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MISCONCEPTION OF HEART ATTACK PAIN WITH HEART BURN - HOW COMMON IS IT?

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Contribution

SK , MFK conceived the idea, designed and conducted the study . MID RAM helped in acquisition of data and did statical analysis. SK,MFK drafted and critically revised manuscript. All authors contributed significantly to the submitted manuscript.

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ABSTRACT

Objective: To determined the percentage of myocardial infarction (MI) patients in Karachi who mistook their MI pain with heartburn and to study which socioeconomic class had the highest misconception.

Methodology: This cross sectional study was conducted from June 2014 to Feb 2016. Patients included in the study were divided in upper, middle and lower socioeconomic classes. Upper and middle class patients were taken from Liaquat National Hospital while lower class patients were chosen from Civil Hospital Karachi. There were no age or gender limitations. Informed consent was taken. Subjects diagnosed with MI were interviewed according to a pre-designed questionnaire.

Result: Of total 375 patients , 71.5% were males . Hypertension, diabetes and smoking was present in 66.9%, 36.8% and 36% respectively. Misconception of MI pain with heartburn was reported in 59.5% cases in first attack and 3.3% in successive attacks. This misconception in lower, middle and upper class was 66.4%, 54.4% and 57.6% respectively. Gastric reflux disease was reported in 45.9% people. Gastric reflux diseases and epigastric pain showed association with this misconception ($p<0.001$). Among gastric diseases, indigestion was most commonly seen as a positive misconception ($p<0.001$).

Conclusion: Misconception of MI pain with heartburn is very common, mostly prevalent in lower socio-economic class, followed by upper and middle classes. It was more common with gastric reflux diseases and epigastric pain. Among gastric diseases, indigestion and bloating showed significant association as a misconception .

Key Words: Myocardial Infarction, Gastric Reflux disease, Heartburn, Bloatment, Indigestion

INTRODUCTION

Myocardial infarction (MI) is commonly known as a heart attack, results from the interruption of blood supply to a part of the heart, causing heart cells to die. Classical symptoms of acute myocardial infarction include sudden chest pain, shortness of breath, nausea, vomiting, palpitations, sweating, and anxiety.[1]Heartburn, also known as pyrosis or acid indigestion is a burning sensation that often rises in the chest and may radiate to the neck, throat, or angle of the jaw. It is associated with regurgitation of gastric acid, which is the major symptom of gastroesophageal reflux disease (GERD), but it can also be a symptom of ischemic heart disease. [2]

It is a common misconception that MI pain, especially that felt in epigastrium (belly area), is taken for heartburn because of its strong resemblance. The affected person also takes belches sometimes, which although being a symptom of MI, is mistaken for gastric upset. People are usually reluctant to seek medical advice when having such pain, labeling it as gastric discomfort. [10] Such people, due to lack of knowledge, avoid consulting a cardiologist and finally when they do turn up at the clinic, their MI has progressed to a very crucial stage.[3-5]

This misconception may be due to the fact that people do not have the basic knowledge of MI.[9, 11] They are unaware of its symptoms other than pain in chest and left arm.[6,7]Also the poverty stricken people do not consult the doctor at the initial stage and try to treat their symptoms with little knowledge that they have. This causes the disease to progress and cause serious complications. This was shown in a study that a high proportion (40%) of patients with definite myocardial ischemia had experienced preceding chest pain, which had been misinterpreted by both the patients and the doctors as indigestion. [8]

Majority of the population of Karachi is unaware of the basic symptoms of MI except pain in the chest and left arm. They mistake other symptoms like pain in the epigastrium and belches for gastric discomfort.

We sought to determine the percentage of MI patients in Karachi who mistook their MI pain with heartburn and to study which socio economic class had the highest misconception. This study will thus help to recognize the mindset of people and their knowledge of MI and serve as an important tool for the awareness and knowledge for this highly common disease. Also, specific attention may be diverted to the group with the highest degree of misconception.

