

Survey Report

KNOWLEDGE AND AWARENESS ABOUT ANGINA PECTORIS AMONG PHARMACY STUDENTS

Humera Khatoon¹, Safila Naveed^{1*} and Kiran Shahid¹

Faculty of Pharmacy, Jinnah University for women, Karachi, Pakistan

ABSTRACT

Objective of this study is to determine the awareness among student of Pharm D with Angina Pectoris (AP) regarding the disease, sign & symptoms and treatment. The term Angina Pectoris is applied to varying forms of transient chest discomfort that are attributable to insufficient myocardial oxygen. The classic description of angina is a crushing pain that radiates through the chest and sometimes down the arm, neck, teeth /jaw or into the back, which is usually aggravated by exertion or stress. Angina is a warning sign that the heart muscle is not getting adequate blood supply and specially oxygen and it may lead to myocardial infarction or a heart attack. Therefore, a survey was performed to investigate the awareness of angina pectoris among Pharm D students of JUW Karachi. A questionnaire on angina pectoris was publicized and distributed among Pharm D students from February to March 2014. The questionnaire included 6 six questions and covered the disease, types of angina, sign & symptoms of angina, physical examination and diagnostic tests required to be done and treatment of angina pectoris. From the questionnaire we observed that Pharmacy fifth year students are well aware about the disease as compare to third year students specially about diagnostic test and treatment. We have got highly significant difference < 0.005 p value for diagnostic test and treatment. From the survey we conclude that pharmacy student well aware about the disease.

Keywords: Awareness, Angina pectoris, Pharm D students.

Corresponding Author: Safila Naveed Faculty of Pharmacy, Jinnah University for women, Karachi, Pakistan. E.: safila117@yahoo.com

I. INTRODUCTION

The term Angina Pectoris is applied to varying forms of transient chest discomfort that are attributable to insufficient myocardial oxygen. The heart is the pump responsible for circulating blood throughout the body. Myocardium is the heart muscle that contracts to pump that blood and like any other muscle. Angina pectoris describes the discomfort, pain, or any other symptoms that occur when blood flow to heart muscle cells is not enough to meet its energy needs. The classic description of angina is a crushing pain that radiates around the chest and sometimes down the arm or into the back, which is usually aggravated by exertion or stress. Angina is a warning sign that the heart muscle is not getting adequate blood supply and oxygen. If unheeded it may lead to a heart attack or myocardial infarction. Angina isn't a disease; it's a symptom of an underlying heart problem. Angina usually is a symptom of Coronary Heart Disease (CHD).

TYPES

Stable Angina: The pain is predictable and present only during exertion or extreme emotional distress, and it disappears with rest. Stable angina isn't a heart attack more likely to happen in the future.

Unstable Angina: It may occur more often and be more severe than stable angina. The Unstable angina can occur with or may be without physical exertion, and rest may not relieve the pain. The angina may occur frequently, more easily at rest condition, feel more severe and last longer. Although this type of angina can often be relieved with drugs because it is unstable and may lead to a heart attack. Intense treatment is required. This type of angina is a sign that a heart attack may happen soon.

Variant Angina (Vasospastic or Prinzmetal's Angina): This is when angina occurs at rest specially during sleeping or when exposed to cold temperatures. The symptoms are caused by decreased blood flow to the heart muscle from a spasm of the coronary artery. The majority of people with this type of angina also have coronary artery disease CAD.

PATHOPHYSIOLOGY

Angina pectoris is the most common clinical manifestation of myocardial ischemia. Myocardial ischemia develops when coronary blood flow becomes inadequate to meet myocardial oxygen O₂ requirement. This causes cardiac cells to switch from aerobic to anaerobic metabolism, with a progressive impairment of metabolic, mechanical, and electrical functions. Increases in the heart rate and myocardial contractile state result in increased cardiac oxygen demand. Increases in both afterload (ie, aortic pressure) and preload (ie, ventricular end-diastolic volume) result in a proportional elevation of myocardial wall tension and oxygen demand. Supply of oxygen to organ is determined by blood flow and the extraction of oxygen. There for an increase oxygen demand (eg, during exercise) must be met by a proportional increase in coronary blood flow.

