

Prehospital Telemedicine: Solution to Reduce Treatment Delays and Mortality in ST-Elevation Myocardial Infarction and Acute Ischemic Stroke

Introduction

ST-elevation myocardial infarction (STEMI) and acute ischemic stroke (AIS) reperfusion treatment are critically time-dependent. In developing countries, common causes of the delays in prehospital care are lacking professional prehospital healthcare providers and collaboration among organizations. Moreover, hospitals capable of providing reperfusion treatment are limited. Telemedicine has facilitated the reach of specialists for remote diagnosis and triage in pre-hospital settings.

This white paper aims to examine the efficacy of telemedicine in reducing treatment delays and mortality and to propose strategies and policies to implement telemedicine in prehospital care for STEMI/AIS management.

Method

A search of MEDLINE, EMBASE, PubMed, and Scopus was performed, and studies will be systematically reviewed by two reviewers; if consensus is required, a third reviewer will be consulted.

Findings

From 446 reviewed articles, 64 met the criteria and were analyzed; 36 and 28 studies focused on STEMI and AIS, respectively. Overall, the reviewed studies suggested that implementing telemedicine in prehospital care efficiently reduced time to reperfusion and mortality. The common limitation in developing countries is the absence of efficient technological/medical devices in ambulances.

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Proposed solutions

- Devise the STEMI/AIS network and facilitate the implementation of telemedicine to collaborate between prehospital healthcare providers and on-call specialists; therefore, remote diagnosis and triage are efficiently performed, then patients should be transported to the prealerted potential hospital for immediate definitive treatment.
- Provide ambulances with 12-lead Electrocardiogram, high-resolution video camera, and stable network connection—enabling effective telemedicine practice, with minimum delays.
- Prehospital health care providers should be trained to proficiently work in novel telemedicine-implemented prehospital care.

Conclusion

Implementing pre-hospital telemedicine with well-equipped ambulances can reduce time to reperfusion, mortality rate, and adverse complication in STEMI/AIS.

Keywords

Acute Ischemic Stroke, Emergency Medicine, Prehospital care, ST-elevation myocardial infarction, Treatment Delay

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