

Title: Providing Optimal Regional Care for Time sensitive Cardiac Emergencies by using Smartphones. A Study Utilising Whats App as a Tool to Integrate Local Health Network in Remote area of North India- Save Heart Kashmir

Category: Acute Coronary Syndromes

ABSTRACT

Introduction: Kashmir is a resource limited, conflict ridden region having its own distinctive regional challenges, operational limitations and poor accessibility of remote areas to health care. Utilizing smart phones as a medium for providing access to the optimum cardiac care in the remotest of the areas of our region served as a platform for SAVE HEART INITIATIVE (SHI) launched in the form of Social Media Whatsapp Group connecting peripheral hospitals (spokes) in the Kashmir region to experts (Hub). The expert cardiologist in forum provides speedy responses within few minutes only and the optimum management is conveyed back with least time lag hence saving myocardium and mortality in STEMI.

Material Methods: Save Heart Initiative (SHI), a novel initiative was started voluntarily by a team of cardiologists and physicians and endorsed by the directorate of health services Kashmir division after going through the pilot studies conducted by the team over past two years. All the government hospitals along with their Emergency (ER) teams were roped in, integrated with expert physicians and cardiologists via whatsapp based technology creating a Virtual cardiac ER facility and a CYBER HUB where teams of experts lended optimum support to all the peripheral hospitals of the region which acted as CYBER SPOKES of the initiative. Simultaneously all the peripheral hospitals upgraded to a functional Emergency room with all the emergency drugs available. Including the clot busters as streptokinase and vital anti arrhythmic drugs free of cost. Emergency room proformas, algorithms, protocols were created and standardized to aid in management. CME's regarding cardiac emergencies and response workshops were organized at regional institutes regularly for capacity building locally. The cyber hubs of experts on board were voluntarily available 24 hours responding to every chest pain scenario, STEMI or arrhythmia. The decision to use whatsapp as technology in medical care was taken due to its unique features of being readily available, handy technology, and as it could transfer all data in form of text, images, audios, visuals to and from the cyber spokes and cyber hubs respectively without any extra financial burdens, infrastructural requirements, investments and workforce recruitments. A follow up registry and patient tracking system was created to ensure informed referral and post procedure care for understanding the impact and outcomes.

Results: Within 500 days of the initiative about 130 hospitals and 1200 doctors were taken on board. A total of 38000 ECGs were analyzed till date wherein the average response time in this social media group to any case was 1-2 minutes mostly and the diagnostic delays decreased to minimum. In first 500 days, this initiative managed 770 STEMI's with thrombolysis, 2723 NSTEMI, 5320 arrhythmias, 345 heart blocks, 16 pulmonary thrombo-embolisms, 53 primary PCI procedures, 61 Wellen's syndromes, 25 Wolf Parkinson White (WPW) syndromes. All patients who presented with chest pain, underwent electrocardiogram (ECG) within 10 minutes of presentation. 70% of STEMI patients received thrombolysis within two hours of presentation. 91% of patients who underwent pharmacoinvasive

management at one of the centres had flowing vessels. Summing up to a total of 19390 cases were managed.

Conclusion: Our experiment demonstrated the feasibility of the approach adopted for better cardiac care that reached the poorest living in far flung area without any extra burden to the state exchequer. Save Heart Initiative helped in decreasing the delay in managing cardiac emergencies which in turn reduced morbidity, mortality; coronary care unit (CCU) occupancy rate in tertiary care brought down undue referrals and established a vibrant patient tracking system in the region depicting its success. Using Smartphone based technology in time sensitive cardiac events seems to be the most vibrant, novel and viable option being available, portable, efficient, and cost-effective, with least technical glitches. It seems to be the way forward in providing optimum and timely treatment in all acute cardiac emergencies in resource deficient regions as Kashmir and also provide data about burden of acute coronary syndrome and will be among the largest registry of pharmacoinvasive management.

Clinical Implications: Using Smart phone based technology and spoke and hub model can help in reducing morbidity and mortality associated with various time sensitive cardiac emergencies in resource poor settings.