Atherosclerosis is the most common cause of epicardial coronary artery stenosis and angina pectoris. The patients who have fixed coronary atherosclerotic lesion of at least 50% show myocardial ischemia during increased myocardial metabolic demand. Fixed atherosclerotic lesions of at least 90% patients may experience angina at rest.

Myocardial ischemia can also be the result of factors affecting blood composition as is observed with severe anemia (hemoglobin, < 8 g/dL), or elevated levels of carboxyhemoglobin.

SIGN AND SYMPTOMS

Chest pressure that radiates down the arm, into the neck or jaw. However, patients may use different words to describe the pain, tightness and ache. The location may be in the chest; instead it may be described in the upper abdomen, back, arms, shoulder, or neck. Breath shortness, nausea /vomiting, sweating and light headache

PHYSICAL EXAM

Physical examination also helpful for the potential list of diseases but in of itself, will not make the formal diagnosis. The physician will examine at your skin for good color, which shows that your body is getting a good supply of oxygen-rich blood. The doctor will measure your blood pressure (Blood pressure is the force (pressure) exerted in the arteries by the blood as it is pumped around the body by the heart. The doctor will check for swelling a sign that your heart is not pumping efficiently. Your doctor will use a stethoscope to listen closely to the sounds the heart makes with each heartbeat. An S4 heart sound may be present during myocardial ischemia due to the lack of ATP production impairing left ventricular relaxation (S4 heart sound occurs when a non-compliant, stiffened(LV) left ventricle receives blood after atrial contraction) Abnormal

sounds include:**Murmur:** An abnormal whooshing sound made by blood flowing abnormally through heart.
Click: An abnormal sound made by a valve that is stiff or stenotic (narrowed).

DIAGNOSTIC TESTS

The described symptoms may be of one of the following conditions ; Pneumonia, GI indigestion, MI, Asthema, Heart failure.

Chest X-ray: This test takes images of your heart and lungs. A chest-x ray can reveal signs of heart failure.

Blood tests: Certain heart enzymes ((troponin, CPK, myoglobin) slowly leak out into your blood if your heart has been damaged by a heart attack. Blood can be tested for the presence of these enzymes. Blood tests also check the levels of certain fats, cholesterol, sugar, proteins, and hemoglobin in blood.

Electrocardiogram (ECG or EKG). Each beat of your heart is triggered by an electrical impulse generated from special cells in heart. An electrocardiogram shows if the blood flow through your heart has been slowed or interrupted or if you're having a heart attack. The currents of injury are represented by deviation of the ST segment on the surface ECG.

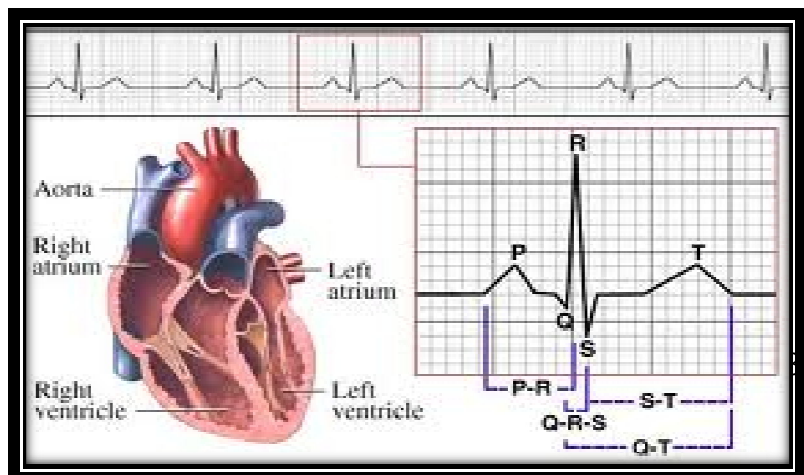
The ECG at rest is normal in 50% or more of patients with stable angina. But an ECG obtained during chest pain is abnormal in 50% of patients with angina who have normal resting ECG. The ST segment can either be elevated or depressed. Myocardial ischemia is suggested by an ST segment depression. ST elevation may occur in Prinzmetal's angina.

Exercise Tolerance Test (ETT): Sometimes angina is easier to diagnose when your heart is working harder. During exercising blood pressure is monitored and your ECG readings are watched, develop marked ST-changes at low level exercise. Exercise ECG testing may reveal exercise-induced myocardial ischaemia. It is more sensitive and specific than the resting ECG in detecting myocardial ischemia. Exercise ECG is abnormal in 85% of patients with angina. If you're unable to exercise, you may be given drugs that cause your heart to work harder to simulate exercising.

