace elements such as Se, Zn and Cu play a crucial role in defending against oxidant damage. There is no such studies have been carried out to analyse trace element levels in coronary artery tissues which correlate with disease condition.

Objective: Hence, the aim of the present study was to investigate the changes occurring in the levels zinc (Zn), copper (Cu), and Selenium (Se) in coronary artery tissues of patients with CAD.

Method: Coronary artery samples collected from these patients during bypass surgery from known CAD patients. These samples were analyzed for Se, Zn, and Cu using atomic absorption spectrophotometry and results are expressed in terms of wet weight of coronary artery tissue.

Results: study included a total of 20 sample size. In present study, copper, Zinc and Selenium levels observed in coronary artery from patients with CAD as follows. Copper levels ranged from 0.5 to 1.5 in $\mu\text{g/g}$ weight of coronary artery. Zinc levels ranged from 1.5 to 8.5 in $\mu\text{g/g}$ weight of coronary artery. Selenium levels ranged from 0.15 to 0.45 in $\mu\text{g/g}$ weight of coronary artery.

Conclusion: The observations of the present study showed the levels of Zn, Cu and Se in coronary artery samples of CAD patients.

Effect of vanadium supplementation on high fat diet induced hyperlipidemia



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In mica mine workers in Nellore district the prevalence of Ischemic heart disease and Serum cholesterol levels are less in when compared to other rural population in our earlier studies. Vanadium content of mica and Blood levels of vanadium in mica workers is high compared to other rural population. Hence study in experimental animals is under taken in our laboratory to know the effect of vanadium.

Vanadium is an essential trace elements in certain animals and its role in humans is debated. Under physiological conditions vanadium predominantly exists in either an anionic form (vanadate) or a cationic form vanadyl. The vanadate is mainly bound to transferrin and to a lesser extent to albumin. The present study aimed to know the effect of vanadium supplementation on high fat diet induced hyperlipidemia in experimental animals. In this study Newzeland white breed male rabbits divided into three groups and each group consists of 6 in number.

Group I: Rabbits fed with standard diet

Group II: Fed with 2% cholesterol diet

Group III: Rabbits fed with group II diet and supplemented with 0.75 mg/kg of elemental vanadium as Sodium meta vanadate. Total cholesterol, LDL Cholesterol and Triglycerides were significantly decreased in Group III when compared to Group II after the experiment. HDL is similar in both groups. Present study shows antilipidemic effect of Vanadium in experimental rabbits. Supplementation of vanadium may prevent cardiovascular risk factor like Hyperlipidemia.

A study of cardiovascular involvement in cases of rheumatoid arthritis with high disease activity



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Introduction: Rheumatoid arthritis (RA) is a chronic inflammatory disease of unknown etiology marked by symmetric, peripheral