

TITLE - Reasons for delayed presentation of first time acute myocardial infarction (MI) patients to the ambulance service.

CLIPAS – Causes of Late Infarction Presentation to the Ambulance Service

BACKGROUND

It is well known and accepted that administration of thrombolytic drugs in acute myocardial infarction (MI) has both short term and long term benefits. ⁽¹⁾ Further more it is known that the earlier this treatment is given, the better chance of survival these patients have. ⁽¹⁾ Recent introduction of thrombolysis administration by paramedics (pre hospital thrombolysis, PHT) has lead to a significant decrease in ‘call to needle’ time. In 2003, 38% of patients received thrombolysis within 60 minutes of a call to the ambulance service compared to 58% after the introduction of pre hospital thrombolysis in 2006 ; and these figures continue to improve ⁽²⁾. Delay in patients seeking medical help is now the most significant cause of delay in receiving thrombolysis. ⁽³⁾ There is however a surprising lack of research into what barriers exist to prompt use of the ambulance service in patients having a first MI.

A study into patients who had previous MI’s revealed that during subsequent MI’s, reasons for delay could be separated into 6 main themes; (1) How symptoms are perceived and appraised, (2) Perception of risk of having another MI, (3) Previous experience of symptoms of an MI, (4) Individual psychological or emotional factors, (5). Beliefs about appropriate use of the NHS, (6) The context in which symptoms were experienced. ⁽⁴⁾

The significance of these themes in patients having a first MI (‘first time MI patients’) is unknown – thus the aim of this study is to find out if similar themes influence ‘first time’ MI patients (referred to as participants from now on) and find out if any new themes arise that are significant in influencing when they call an ambulance. It is particularly important to know about this because, at present, thrombolysis can only be

given once. Hence first time MI patients (compared to those who have had previous MI's) are the people who are most likely to benefit from a rapid call to the ambulance service and rapid administration of thrombolysis.

OBJECTIVES

The primary objective of this study is to establish what reasons influenced participants to dial 999 when they suffered an MI.

Exploration of reasons for delay before seeking help may reveal that there is potential to improve public use of the ambulance service, reduce the 'symptom to call' time and, ultimately decrease morbidity and mortality in first time MI patients.

METHODS AND MATERIALS

Study design – This is a qualitative cross sectional study. Each participant will only need to be interviewed once in order to obtain an overall picture of their beliefs, attitudes and behaviours. Given that only one meeting with each participant is required, the study will be carried out within the set time constraints and resource allocation. The collection of data is retrospective – although this leaves the study open to a degree of recall bias, the risk of this is minimized by contacting participants as soon as is practically and ethically possible after the MI.

Target population

Subjects will be selected from an existing audit database which holds details of all patients that called for an emergency ambulance and received PHT – for the purpose of this study this method of convenience sampling is the most viable method of selecting participants who had confirmed first time MI's and were attended to by an ambulance within a specific time period. Men and women of all ages will be included. Initially subjects in the county of Norfolk will be asked to take part in the study – this will be

extended to Suffolk and Cambridgeshire if participation is insufficient. Those subjects that agree to participate first will be selected to take part until the required number have been recruited. If over recruitment occurs a letter will be sent to those who are not required thanking them for their help and explaining that enough participants have been recruited and that they will still have access to the results when they are published on the East of England Ambulance Service website.

Mentally ill patients and those in prison will also be excluded from the study.

Subject recruitment

Potential participants will be contacted by mail **a minimum of 30 days** dialing 999. A letter from the Medical Director of the East of England Ambulance Service NHS Trust will introduce the study and invite them to read an enclosed information sheet. A stamped addressed envelope will be included so that they can return a tear off slip should they wish to participate.

Contact details for the chief investigator will be included should any questions arise that are not answered in the information sheet. Once participants consent and provide a telephone number they will be contacted by phone to arrange an interview ideally within 2 weeks of the phone call. The participant may decide if they wish the interview to occur in their home or in a private room in the medical school at the University of East Anglia.

Sample size calculation – a previous similar study which looked at 2nd, 3rd and 4th time acute MI patients found that data saturation occurred after 22 interviews.⁽⁴⁾ In order to ensure sufficient data is collected I will analyse the data after each interview and develop codes and themes which will be used in subsequent interviews. When I find that no new themes or codes are being created I will consider the data saturated and conclude that the sample size is sufficient. Given the previous study mentioned, I will provisionally assume that approximately 22 participants will be required.

Outcome measures;

The audit database will be assessed and useful information about participants will be extracted e.g. time of call to ambulance service or main symptom at time of 999 call.

During the meetings with each participant, a semi structured interview will be conducted. The following bullet points indicate themes of data that will be collected (these are not the questions as they will be phrased in the interview);

- a. Demographic details – age, gender, urban or rural location.
- b. Length of time between the symptoms of the MI starting and the call being made to the ambulance service? What was the first symptom? What day of the week was this and what time of day? Where were they when the symptom(s) occurred?
- c. Any associated thoughts or feelings.
- d. Did they perceive themselves to be at risk of an MI and what reasons for this existed.
- e. What was the participants perception of seriousness of a heart attack.
- f. Any previous experiences or education about MI's.
- g. Participants will be asked about the role of others (e.g. spouse or friend) involved in the decision to call an ambulance.
- h. Did the participant know that 'clot busting' drugs existed before they had their MI?

