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Factors associated with the presentation of Acute Coronary Syndrome.

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RESEARCH

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Abstract

Background

The clinical manifestation of acute coronary syndrome (ACS) varies and patients present frequently with symptoms other than chest pain. Early treatment of patients with acute coronary syndromes (ACS) is crucial to reduce morbidity and mortality.

Method

A descriptive cross sectional study was carried out among 130 patients admitted to 3 randomly selected medical wards in the National Hospital of Sri Lanka, and having a diagnosis of Acute Coronary Syndrome. An interviewer administered questionnaire was used to collect data. The population was then divided in to atypical presentation and typical presentation on the basis of the presenting symptoms.

Results

Unstable angina was the most common diagnosis out of the 3 categories of ACS. Females were older and more likely to be hypertensive (P<0.05). Smoking was associated with a higher incidence of NSTEMI (P<0.05). Atypical presentation was observed in 38.5% of the population (females 32%). The dominant presenting symptoms were shortness of breath (44%), and dizziness (16%),. Epigastric pain proved to be a presentation common to both males and females (11%). Atypical presentation was found to be more common in patients with a family history and those with a diagnosis of STEMI (P<0.05).

Conclusion

Atypical presentation among the Sri Lankan population is relatively common. Patients with a family history of ischaemic heart disease and those with STEMI are more likely to have an atypical presentation.

Key Words

Acute coronary syndrome, Presentation, Atypical

Background

Acute coronary syndrome is a triad of clinical categories including unstable angina, myocardial infarction without ST-segment elevation, and myocardial infarction with ST-segment elevation. Despite having a common underlying pathophysiology their presentation is highly variable, proving to be a challenge in their diagnosis and treatment. Approximately 50% of cases are recognized because of chest pain. It is typically described as tight, squeezing, like a weight on the chest, or like indigestion. For some patients, dyspnoea is the only sensation experienced. It is now recognized that in a proportion of patients the first manifestation of coronary artery disease is sudden collapse and death. Relative to myocardial infarction patients with atypical symptoms, very little information is available at international and national level on atypical presentations in patients with ACS such as unstable angina or non-ST-segment elevation myocardial infarction (NSTEMI).

It has been found that Unstable angina and NSTEMI comprise 67% of ACS patients (1) In a retrospective medical chart review of 4,167 Medicare patients who had been hospitalized with unstable angina in 22 Alabama hospitals, atypical presentations were identified in > 50% of the population(2). Furthermore when hospital death rates were analyzed in the GRACE study according to the type of ACS, almost 20% of patients with atypical symptoms of STEMI died in hospital.(3)Evidence indicates that patients with silent ischemia are more likely to have the disease go undiagnosed or be misdiagnosed, are less likely to receive reperfusion therapy, and have poorer outcomes(4)This may be due to the fact that the urgency and level of care provided for ACS partially depends on the symptoms manifested. Previous studies of patients with ACS indicated that women experience more back pain, dyspnoea,

indigestion, nausea/vomiting, and weakness than men do (5-11).

Men were more likely than women to have chest pain (12-14).Patients with diabetes have been found to have higher frequencies of silent exertional ischemia and silent myocardial infarction (15). The aim of this study is to assess the variation in presentation within the spectrum of Acute Coronary Syndrome in the hope that it may facilitate prompt diagnosis and proper management.

Method

A descriptive Cross sectional study was carried out in the medical wards of the National Hospital of Sri Lanka. The National Hospital of Sri Lanka was selected as it receives a variety of patients. A sample of 130 patients admitted to the medical wards and with a diagnosis of Acute Coronary Syndrome diagnosed by the Consultant Physician on the basis of the results of electrocardiograms, exercise testing and troponin T testing and pronounced fit to be questioned by the Senior House officer.

Unconscious patients, patients in severe discomfort, psychiatric patients, patients who do not give consent and patients who were pronounced not fit enough to be questioned by the Senior House Officer. Data was collected via an interviewer administered questionnaire which had been pre-tested on 20 patients presenting to a selected medical ward and having a diagnosis of Acute Coronary Syndrome. Further the Bed head ticket was also used by the data collector for investigation reports and consultant notes.

Data was collected with regard to the following variables; Age, gender , current diagnosis , co-morbid factors (Diabetes, Hypertension ,etc.), main presenting complaint, history of the presenting complaint, associated symptoms and history, social history with regard to smoking, alcohol consumption and drug abuse, past history of ischaemic heart disease and previous coronary interventions, family history of ischaemic heart disease.

A *typical presentation* was defined when the reported symptoms included chest pain in the centre or left precordium with or without radiation to the left arm and or both sides of the neck or jaw. If the presentation was accompanied by chest pain in areas other than the above or not accompanied by chest pain, the patient was regarded as presenting with *atypical symptoms*. Additional volunteered symptoms or sensations were also recorded.

The intensity of the symptom also had to be selected on a pain scale of 1 (minor discomfort) to 10 (worst pain ever experienced).