METHODOLOGY

It was a cross sectional, descriptive study with non-probability and purposive sample technique, conducted from June 2014 to Feb 2016. It was conducted in Department of Cardiac Surgery at Liaquat National Hospital and Civil Hospital Karachi. Sample size was calculated by Open Epi with 95% confidence interval and 5% margin of error. Patients included in the study were divided equally in three socio-economic classes: upper, middle and lower. Upper and middle class patients were taken from Liaquat National Hospital while lower class patients were chosen from Civil Hospital Karachi.

Subjects were diagnosed as MI patients on the basis of ECG findings and positive Troponin levels. There were no age or gender limitations. Informed consent was taken from the patients. The participants were interviewed according to a pre-designed questionnaire, which contained questions about their MI risk factors, symptoms, gastric diseases and if they mistook their heart attack pain with gastric disease.

Data collected was analyzed by SPSS software (version 16.0).Mean (–) standard deviation was calculated for hypertension, diabetes and smoking. Percentages were determined for people who mistook their MI pain with heartburn. Percentages were also calculated for areas where MI pain was felt, gastric diseases and symptoms of MI.

RESULTS

A total of 375 participants were included, among which 71.5% were males. A total 66.9% were hypertensive while 36.8% was suffering from diabetes. The prevalence of smokers was 36%. Prevalence of hypertension in upper, middle and lower classes was 85%, 79% and 87% respectively, of diabetes was 45%, 39% and 54% respectively and smoking was 46%, 45% and 44% respectively as shown in table 1.

Table 1: Prevalence of Hypertension, Diabetes and Smoking in Socioeconomic Classes in Study Population (n=375)

Socio-economic Class	Hypertension %	Diabetes %	Smoking %
Upper	85%	45%	46%
Middle	79%	39%	45%
Lower	87%	54%	44%

Our main objective was to determine the percentage of people who had mistaken their MI pain with heartburn. As anticipated, this figure was high, i.e. 59.5% in first attack.

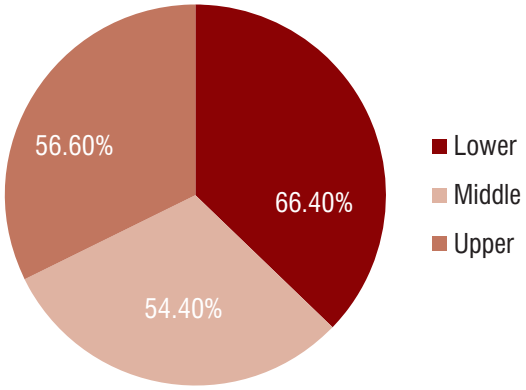
Pain of MI was felt in different areas. Some people did not suffer from any pain at all. This was reported by diabetics mostly. Others had pain in the chest, arms, shoulders, neck, back and epigastrium. In this regard, 6.7% of the people felt

no pain. About 68.3% people felt it in arms and shoulders, 91.2% in chest, 35.7% in neck, teeth and jaws, 39.7% on back and 19.5% in epigastrium.

Symptoms of MI studied were shortness of breath, sweating, palpitation, nausea/vomiting and belching. Shortness of breath, sweating and palpitation were reported by 72.5% patients, while nausea and vomiting occurred in 30% and belching occurred in 24.3% people.

Very few people (3.3%) had mistaken their successive MI pain. This misconception was most in the lower class (66.40%), followed by upper class (57.6%) and least in the middle class (54.4%). This is shown in figure 1.

Figure 1: Percentage of Misconception in Socioeconomic Classes in Study Population (n=375)



Gastric reflux disease was reported in 45.9% of the people. Among these, indigestion was most common and ulceration was least common. Indigestion was prevalent in 29.1%, ulcer in 3.7% and bloatment in 16% respectively (Table 2).

Table 2: Prevalence of Gastric Diseases in Study Population (n=375)

Gastric Reflux Disease	Percentage
Indigestion	29.1%
Ulcer	3.7%
Bloating	16%
Others	26.1%

Other conditions included people who experienced heartburn when sleeping after meals (13.86%). Gall stones were also reported by many people (5.86%).

We also studied if people who had pain in epigastrium, pain in chest, suffered from gastric disease or had nausea and/or vomiting and belching had mistaken their MI pain with heartburn. People with gastric disease and more specifically, those having pain in epigastrium, had a positive relation with MI pain misconception, ($p<0.001$). This comparison is illustrated in Table 3 .