Given that the above information is required in order that uniform and comparable data be obtained, an unstructured interview is not appropriate. A semi structured interview is suitable as it will allow the participant to disclose information related to a theme which the researcher may not have predicted. The interview will be recorded on tape. Any non verbal supplementary information will be recorded in writing during the course of the interview. Each interview is expected to take between 30 minutes and 1 hour (it is felt that interviews longer than 1 hour are not appropriate given that participants may still be frail).

Other options for obtaining data included group interviews although it can be assumed that patients may be frail which would make travel arrangements difficult. A

questionnaire would allow most of the information to be gathered although it does not allow opportunity to clarify answers, explore themes that arise or gather supplementary information such as body language or tone of voice. Given this, a semi structured interview is the most appropriate method of data collection.

ANALYSIS

The tape recordings will be written out verbatim and these transcripts will be analysed so as data can be separated into themes and coded. If during analysis it becomes apparent that certain themes are associated with either a rapid call or a delayed call to the ambulance service, the frequency of these themes in those groups will be analysed in order to indicate the importance of this.

ETHICAL CONSIDERATIONS

Due to financial constrictions use of a paid interpreter will not be possible. In Norfolk ethnic minorities (categories in 2001 census ‘mixed, asian, black or other’) make up only 1.51% of the population⁽⁶⁾ and even within this group most will have their own method of communication to enable them to function within society. This essentially means there is a very small population of non English speaking people and so language barriers are not expected to be a problem.

It is possible that a letter is sent out to a home address where the patient subsequently died which may distress relatives. The chance of this happening is very small given that approximately 96% of MI patients who are alive when they arrive at hospital will be discharged⁽⁷⁾. Also if this were to occur, the letter would not reach the home earlier than 15 days after the 999 call were made which means that the letter will not be opened during the most delicate period of grieving.⁽⁵⁾

The letter sent out to potential participants makes it very clear that future treatment will not be affected in any way by their decision to participate or not. It also states that they can withdraw from the study at any time before or during the interview. These steps will ensure that no one is pressured to participate. Since participants will be asked to recount an event which may cause distress it will be emphasized on the information sheet that they should not participate if they feel it is too soon or they may find the experience distressing.

During recruitment the researcher will have access only to names, home addresses and the fact that PHT was received. Before accessing this data the chief investigator will sign an NHS honorary contract with the East of England Ambulance Service NHS trust, ensuring that they abide by the NHS code of conduct regarding confidentiality.⁽⁸⁾ A letter from the data protection officer will confirm that he feels this is an appropriate use of the database information and that limited data may be stored on the researchers personal home computer.

The initial letter sent to potential participants home address is in their name which minimizes the risk of anyone else opening it. There will be no post mark on the envelope so that others cannot see that the letter is from the ambulance service.

The nature of the study means there is no risk of physical harm to the participants. Interviews are limited to 1 hour for the participants comfort. Questions will be phrased to ensure that patients do not feel they are to blame for any delay in seeking help.

To minimize risk to the researcher, a colleague will be informed when the researcher meets a participant and again when leaving the address. Action will be taken if the researcher has not made contact after 90 minutes of arrival. A mobile phone will be available for use at all time whilst with the patient. During all meetings, the researcher will comply with the East of England Ambulance Service lone worker policy.

Participants may be quoted in the write up of the study although this will be done in a way such that they are not identifiable.

Data will be stored on password protected computers. All identifying details will be deleted from computer as soon as the interview has been conducted and patients assigned a reference number which correlates to secure ambulance records. Anonymised transcripts and tapes will be kept for 3 years in a locked cupboard.

TIMELINE

Data collection July - October 2007.

Data Analysis November /December 2007.

Final report compiled January/February 2008.

Report - Easter 2008.

REFERENCES

- 1) Baigent C et al. 1998. 10 year survival among patients with suspected acute myocardial infarction in randomised comparison of intravenous streptokinase, oral aspirin, both or neither. The ISIS-2 collaborative group. *BMJ*;313:37-43.
- 2) June 2003 and June 2006. Myocardial Infarction National Audit Programme.
- 3) Dracup K, Moser DK, Eisenberg M, Meischke H, Alonzo AA, Braslow A. 1995. Causes of delay in seeking treatment for heart attack symptoms. *Social Science Medicine*;40:379-92.
- 4) Pattenden, J., Watt, I., Lewin, R. and Stanford, N. 2002. Decision making processes in people with symptoms of acute myocardial infarction: qualitative study. *BMJ*;324:1006-1009.
- 5) Mortley. S. 2006. Guidelines for conducting patient postal surveys – East of England Ambulance Service NHS Trust.
- 6) 2001. Census. Office for National Statistics.

- 7) November 2003 to November 2006. East of England Ambulance Service NHS Trust – Audit Department figures.
- 8) 2003. Confidentiality – NHS Code of Practice.