



Review Paper

Global review of delay time in seeking medical care for chest pain: An integrative literature review



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ABSTRACT

Objectives: The aim of this review is to summarise research from a range of countries describing the differences in time taken to seek medical care for chest pain and factors which contribute to delay times. **Methods:** An integrative literature review was undertaken using the Medline, CINAHL and Scopus databases for publications between 1994 and 2014. Articles dealing with delay time, and the factors associated with delay time, were extracted from the literature.

Results: The search yielded 395 articles of which 205 full-text articles were assessed for eligibility. Finally, twenty-three articles met the inclusion criteria for the review. It was found that time to seeking treatment (delay times) varied between countries, ranging from 1.6 to 12.9 h, with a mean of 3.4 h. The mean delay times reported in all the selected studies were greater than the recommended time-frame for seeking treatment. As well, time to decision to seek treatment (decision time) was reported as a major component of delay time. Meanwhile, the utilisation rates of ambulance services ranged from 3.1% in Brazil to 61.0% in Australia.

A majority of the reviewed studies reported on the factors associated with longer delay times, including old age, female gender, ethnicity, low education level, history of chronic disease, lack of knowledge of the symptoms, and underutilisation of ambulance services. Only three studies included a sub-analysis by ethnicity, reporting that ethnic groups had longer delay times than Caucasians.

Conclusion: Variability in delay times occurred across countries and within continents. The mean time taken to seek care for chest pain in the countries reviewed did not meet the recommended times according to international guidelines. Demographic and social factors, as well as cognitive and emotional factors, influenced delay times. Further research on these influencing factors is recommended, including the impact of ethnicity on patient's care-seeking behaviours for chest pain.

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1. Introduction

Coronary heart disease (CHD) accounts for 1.8 million, or one-fifth of all deaths, in Europe annually.¹ In Australia, more than 20,000 deaths were caused by CHD in 2012,² and approximately 190 heart attacks occur each day.³ Chest pain is the most common

symptom (75% of presentations) of acute coronary syndrome (ACS)² and is also recognised as one of the most common presentations to emergency departments (ED).⁴ The timely arrival of patients with chest pain to the ED and rapid evidence-based treatment are important factors in patient survival and outcomes.⁵ Boersma et al. found that 65 lives were saved for every 1000 treated patients when the initial treatment was administered within the first hour of the onset of symptoms.⁶ Additionally, the 1-year mortality rate for ACS was found to increase with greater delay time. A current study from Australia and New Zealand found that most patients delay the seeking of medical care for ACS, and therefore, do not receive the potential maximum benefit of their treatment.⁷

A number of researchers have focused on the factors which influence delay time in seeking care for chest pain in order to provide a clear picture of healthcare-seeking behaviour for a

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cardiac event.^{8–10} Geographic factors related to inequities in access to cardiac healthcare services in Australia affected delay time, and researchers also recommended the development of innovative approaches to improve cardiac care accessibility.⁸ There were variations in the time taken to seek care for chest pain amongst a range of countries, which may be related to socioeconomic status and the standard of the healthcare system in each country.^{9,11} Social, cognitive, and emotional responses of patients to ACS symptoms played a crucial role in their decision to seek care, such as the pattern of symptoms, failures in symptom recognition, a mismatch between symptom expectations and actual experiences, the absence of chest pain, and a lack of knowledge of the treatments.¹² They also referred to a number of social factors which were related to longer delay time, such as the location of the home, living alone, resting or sleeping during the cardiac event, and feelings of embarrassment.

Herlitz et al.¹³ found that ethnicity was related to increased pre-hospital delays for acute myocardial infarction, and underutilisation of emergency services for acute chest pain. The authors reported that pre-hospital delays for acute myocardial infarction increased among Asian and Latino populations in the USA, while underutilisation of emergency services increased among South Asians in the UK. Researchers have recommended further studies to be carried out in order to gain a deeper insight into patient perspectives on ACS and the influencing factors, particularly on those where little research has been conducted, such as ethnicity in diverse cultural groups.^{9,14,15} Researchers recommended that further research should focus on time delays associated with these same influencing factors.¹²

2. Aim

The aim of this review is to summarise research from a range of countries describing the differences in time taken to seek medical care for chest pain and factors which contribute to delay times.