In case of unstable angina ST segment is deep but inverted T-wave which becoming normal again after the end of the anginal pain.

Thalium Scan: This test involves having an injection of a small amount of Thalium. This substance mixes with your blood and travels to your heart. A special scanner — which detects the radioactive material in your heart — creates images of your heart muscle. This is done both when you are resting and when your heart is beating faster. You may be asked to increase your heart rate by exercising (eg , by walking/ jogging on a treadmill).

Coronary angiography: Coronary angiography uses X-ray imaging to examine the inside of your heart's blood vessels. In coronary angiography dye that's visible by X-ray machine is injected into the blood vessels of your heart, by cardiac catheterization. A catheter is put into a blood vessel in your arm, groin (upper thigh), or neck. The



tube is threaded into your coronary arteries CA the dye is released into bloodstream. These shows up the structure of the arteries (like a road map) and can show the location and severity of any narrowing [1-3].

TREATMENT

The main goals of treatment in angina pectoris are to decrease Oxygen demand , to increase Oxygen supply, to relieve the symptoms, especially MI and premature death.

Life Style Changes:

Take rest breaks if exertion triggers angina also avoid large meals /rich foods that leave feeling stuffed. And try to avoid situations of upset/stressed and quit smoking.

Drugs Therapy:

Sublingual nitroglycerin can be used for acute relief of angina and prophylactically before activities that may precipitate angina or on a long-term preventive basis. . Nitrates dilate your blood vessels and decrease workload on heart.

Antiplatelet Drugs: Aspirin may be recommended to make platelets less sticky to prevent clot formation making it easier for blood to flow through narrowed heart arteries and prevent heart attack.

Certain medications such as clopidogrel (Plavix), prasugrel (Effient) and ticagrelor (Brilinta) can help prevent blood clots from forming by making your blood platelets less likely to stick together.

Statins are drugs used to lower blood cholesterol. They work by blocking a enzyme your body needs to make cholesterol.

Beta-blockers are also used for symptomatic relief of angina and prevention of ischemic events. They reducing myocardial oxygen demand and by decreasing the heart rate and myocardial contractility (decrease cardiac workload), thereby reducing blood pressure. They dilate blood vessels and improve blood flow, thus reducing or preventing angina. Beta-blockers have been shown to reduce the rates of mortality and morbidity following acute MI.

Calcium channel blockers dilate both coronary and peripheral blood vessels. Long-acting heart rate–slowing (Dihydropyridine) calcium channel blockers can be used to control anginal symptoms in patients with a contraindication to beta-blockers and in those in whom symptomatic relief of angina cannot be achieved with the use of beta-blockers and nitrates.

Non-medicine Treatment:

Angioplasty: In this procedure a tiny wire with a balloon at the end is put into a large artery in your groin or arm. The balloon is blown up inside the narrowed part of the artery to open it wide again.

Surgery: This involves an operation (Coronary Artery Bypass Grafting surgery) to bypass the narrowed sections of arteries with healthy blood vessel segments (grafts) which are taken from other parts of the body and more blood can then get past into the heart muscle [4,5].

METHODOLOGY

Questions regarding the Angina Pectoris, pathophysiology ,sign and symptoms Physical examination, diagnostic tests and treatment were asked.The data presented here is collected by approaching to third and fifth year Pharm-D students. The survey proceeded for two weeks. 50 forms were duly filled by people. Sample population is being divided equally in 25 filled performas of both groups. Since our study was not experimental and didn't involve any intervention, we didn't approach any ethics committee for review before

conducting the study. All the data was entered in SPSS version 20 and evaluated. Results have been presented in the form of frequencies and percentages where applicable.

