ABSTRACT

National Health Mission – Cardiac Care Policy for the State – Approved - Orders - Issued.

Health and Family Welfare (EAP II-1) Department

G.O (Ms) No.272

Dated :11.06.2019
Vigari, Vaikasi-28
Thiruvalluvar Aandu 2050

Read:

From the Mission Director, State Health Society, Tamil Nadu, Chennai Letter No. 6482/NHM/2019, dated: 15.02.2019.

ORDER:

Coronary artery disease has become the leading cause of mortality in India. The increasing magnitude of cardiovascular disease driven by industrialization, urbanization, lifestyle changes and emerging risk factors are called epidemiological transition. The World Health Organization and Global Burden of Disease Study also have highlighted increasing trends in years of life lost and disability-adjusted life years from Coronary Artery Disease in India. The goal of the Tamil Nadu Health care delivery system is to provide evidence-based state of art treatment to every person in Tamil Nadu developing heart attack, irrespective of their financial capacity, geographical location, time of onset of symptoms, nativity of the person etc. Hence, the National Health Mission has formed the Trauma and emergency Initiative (TAEI) to improve the care of trauma and various commonly occurring emergencies. Further, the Heart Attack Management program has been initiated and included in Trauma and emergency Initiative.

2. In the letter read above, the Mission Director, National Health Mission has furnished the draft Cardiac Care Policy for the State and has requested to approve the same.

3. The Government, after careful examination, have decided to approve the Cardiac Care Policy for the State as annexed to this Government Order.

(BY ORDER OF THE GOVERNOR)

BEELA RAJESH
SECRETARY TO GOVERNMENT

To
The Mission Director, State Health Society, Chennai – 600006.
Copy to:
The Finance (Health-1) Department, Chennai-600009.
The Health and Family Welfare (Data Cell) Department, Chennai-600009.
Stock File / Spare Copy.

//Forwarded by Order//

11/6/19

SECTION OFFICER

ANNEXURE I

(G.O(Ms)No.272, Health and Family Welfare (EAP.II-1) Department, dated:11.06.2019)

CARDIAC CARE POLICY

FRAMEWORK OF TAMIL NADU HEART ATTACK MANAGEMENT PROGRAM

A. Introduction:

Coronary artery disease (CAD) has become the leading cause of mortality in India. Over the past two decades there has been a rapid transition of the disease burden, from communicable disease trending towards non-communicable diseases. This increasing magnitude of cardiovascular disease driven by industrialization and urbanization, lifestyle changes, emerging risk factors is called epidemiological transition. The World Health Organization(WHO) and Global Burden of Disease Study also have highlighted increasing trends in years of life lost (YLLs) and disability-adjusted life years (DALYs) from CAD in India. According to the Global Burden of Disease study age-standardized estimates (2010), nearly a quarter (24.8%) of all deaths in India is attributable to CVD. The age standardized CVD death rate of 272 per 100 000 population inIndia is higher than the global average of 235 per 100 000 population. Substantial proportions of the patients are younger and belong to low socio-economic strata.This increase in CAD patterns also mirrors in the State of Tamil Nadu.

B. Burden of Heart Attack:

Heart Attack [Acute myocardial infarction] is of two types: STEMI and NSTEMI. STEMI is due to complete occlusion of a blood vessel of the heart [coronary artery], while NSTEMI is due to subtotal occlusion. STEMI needs very early reperfusionof the occluded coronary arteries ideally within the golden hour [1 or 2 hours] if not within 6 to 12 hours. In the ground level this does not happen most of the times.

At UK the NHS estimated the incidence of STEMI to be about 750 to 1250 per million population and NSTEMI to be about 3000 per million population in UK. The actual incidence of Heart Attack [Acute myocardial Infarction -AMI] in Tamil Nadu is not clearly available. Considering the fact that the incidence of heart attack is higher in developing countries, one can estimate the its incidence in Tamil Nadu to be at least 1.5 to 2 Lakh per year, and that of STEMI to be about 1 lakh per year.

30% of the heart attack patients succumb to sudden cardiac death and are not able to reach the health care system. Even the patients who manage to reach the health care system, often enter the system delayed, making timely reperfusion not possible. As a result, the mortality

and morbidity related to myocardial infarction is high. The in-hospital mortality related to heart attack ranges around 10-12 %. However, the actual annual death related to myocardial infarction is likely to be very high and likely be higher than the actual available data. It is possible that deaths due to heart attack is higher than the deaths due to suicide and road traffic accidents, which currently top the cause of death in Tamil Nadu.

