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Original Article

Pre-hospital policies for the care of patients with acute coronary syndromes in India: A policy document analysis

Amisha Patel [a,*], Dorairaj Prabhakaran [b,c], Mark Berendsen [d], P.P. Mohanan [e], Mark D. Huffman [a]

[a] Departments of Preventive Medicine and Medicine-Cardiology, Northwestern University Feinberg School of Medicine, Chicago, USA
[b] Centre for Chronic Disease Control, Gurgaon, India
[c] Public Health Foundation of India, Gurgaon, India
[d] Galter Health Sciences Library, Northwestern University Feinberg School of Medicine, Chicago, USA
[e] Westfort Hi-Tech Hospital, Thrissur, India

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ABSTRACT

Background and objective: Ischemic heart disease is the leading cause of death in India. In high-income countries, pre-hospital systems of care have been developed to manage acute manifestations of ischemic heart disease, such as acute coronary syndrome (ACS). However, it is unknown whether guidelines, policies, regulations, or laws exist to guide pre-hospital ACS care in India. We undertook a nation-wide document analysis to address this gap in knowledge.

Methods and results: From November 2014 to May 2016, we searched for publicly available emergency care guidelines and legislation addressing pre-hospital ACS care in all 29 Indian states and 7 Union Territories via Internet search and direct correspondence. We found two documents addressing pre-hospital ACS care.

Conclusion: Though India has legislation mandating acute care for emergencies such as trauma, regulations or laws to guide pre-hospital ACS care are largely absent. Policy makers urgently need to develop comprehensive, multi-stakeholder policies for pre-hospital emergency cardiovascular care in India.

1. Introduction

Cardiovascular disease (CVD) is the number one cause of death in India and accounted for approximately 21% of deaths in 2010, with 11% of all deaths due to ischemic heart disease.[1] A frequent, acute manifestation of ischemic heart disease is acute coronary syndrome (ACS), which includes ST-segment elevation myocardial infarction (STEMI), non-ST-segment elevation myocardial infarction (NSTEMI), and unstable angina. Deaths due to acute coronary syndromes often occur suddenly and outside of the hospital setting. In high-income countries, short-term case fatality rates for acute coronary syndromes, including acute myocardial infarction, have fallen dramatically from approximately 25% in the early 1980s to as low as 4% in the current era, due at least in part to a combination of medical therapy, reperfusion, and better overall intensive care, including availability of defibrillation.[2–5] However, treatment of patients with acute coronary syndromes in India is highly variable and often suboptimal,[6] with increased symptom-to-presentation (pain-to-door) times and increased presentation-to-treatment (door-to-drug) times compared to high-income countries.[7]

Early recognition of acute coronary syndrome symptoms by patients through public education campaigns and use of emergency medical services have been demonstrated to be effective ways to reduce time to first medical contact in patients with acute coronary syndrome. A 2014 study in Dublin, Ireland showed that among acute coronary syndrome patients, two individualized educational sessions compared with no educational sessions reduced patient-level symptom-to-first medical contact delays (1.7 vs. 7.1 h, $p < 0.001$).[8] Use of a pre-hospital electrocardiogram (ECG) has also been associated with reduced pre-hospital delay time, increased use of reperfusion interventions, earlier diagnosis, and faster time to treatment.[9] In England and Wales, analysis of a large national registry including nearly 290,000 patients with acute

* Corresponding author at: Departments of Preventive Medicine and Medicine-Cardiology, 680 N. Lake Shore Drive, Suite 1400, Chicago, IL 60611-2996, USA. Tel.: +1 312 503 5513; fax: +1 312 908 9588.
E-mail address: amishapa@gmail.com (A. Patel).

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myocardial infarction demonstrated that a pre-hospital ECG was associated with more timely initiation of reperfusion and lower 30-day mortality rates (7.4% vs. 8.2%, adjusted OR 0.94, 95% CI 0.91–0.96) compared to those who did not have a pre-hospital ECG.[10] Thus, a combination of public education, increased use of emergency medical services, expeditious arrival at an equipped medical facility, and initiation of diagnostic and therapeutic measures in the pre-hospital setting improve outcomes in patients with acute coronary syndromes.

