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Basic knowledge of ECG to nurses and ANM: Can it help Reducing Cardio Vascular disease mortality?

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Abstract
The burden of Non-Communicable Diseases (NCDs) is unacceptably high, contributing 63% of total deaths in India and cardiovascular diseases contribute 45% of all NCD deaths. Global NCD Action Plan and National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) are in place to prevent and control common NCDs through various approaches. It is high time and also the need of the hour to strengthen the primary healthcare system through training of Auxiliary Nurse Midwifery (ANM) and Staff nurses in basic ECG interpretation and further management. This can change the practice leading to improved knowledge, quality of care, and ultimately patient outcomes.

Keywords: Non-communicable diseases, ECG, Training nurses, Cardio Vascular Diseases

1. Introduction

Global Non Communicable Disease (NCD) burden remains unacceptably high. NCDs contribute 41 million of the world's 57 million deaths (71%) [1, 2]. In India, NCDs contribute to about 63% of all deaths, of which Cardiovascular diseases (coronary heart disease, stroke, and hypertension) contribute 45% of all NCD deaths followed by chronic respiratory diseases (22%), cancers (12 %) and diabetes (3%) [3, 5]. These four identified major NCDs are currently the leading cause of preventable deaths and disability. Of these, the proportional mortality of Cardio Vascular Diseases alone is 27%; making targeted intervention feasible [3].

WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020 (Global NCD Action Plan)(6) later adopted by the World Health Assembly in 2013 has the global target of 25% relative reduction in overall mortality from the four major NCDs [6, 7].

In India, National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was launched in 2010 to prevent and control common NCDs through behaviour and life style changes, by providing early diagnosis and management of common NCDs, building capacity at various levels of health care for prevention, diagnosis and treatment of common NCDs, training human resource within the public health setup namely doctors, paramedics and nursing staff to cope with the increasing burden of NCDs, establishing and developing capacity for palliative and rehabilitative care [8].

Primary healthcare is delivered through Health Sub Centres (HSCs) and Primary Health Centres (PHCs) and are considered the gateway for entry into India's public healthcare system; the point of first contact [9].

The services provided at Primary healthcare level under NPCDCS are essentially IEC Activities/ health promotional services for a healthy lifestyle. In addition, PHCs perform early detection, management and referral of Diabetes Mellitus, Hypertension and other cardiovascular diseases and Stroke through simple measures like history, measuring blood pressure, checking for blood, urine sugar and ECG [10, 11].

The scope of this commentary is to improve the precision for early detection and treatment of cardiovascular events leading to increase in cure rate and survival by building capacity at Primary healthcare level and training Human Resources for Health (HRH). The three issues are who is going to perform early detection and treatment, how and where are they going do it.

2. The way forward:

Providing early diagnosis and appropriate treatment for common NCDs through building capacity at various levels of health care by training Human Resources for Health (HRH) has been highly effective.(8) But whom and in what we train really matters.

HSCs in India don't have a post for MO's and about 10% of PHCs in India don't have MO's. Also, the distribution of these MO's are not uniform in the country with deficit rising up to 33% in rural and tribal areas.(12–14) With rising burden, it is the need of the hour to recognise the importance of multi-tasking and task shifting. The Auxiliary Nurse Midwifery (ANM) and Staff nurses are 1st trained health care professional in many of these SCs and PHCs and are responsible for initial treatment. The nurses are responsible for both technical aspects of monitoring (e.g., electrode placement, alarm parameter settings) and clinical decision-making based on information obtained from the monitor. Nurses must have sufficient knowledge to carry out these responsibilities in ways that maximize quality of care and patient outcomes and ECG has shown good accuracy of the initial diagnosis and of the final diagnosis in treated cardiac patients [15]. So they should be trained in performing ECG along with its basic interpretation. Early initiation of primary treatment based on this leads and timely referral to

higher centre will have a marked effect on patient's outcome An Electro Cardio Gram (ECG) is a test that detects electrical activity in the heart using sensors that are placed on the skin over the chest These tests can be done at rest or during exercise (such as walking on a treadmill) and can detect a variety of heart problems, including coronary heart disease, particularly when they are done during exercise.

A systematic review of the workup of acute chest pain found that the ECG was the most useful bedside test for MI [16, 17]. ST segment elevation (defined as at least 1 mm in 2 or more contiguous limb leads or at least 2 mm in 2 contiguous precordial leads) and Q waves were found to be reliable predictors of MI (positive likelihood ratio [LR+] = 22). A normal ECG was also found to be the most important bedside finding for ruling out the diagnosis of MI (LR– = 0.2) [18].

In 2001, a working group of the National Heart Attack Alert Program (NHAAP) performed a systematic review to define the accuracy of "out of hospital" ECG in the diagnosis of acute cardiac ischemia (ACI) and MI. Based on the 8 studies for which data were available, the random effects pooled sensitivity for acute MI was 68% (95% CI, 59%–76%), the specificity was 97% (95% CI, 89%–92%), and the diagnostic odds ratio (DOR) was 104 (95% CI, 48–224) [16, 19].

Also basic ECG training courses were found to improve nurse's knowledge, the quality of care and even patient outcomes in myocardial infarction events in hospital [20, 22].

The existing training courses of ANM and Nurses are very elaborative as they are trained in many basic medical sciences subjects so it won't be difficult to teach them basic ECG interpretation. Thus the inclusion of ECG and appropriate training will aid in the process of prevention and allows for early detection of cardiovascular diseases/ event. This is one of the objective of NPCDCS which that says ANM, ASHA and Staff nurses should also be aware of the complete treatment protocol and should be oriented to the use of standard treatment guidelines for diagnosis and treatment of common NCDs. This in turn will be very effective in controlling the CVDs and achieving objective of primary healthcare.

3. Conclusion

ECG monitoring, education and strategies can change practice leading to improved ANM and nurses ' knowledge, quality of care, and patient outcomes. It can prepare India in taking forward step in managing NCDs at primary care level fulfilling goals of its NPCDCS programme.

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