C. Heart Attack Management Policy:

The goal of the Tamil Nadu Health care delivery system is to provideevidence-basedstate of art treatmentto every person in Tamil Nadu developing heart attack, irrespective of their financial capacity, geographical location, time of onset of symptoms, nativity of the person etc. National Health Mission the formed the TAEI: Trauma and emergency Initiative to improve the care of trauma and various commonly occurring emergencies. The Government of Tamil Nadu has initiated the Heart Attack Management [HAM] program and included it as one of the six pillars of TAEI.

The HAM program focuses on the bridging the gaps such as finances, limited healthcare infrastructure, diminished awareness among the community, poor accessibility of emergency medical services. Apart from the above hitches the delays in the healthcare system is also an impediment for the delivery of timely reperfusion.

The HAM program includes two important perspectives- evidence based management of heart attack [ACS or AMI] and prevention of CAD by life style and risk factor modification.

D. Outline of Heart Attack Management:

The heart attack management program seeks to provide optimal therapy for both types of heart attacks- STEMI & NSTEMI.

STEMI: The recommended management of STEMI is Primary PCI, which involves doing coronary angiogram soon after angiogram and removing the obstruction by using balloon and stent. Most of the time in our country timely Primary PCI is not always feasible due to logistic reasons and hence the patients are offered thrombolytic therapy, which involves giving an injection to dissolve the clots producing the obstruction. Though thrombolytic therapy saves lives, primary PCI saves significantly more lives in heart attack. Data from India shows that less than 40% of our patients with STEMI are getting thrombolytic therapy; and less than 10% of

them are getting PPCI. Thus majority of the STEMI patients end up without any type of revascularization therapy.

To cover up the two main limitation of stand-alone thrombolysis: incomplete reperfusion and re-occlusion, the concept of pharmaco-invasive therapy [PIT] has been developed. This involves timely thrombolysis followed by early coronary angiography within 2 to 24 hours and PCI if needed. PIT has been shown to be superior to stand alone thrombolytic therapy and almost equivalent to PPCI in terms of short and long term patient outcomes. Pharmaco-invasive therapythus widens the time widowavailable for performing angiogram and PCI if needed from less than 6 hours as in the case of PPCI to less than 24 hours. Logistics is made easier during off prime time, alleviating the concerns of proximity of catheterisation lab, availability of qualified health care personal, transportation delays etc. This strategy is ideal for our state of Tamil Nadu where we have 80 million population living in an area of 130 thousand square kilometres, networked by kilometres of well build roads, serviced by more than one thousand 108 ambulances. especially in rural areas. The Government of Tamil Nadu thus strives to Primary PCI to STEMI patients whenever possible andpharmaco-invasive therapy when timely Primary PCI is not feasible.

NSTEMI: All patients with NSTEMI do not need early angiogram and PCI. Most of them need conservative management and few of them will need early interventional management. The HAM program seeks to empower the health care provider with necessary knowledge & infrastructure to evaluate a patient with supposed cardiac chest pain, diagnose and risk stratify the clinical condition and provide appropriate clinical care.

E. Formation of Heart Attack Management Clusters [HAM Clusters]:

HAM clusters: To provide the optimal management for STEMI with PPCI or PIT the HAM clusters are being formed. The benefit of forming HAM clusters [one main hub hospital with cardiac catheterisation laboratory facility being linked to about 6 to 10 spoke hospitals] to provide optimal care for the patients seeking care for heart attack in that geographical area has been tested already in the TN STEMI pilot trial, and found to be useful. Hence it is proposed to create as many HAM clusters as possible in the state so that optimal state of art care can be provided for patients with heart attack round the clock.

Hub Hospitals: All government medical college hospitals are considered as possible hub hospitals for HAM clusters and geographically close districtheadquartershospitals, taluk hospitals and other hospitals being the spoke hospitals. Geographical mapping of the prospective hub and spoke hospitals have been done. It is proposed to equip all medical colleges with full-fledged cardiology department, if it not already available, withnecessary infrastructure and HR so that all medical colleges can function as 12hour hubs offering round the clock primary PCI services for STEMI patients.

Phase I of TN HAM program: 12 government hospitals have been provided with cardiac catheterisation laboratory facilities, so that they can function as hubs. They already have an existing cardiology department. They are being equipped with necessary infrastructure and HR, so that they can function as 24 x 7 hubs.

Phase II of TN HAM program: 6 more medical college hospitals are in the process of receiving cardiac catheterisation laboratories so that they can function as hubs. [Villupuram Medical college, Dharmapuri medical college, Theni Medical College, Pudukkottai medical college, Tuticorin medical college and Kanyakumari Medical College]. Cardiology departments headed by professor of cardiology will be created in these hospitals and necessary HR will be added to make them functional as 24 x 7 catheterisation laboratories for HAM care.