A score was given for each patient to measure the severity of alcohol consumption.

Table 1. Alcohol intake score.

Every day	25	A bottle/more		25	>20 years	20
> 3 times a week	20	½ a bottle		20	10-20 years	15
Once a week	15	¼ a bottle		15	5-10 years	10
Once a month	10	A glass		10	<5 years	5
Once every 3 months	5	<a glass		5		

Heavy alcoholic – 50 points or more
Moderate alcoholic-35 -49 points
mild alcoholic - <35 points

Table.2 Smoking score.

Every day	20	1pckt/more	20	>20 years	20
> 3 times a week	15	>10 cig	15	10-20 years	15
Once a week	10	5-10 cig	10	5-10 years	10
Once a month	5	<5 cig	5	<5 years	5

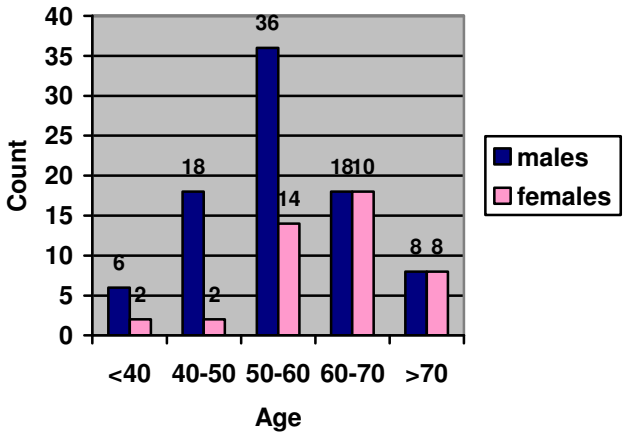
Heavy smoker – 45 points or more
Moderate smoker- 30-44 points
Mild smoker- <30 points

Data analysis was through SPSS version 15.0 . The study was carried out fulfilling the ethical requirements of the Declaration of Helsinky and ethical approval was granted from the Faculty of Medicine, Colombo

Results

Over the period of June 15 2008-september 15th 2008, 130 patients (females; 44) who were admitted to one of the 3 selected medical wards in the National Hospital of Sri Lanka and diagnosed with ACS were selected for interviewing .

Figure 1. Age distribution of the population

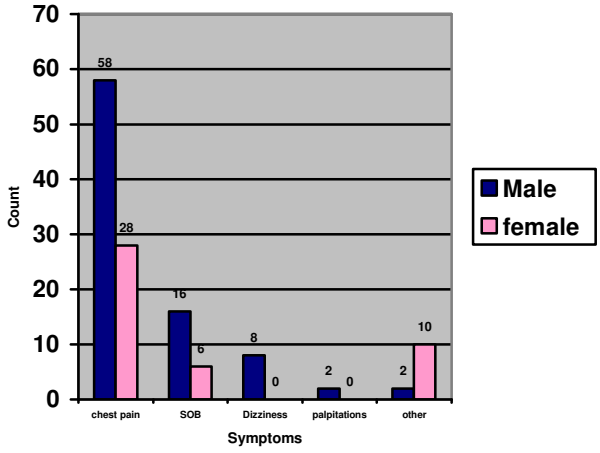


The age range 50-60 years has the highest incidence of unstable angina (42.5%), 40-50 the highest incidence of Non ST elevation MI (50%) and 60-70 the highest incidence of ST elevation MI (41.2%).

Males were significantly more likely to suffer from Acute Coronary Syndrome than females (P<0.05)
From the total population 61.5% had a diagnosis of Unstable Angina and 12.3% had a diagnosis of Non ST elevation Myocardial Infarction.77% of females and 54% of males presented with unstable angina.

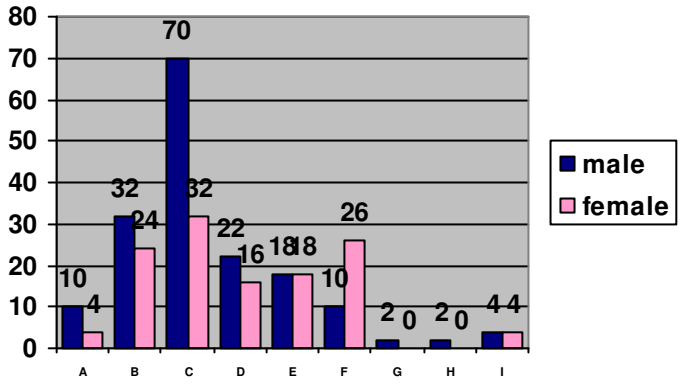
In the population 45% had been diagnosed with Diabetes mellitus, 46% with hypertension, 20% with Ischaemic Heart Disease (Only patients who had been diagnosed for at least one year were taken). About 55% had a family History of Ischaemic Heart Disease. Of the female population 50% had a Spouse who smoked at home. A total of 47% of the male population were heavy alcoholics. And 40% of the male population were both heavy alcoholics and heavy smokers.