Despite the potential utility of these individual interventions, it is unclear if there are local, regional, or national guidelines, policies, regulations, or laws in place to guide pre-hospital acute coronary syndrome care in many low- and middle-income countries, including India. 80% of CVD-related deaths, including those due to ischemic heart disease and stroke, occur in low- and middle-income countries (LMICs),[1] and this number is projected to rise so that if current trends continue to the year 2030, then 85% of cardiovascular disease-related deaths will occur in LMICs.[11,12] Given the sheer number of lives lost in India due to CVD, there is a pressing need to understand the current state of the Indian health system, particularly for the World Health Organization (WHO) to reach its goal of reducing the risk of premature mortality related to noncommunicable diseases (NCDs) by 25% by the year 2025.[13]

The WHO describes health systems framework in terms of six "building blocks": service delivery, health workforce, information, medicines, financing and governance.[14] In recent years, the Government of India has begun to address these "blocks" through the formation of the National Rural Health Mission, National Urban Health Mission, and the development of government-sponsored insurance schemes for individuals who live below the poverty line.[15] Furthermore, the establishment of laws requiring the emergency medical treatment of patients suffering trauma as a result of motor vehicle accidents[16] sets a precedent that could potentially be extended to individuals suffering from other acutely life-threatening conditions, like acute coronary syndromes. The implementation of pre-hospital acute coronary syndrome policies through these avenues may be important to ensure equitable and accessible emergency care, taking into account potential barriers to emergency care, including infrastructure and cost. A nation-wide documentary analysis of pre-hospital acute coronary syndromes systems of care policies was undertaken to address this existing gap in knowledge.

2. Objectives

1. To assess the presence of and describe any central government or any Indian state and Union Territory published guideline, policy, regulation, or law for emergency, pre-hospital acute coronary syndrome care.
2. To analyze the content of the existing policies for pre-hospital acute coronary syndrome care and compare to existing established recommendations by the WHO and international cardiovascular professional societies, such as the European Society of Cardiology, American College of Cardiology, or American Heart Association (Figs. 1 and 2).[17,18]

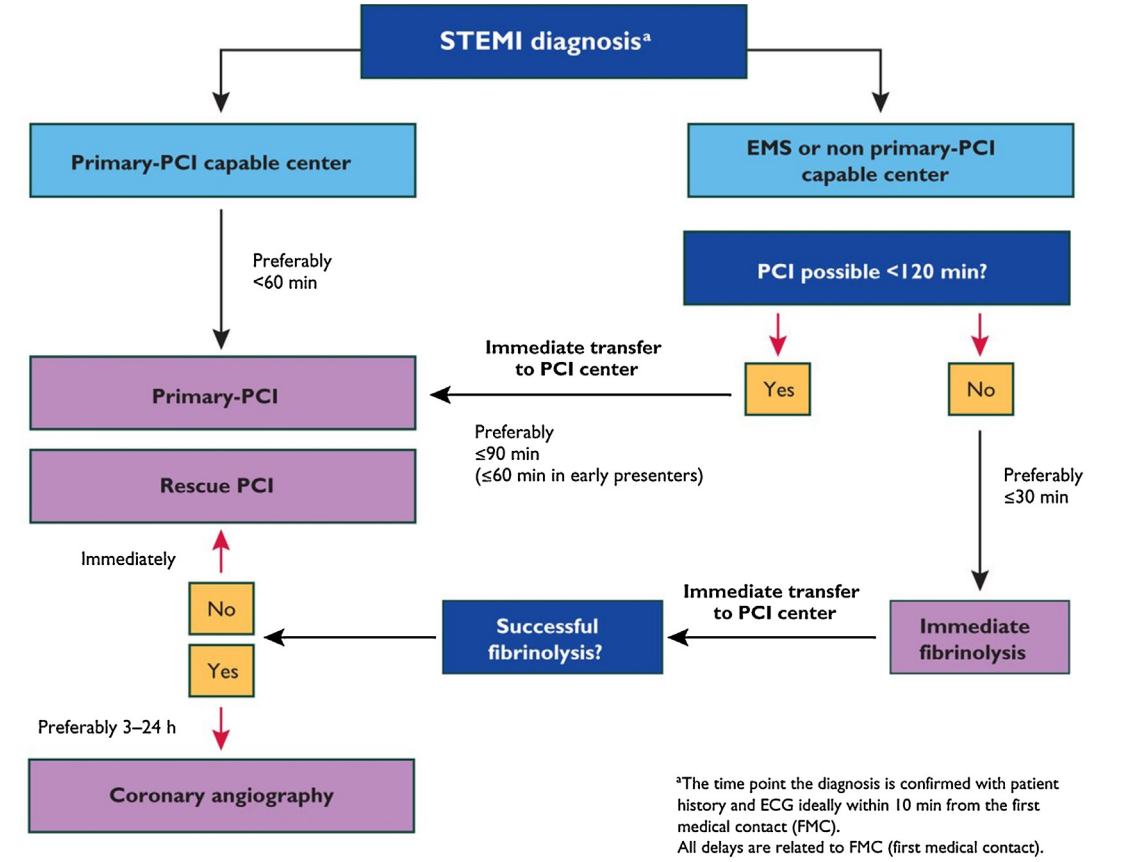

Fig. 1. 2012 ESC Prehospital and In-hospital Guideline to the management of ST-elevation myocardial infarction.

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