Spoke Hospitals identification & strengthening: Mapping of the spoke hospitals has done according to the geographic terrain, distance from the hub hospital, transportation time, bed strength, ICU availability. At present, about 154 spokes including district headquarters hospitals, taluk hospitals, non-taluk hospitalshave been identified with provision for inclusion of additional spokes in future. Spokes have been identified to coverall the districts and the entire state of Tamil Nadu. The infrastructure of the identified spoke hospital will be strengthened and the ER/ICU will be equipped in such a way that the initial management including 24 x 7 thrombolysis and stabilization is carried out in the spoke hospital in keeping with the state HAM protocol.

Major Spoke Hospitals:All District head-quarters hospital spokes have been identified as major spokes. These will have a supervisory and training role over the other minor spokes in that HAM cluster.

Phase III of TN HAM program:All the remaining government medical colleges in the state [Thiruvarur, Thiruvannamalai, Karur, Sivaganga]will be considered for improvement in infrastructure and HR to offer round the clock PPCI services in the phase III of HAM. All remaining taluk hospitals will be identified as spokes and linked to the appropriate hubs, thus the entire Tamil Nadu health care facilities will be linked and networked.

HAM Cluster Formation:18 HAM clusters have been formed linking these 154 spoke hospitals to one of the 18 hubs according to the geographical proximity. More clusters will be formed after Phase III of HAM.

108 EMRI Services: The 108 EMRI ambulances play a critical role,in curtailing the system delays and early management of heart attack patients. It is not only a mode of transport but also a system to enhance early diagnosis, triage, and initial management and start the STEMI alert. They function to bring patients from their location of call aided by latitude and longitude guidance and also for interfacility transfer as suggested by the HAM system. The paramedical personal in the 108 EMRI will be trained in the HAM protocol and the patient flow.

F. Standard Operating Protocol:

A standard operating protocol has been prepared, to guide the health care professional on evaluation of a patient with supposedly cardiac chest pain, risk stratification and management of patients with STEMI & NSTEMI. This protocol is being peer reviewed by international and national bodies and will be published and widely distributed among the clusters. The protocol explains the various investigation / treatment guidelines to be followed in hub hospitals, spoke hospital and ambulances. The protocol shall be periodically updated and newer edition published as and when necessary. Training on the HAM SOP will be given for each HAM cluster

G. Execution of the HAM Protocol in the state:

The responsibility of making sure that all patients reaching the government health care system with heart attack gets appropriate management, shall be assigned to the state HAM team. The following officers shall be appointed by the appropriate authorities for the seamless execution of the protocol.

1. **State Heart disease Nodal Officer [State HDNO]:** The state heart disease nodal officer will be responsible for making the standard operating protocol for HAM and improving it as found necessary. State HDNO will be responsible for coordinating with all the HAM clusters in the state, for conducting periodic training in the protocol and for trouble shooting so that the HAM protocol is seamlessly executed across the HAM clusters in the state. State HDNO will be reporting to MD NHM. State HDNO will represent to the government directly for any requirements for any improvement or for sorting out issues of the HAM program in the state. State HDNO will coordinate with the TAEI
2. **Deputy SuperintendentTAEI [DS-TAEI]:**The DS TAEI being responsible for implementation of TAEI protocol in the hospital, is thus responsible for implementation of HAM protocol in the hospital concerned. He will liaison with State HDNO, Dean and hub HAM nodal officer to implement HAM protocol in the hub hospital. DS TAEI will ensure smooth coordination with ER / Casualty / ICU / medicine / cardiology departments.
3. **Hub HAM Nodal officer:** A senior cardiologist of the hub hospital will be designated as the hub nodal officer by the dean of the medical college in consultation with the head of the department of cardiology. Hub nodal officer will co-ordinate with the state nodal officer, head of the institution, cardiology department, medicine department, emergency room / casualty, and the various spokes assigned of the cluster to make sure the HAM protocol is well executed in the cluster. He will also be responsible for organizing the periodic training in the clusters as required, making sure data entry from hub and spokes in the cluster are satisfactory. He will be reporting to the Dean / head of the institution. Hub HAM NO will visit the various spokes of the cluster for periodic guidance, supervision and training. He will guide the district HAM nodal officer in executing the HAM program