Figure 2. Distribution of the dominant presenting symptom



The category "other" included epigastric, back and shoulder pain. A majority of males (52%) presented with central chest pain, a majority of females (26%) presented with left sided chest pain. However 17% of females presented with back pain and 5% with shoulder pain.
It was observed that 50% of those experiencing pain had no radiation. Of the population 73.7% graded the intensity of pain between6-10. Furthermore, 69.2% of patients complained of pain lasting for more than 30 min, only 0.5% said the pain lasted for less than 5 min.

Figure 3. Distribution of associated symptoms.



A- chest pain
B- shortness of Breath
C- Sweating
D- Palpitations
E- Nausea & Vomiting
F- Dizziness
G- Headache
H- Visual disturbances
I- Gastric symptoms (fullness , burning epigastric pain)

From the population 32% had precipitating factors. 87% said the pain was precipitated by exercise, 13% said the pain was precipitated by emotions, no precipitation was documented with meals. From the population 29% had relieving factors. 68% of the population recorded relief with Glyceryl Tri Nitrate, the remainder had relief with rest.
For further analysis the population was divided in to two groups. (Typical and atypical presentation)

Atypical presentation was observed in 38.5% of the population (females 32%). The dominant presenting symptom in these patients was shortness of breath (44%), and dizziness (16%). Epigastric pain proved to be a presentation common to both males and females (11%).

Shoulder pain (5%) and back pain (5%) was also a presenting symptom. Females were significantly older than the male patients (P<0.05) and ranged in age from 39 to 86 years. Men ranged from 39-68 years.

There was no significant relationship between the age and atypical presentation (P>0.05). However atypical presentation was observed to be less in the extremes of ages (<40 years and >70 years). Atypical symptoms were observed to be more common in males, but the difference is not significant. (P>0.05).Among the patients who had an atypical presentation, dizziness was significantly more common as a presenting symptom in males (P<0.05).

Females were more likely to state the nature of the pain as pricking (P<0.05). Males localized the pain to be left or central more frequently than females (P<0.05).
Back pain and shoulder pain as the main presenting symptom were significantly more common in female patients (P<0.05).

Patients with STEMI had a significantly higher incidence of atypical presentation (P<0.05). Females with Hypertension had a significantly higher chance of developing Acute Coronary Syndrome than males with hypertension (P<0.05). More females had been diagnosed with ischaemic heart disease prior to their presentation (P<0.05).
Furthermore atypical presentation was significantly more common in patients having a family history. No significant relationship was observed between diabetes mellitus and atypical presentation (P>0.05). However out of the patients with atypical presentation, patients with Diabetes Mellitus had a significantly high incidence of Shortness of Breath, as the main presenting symptom (P<0.05)

NSTEMI was significantly more common among smokers (P<0.05). It was observed that ex smokers with an abstinence of more than 1 year had a significantly less occurrence of NSTEMI (P<0.05). No significant relationship was observed between atypical presentation and cigarette smoking (P>0.05), nor between atypical presentation and alcohol consumption (P>0.05). However out of the patients with atypical presentation, smokers were more likely to present with dizziness as the main presenting complaint (P<0.05).

Discussion

Males were more likely to suffer from Acute Coronary syndrome than females. Females were significantly older, more likely to be hypertensive and have a previous diagnosis of ischaemic heart disease.

Unstable angina was the most common (62%) of the three categories of ACS. Among the patients presenting with Acute Coronary Syndrome 38.5% had an atypical presentation. Out of these 34% had no chest pain on presentation .Therefore a considerable amount of the ACS population is at risk of misdiagnosis or delayed diagnosis, resulting in improper therapy and poor outcome.

In the population considered for this study no relationship was found with regard to Diabetes mellitus and atypical presentation per se, but among the patients presenting with atypical symptoms Shortness of breath was significantly more common as the main complaint in Diabetic patients. There was no significant difference in atypical presentation with regard to gender or hypertension. Atypical presentation was however more common in patients with a family history of ischaemic heart disease. This may be of value in suspecting ACS in a patient with a positive family history but absent typical features. Further more patients with STEMI had a higher incidence of atypical presentation. This is a point of great concern as the prognosis of these patients depends on prompt diagnosis and treatment.

In keeping with the results of previous studies, among the patients with atypical presentation, women frequently presented with Back pain and shoulder pain than men. Furthermore, in our study it was evident that dizziness was the most common presenting symptom in men with atypical presentation. A significant relationship between smoking and the incidence of NSTEMI was observed. This differs from the findings of other research where such a relationship was observed between STEMI and smoking. However it is of considerable value that there was a decrease in the incidence of NSTEMI in patients who had abstained from smoking for more than one year.

Conclusion

Atypical presentation is a significant component in ACS. Therefore it may have a significant impact on the hospital related outcome. Atypical presentation was found to be more common in patients with a family history and patients who were later diagnosed with STEMI. A detailed case control study would provide a more robust assessment of the factors associated with the presentation of ACS.

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PEER REVIEW

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CONFLICTS OF INTEREST

None

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