RESULT AND DISCUSSION

Out of the total 150 students, only 50 of them participated in the study. Knowledge about sign and symptoms of angina pectoris was adequate among third year as well as final year students (table #1). The level of awareness among the two groups of students was significant ($P < 0.05$) for knowledge about physical exam and diagnostic test. However, there is a highly significant ($P < 0.005$) difference among the studied groups for knowledge about treatment of AP. The results are non significant for awareness about "what is angina" sign and symptoms, physical examination among students of third professional as well as fifth year Pharm-D students (table 1). We've determined the awareness ratio and found out that the awareness rate of AP was not up to the mark as we thought. Among the study sample students of fifth year Pharm-D showed good knowledge and awareness about AP. Results of the present study showed that most of the fifth year Pharm-D students showed 50% or 100% awareness for most of the questions asked when compared with third year Pharm-D students.

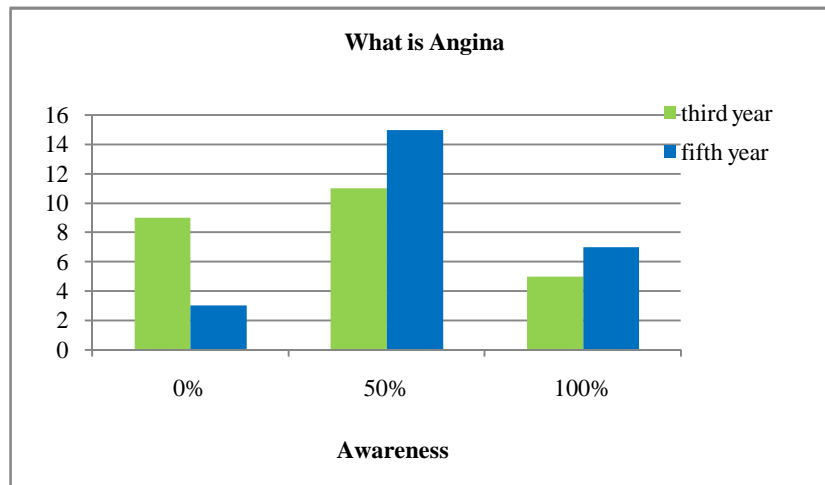


Fig 1: Awareness about angina in third and fifth year students

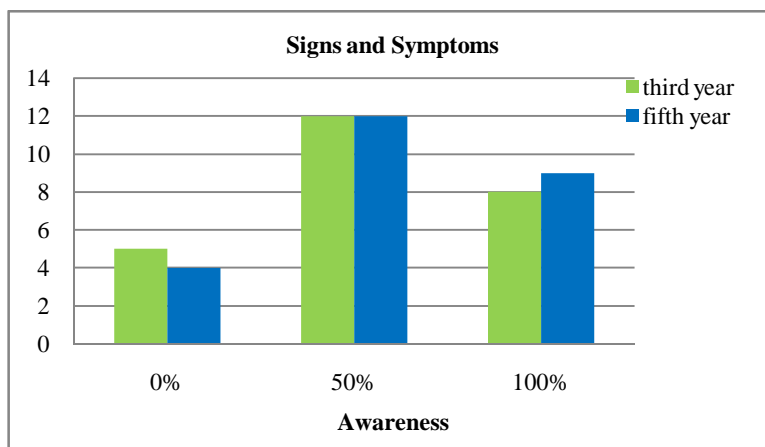


Fig 2: Awareness about signs and symptoms in third and fifth year students