3. Methods

An integrative literature review is a specific review method that summarises the existing empirical and/or theoretical literature to provide a more comprehensive understanding of a particular phenomenon or healthcare problem.¹⁶ This type of review is an approach that allows for the inclusion of a range of diverse methodologies (i.e., experimental and non-experimental research) and has the potential to play a greater role in evidenced-based practice.¹⁷

3.1. Information sources and search

The MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Scopus databases were searched for literature published in the period 1994–2014 limited to publication in English only. The keywords used in the search were ‘chest pain’, ‘heart attack’, ‘acute coronary syndrome’, ‘ACS’, ‘myocardial infarction’, ‘myocardial ischemia’, ‘angina’, ‘unstable angina’, ‘delay’, ‘delay time’, ‘seeking care/treatment/help’, ‘healthcare seeking’, and ‘prehospital delay’. The Boolean operator ‘or’ and ‘and’ were used to expand or limit the search respectively. The search terms combined with ‘or’ including set 1: chest pain or ACS or heart attack, heart attack or acute coronary syndrome or ACS, angina or unstable angina or angina pectoris, myocardial infarction or myocardial ischaemia or acute coronary syndrome; and set 2: delay or delay time, delay and seeking care, delay or seeking care, seeking care or health care seeking, seeking care or prehospital delay and prehospital or delay. Then the terms in set1 were combined with

terms in set 2 with the Boolean operator ‘and’ for specific search. Additional manual search from reference lists of included articles were undertaken and these additional articles were assessed against the eligibility criteria to ensure the literature review was comprehensive. All search results were imported into an EndNote X7 Library, pooled, and then removed the duplicated records.

3.2. Eligibility criteria

The eligibility criteria for this literature review included studies that: (a) included patients presenting to an emergency department with chest pain; (b) had a primary or secondary objective focusing on delay time; (c) measured and reported on delay time quantitatively; (d) mainly focused on pre-hospital delay; (e) was original research, rather than a review or meta-analysis; (f) was conducted in a single country rather than in multiple countries in a single study; (g) was mainly quantitative in approach within level I to level III of the National Health and Medical Research Council (NHMRC) evidence hierarchy; and (h) was available in full-text.

3.3. Data analysis and evaluation

This integrative literature review included a methodological quality assessment through the updated methodology process defined by Whittemore and Knaf¹⁷ and a checklist for writing an integrative review recommended by Torraco¹⁸ in conjunction with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines and checklist for the reporting of systematic reviews.¹⁹

The data analysis process includes the steps of data reduction, display, and comparison, conclusion drawing, and verification.^{17,18} The current review performed the data reduction through a sub-group classification of the selected studies based on their research design, including randomised controlled trials and comparative studies. The level I to level III of the National Health and Medical Research Council (NHMRC) evidence hierarchy included randomised controlled trials (RCT), pseudo-randomised controlled trials, and comparative studies (cohort and case–control studies).²⁰

The data from each study was extracted into a manageable spreadsheet using Microsoft Excel[®] spreadsheet software (KW). The extracted data from the reviewed studies were displayed and compared in tables based on variables of interest, including delay time, factors associated with longer delays, and the effects of ethnicity (KW). Finally, the conclusions of the integrative review were presented in Tables 1–3 (KW, HG and RC).

3.4. Definitions

Pre-hospital delay time is defined as the interval between the time of symptom onset and hospital arrival.^{21,22} Decision time is defined as the interval from the time of symptom onset to accessing the emergency response system or to initiating travel to the hospital.²¹ This review considered the definition of ‘time of symptom onset’, defined by Goldberg et al., as the time during which the patient reported becoming acutely or severely ill, prompting him/her to seek medical care.²³ Finally, the regions used for the analysis were chosen according to the United Nation Classification of Countries.²⁴

4. Results

4.1. Description of studies

A total of 395 relevant articles were found in the databases. Altogether, 57 duplicates were removed and 133 articles were excluded

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