4. **HAM assistant nodal officer [hub]:** A cardiologist of the rank of assistant professor will be designated as the HAM assistant nodal officer by head of the department of cardiology and hub HAM nodal officer. Their responsibility is to help the hub nodal officer in ensuring that the hub hospital has the necessary infrastructure, hardware, manpower etc, reporting the HAM data daily to NHM, ensuring proper data entry in HAM kit etc.
5. **Spoke HAM nodal officer [SHNO]:**A senior doctor of the hub shall be appointed as the Spoke nodal officer by the appropriate Joint Director of Health Services. Their main responsibility is to make sure that round the clock ECG / round the clock medical officer and round the clock thrombolysis are available in the spoke hospital. They coordinate with eh DHNO and make sure HAM protocol is executed in the state. They are responsible for training the paramedics of the spoke in HAM program.
6. **District HAM nodal officer [DHNO]:** The Spoke nodal officer of all district headquarters hospitals will function as the district nodal officer as well. They have additional responsibilities of coordinating with the JDHS,coordinating with hub nodal officer in training and overseeing the HAM program in the other spokes of the district.
7. **HAM Nurse:** A senior nurse involved in management of heart attack patients either in CCU / emergency / Casualty / Catheterisation lab shall be designated as HAM nurse in every hub and spoke hospitals. HAM nurse is responsible for making sure that there is no delay in the health care delivery to the patient with heart attack reaching the hub hospital. The responsibilities of HAM nurse include organizing timely ECG, timely diagnosis, timely thrombolysis if indicated in spoke hospitals, organizing timely PPCI in hub hospitals[organizing necessary biochemical and microbiological reports, preparing and sending the patient to catheterisation laboratory], organizing timely shift to hub hospital as necessary etc. HAM nurse shall be guided by the HAM nodal officer of the hospital and works in tandem with him to execute all these responsibilities.

H. Networking of HAM clusters:

All hubs, spokes and the assigned 108 EMRI ambulances in a given HAM cluster will be provided with a HAM kit. The HAM kit will contain an ECG acquisition module, a pulse oximeter and an NBP acquisition module linked to a display unit which will be an android tablet. The Tamil Nadu government HAM application software will be loaded in the HAM kit display

unit. This software will allow input of relevant patient data, relevant timings and will allow data transfer over the cloud to the appropriate hub and state nodal center. This will facilitate diagnosis of STEMI and allow guidance for the spokes from the respective hubs in case of diagnostic difficulties. The state nodal officer will coordinate updating or modifying the HAM application software as per the requirements identified in the ground level. Deputy superintendent TAEI along with Hub HNO will make sure the networking of the hospital and the related IT works are taken care of well.

I. Training of HAM clusters:

HAM training involves training of standard operating protocol of HAM and training of use of HAM kit /application. There will beperiodic centralized "training of trainers (ToT)" sessions and regionalized training sessionsto educate the health care professionals and paramedic of the standard operating protocol and HAM kit / application.

1. Protocol Training:From each HAM cluster two cardiologists [preferably the HOD and the hub nodal officer or as suggested by the HOD] will be identified as trainers and trained in the HAM Protocol. They will coordinate with State HNO and DS TAEI and organize protocol training in the respective clusters
2. HAM App training:Trainers will be identified from each cluster from among the cardiologists, EMT technicians and IT coordinators, and will be trained in the use and troubleshooting of HAM app. They in turn will train their respective clusters, organized by the DS TAEI and Hub nodal officer.

J. Data collection and Quality control

Collection of data and data analysis is a very important Quality care indicator. It helps to understand the current status and toscrutinize whether the treatment is offered according to the state protocol. All the centers participating in the HAM program should be committed to provide the necessary data and details for quality improvement. Data will be collected through the HAM kits and through daily data uploading in the HAM site. The HAM nodal officers have to make sure that timely and correct data is entered. Periodic review meetings will be planned to analyze the stand of each center within the system.

K. Prevention of Heart disease:

The HAM program not only targets to provide state of art timely care to heart attack patients in the state, but also aims to promoteprevention of cardiovascular disease, advocate for the preservation of cardiovascular health, disseminate high-quality, evidence-based information, and to interface with all the levels of the health care system in the organizations of CVD treatments and prevention.

The HAM program will closely work with the NCD wing of NHM in emphasizing on prevention of heart diseases and coordinating on IEC activities

The public will be educated about the symptoms of concern that should make one seek medical attention,and the availability and accessibility of health care services for their care. The need to avail the 108 serviceswill be emphasized and this can reduce the system delays and help in providing timely reperfusion.

The Tamil Nadu Cardiac Care policy will review new insights in preventive cardiology, lifestyle interventions and cardiac rehabilitation, with focus on emerging clinical and psychosocial risk factor, cardio protective drug and dietary recommendations, smoking cessation, cardiorespiratory fitness/ physical activity and counseling of patients regarding cardioprotective lifestyle changes.

BEELA RAJESH
SECRETARY TO GOVERNMENT

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