Table 3: Misconception of MI with different Variables in Study Population (n=375)

Variable	People who Mistook MI Pain	P Value
Gastric Disease	33.33%	<0.001
Pain in Epigastrium	78.1%	<0.001
Pain in Chest	54.4%	0.946
Nausea/Vomiting	67.9%	0.027
Belching	61.5%	0.644

Among the gastric diseases reported, indigestion was most common while ulceration was least. Indigestion and bloating showed significant association between gastric disease and mistaken MI pain ($p<0.001$). Among other diseases, gall stones and heartburn when sleeping after meal were very common. This is shown in table 4

Table 4: Comparison of Misconception of MI with Gastric Reflux Diseases in Study Population (n=375)

Gastric Reflux Disease	Mistook First MI	P Value
Indigestion	24.26%	<0.001
Ulcer	3.46%	0.009
Bloating	13.6%	<0.001
Others	17.6%	0.064

DISCUSSION

Myocardial infarction (MI) is a common disease worldwide and accounts for many cases in Pakistan. Although its main symptom of chest pain is very clearly embedded in the minds of people as an indication of heart attack, yet many people misinterpret it as heartburn, leading to delay in getting medical attention and prolonging door to needle time.

Our study proved it by showing high prevalence of this

misconception. About 59.5% of the people misinterpreted it, which is more than half of the sample population. The reason for this increased mistake was either lack of knowledge of the symptoms, or that people usually were already suffering from gastric diseases, due to which even after knowing the symptoms of heart attack, they merely thought the pain to be due to heartburn. Many people were also reluctant to consult the doctor and could not imagine themselves to be suffering from such a severe disease, hence the delay. Some people were also influenced by other members of the family or even doctors.

But after suffering from the first attack, people did not commit this mistake again. In successive attacks, only 3.3% of the people mistook the warning.This misconception was mostly in the lower socio-economic class of the society (66.4%), which can be attributed to the lack of knowledge, absence of medical facilities and family traditions to use household remedies for pain before consulting the doctor. However, this figure was followed by upper class (57.6%), which in spite of all the facilities and high knowledge, were the second in number to make this mistake. This might be due to the luxurious lifestyle of this class. Middle class reported this misconception least (54.4%).

The presence of gastrointestinal tract related symptoms or diseases contributed to this misconception. Among people who were suffering from any gastric reflux disease, 33.33% of the people had mistaken their MI pain. There was also a positive relationship between presence of gastric reflux diseases and mistaking MI pain with heartburn, with ($p < 0.001$).

Among gastric reflux diseases, indigestion, ulceration, bloating, gall stones all were related to the misconception studied, but indigestion and bloating were most commonly associated with this misconception (24.26% and 13.6% respectively) and showed a significant relationship ($p < 0.001$.)

Similarly, out of the people who experienced epigastric pain, 78.1% of the people made this mistake. 54.4% of the people with chest pain reported this misconception. People who had nausea and/or vomiting, 67.9% of them showed this misconception, while those who had deep belches, out of them 61.5% showed this figure. This is more than half in the sample population for every variable. But only presence of gastric reflux diseases and pain in epigastrium were significantly related to the misconception of MI pain with heartburn($p=0.000$). This might be the reason why misconceptions are so common as majority of the people who made this mistake were suffering from one or more variables which led them toward this.

It is surprising to note that symptoms of shortness of breath, sweating and palpitation were equally reported, i.e. 72.5%. This might be because these symptoms are reported by almost all patients of MI together.

Misconception of MI pain with heartburn is very common but reasons of this mistake are different in different socio-economic classes. It is imperative to determine the reasons of misconception in each class to address them most effectively. The clinical medical practice should be tailored to increase awareness about this among patients and seminars should target mass public to increase awareness about this.

CONCLUSION

Misconception of MI pain with heartburn is very common and affects more than half of the sample population. It is mostly prevalent in lower socio-economic class, followed by upper and middle classes. This might be due to lack of knowledge and use of home remedies for pain in lower class and lifestyle habits in upper class. Presence of gastric reflux diseases and epigastric pain are significantly related to this misconception.

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