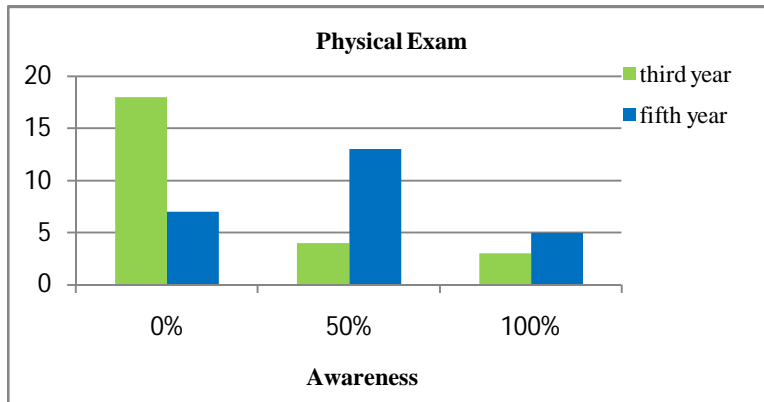


Fig 3:Awareness about physical examination in third and fifth year students

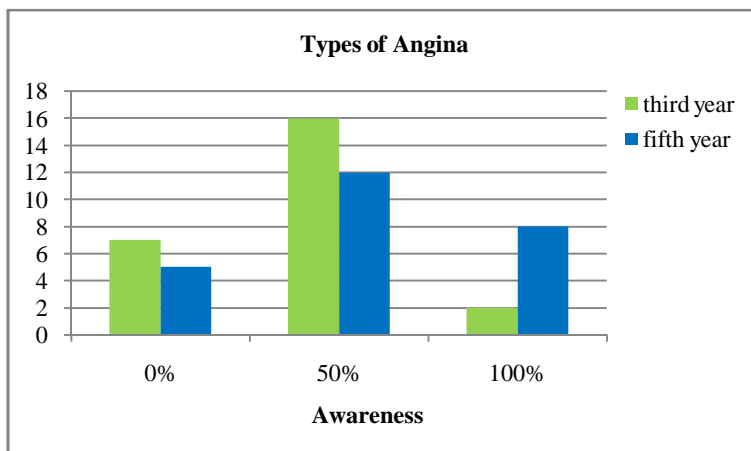


Fig 4:Awareness about types of angina in third and fifth year students

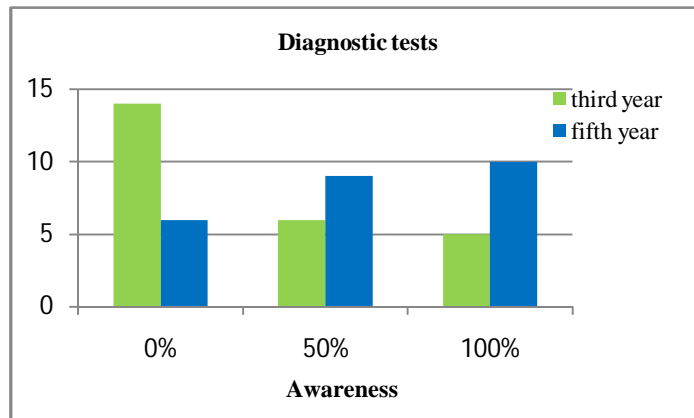


Fig 5:Awareness about diagnostic tests of angina in third and fifth year students

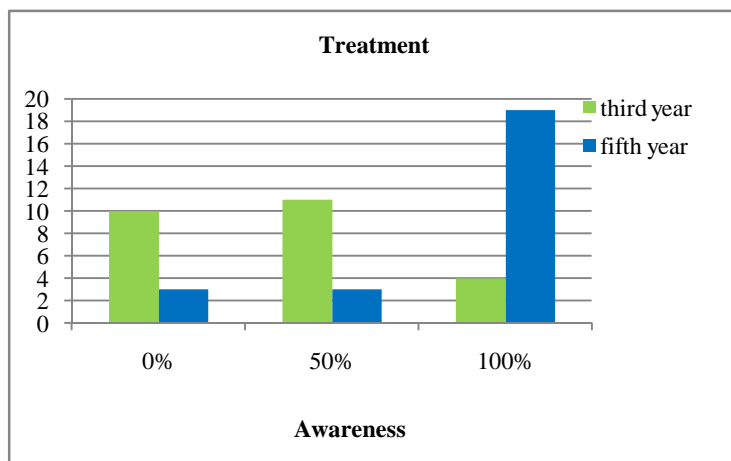


Fig 6: Awareness about treatment in third and fifth year students

The reason was their poor understanding and knowledge regarding the subject. By using SPSS software we apply independent sample t-test .p values for what is angina in both group is .107 with degree of freedom 48. Similarly p value for 2-5 question are 0.69,0.012,0.027,0.000 with df 48. Results are given in table 1 and in figure 1-6.

Table 1: Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
What is Angina	1.347	.251	-1.644	48	.107	-.32000	.19459	-.71126	.07126
Sign & symptoms	.012	.914	-.395	48	.695	-.08000	.20265	-.48745	.32745
Physical exam	.249	.620	-2.609	48	.012	-.52000	.19933	-.92078	-.11922
Diagnostic test	.172	.680	-2.283	48	.027	-.52000	.22774	-.97791	-.06209
Treatment	.292	.591	-4.371	48	.000	-.88000	.20133	-1.28480	-.47520

A pharmacist serves as a vital link between the physician and the patient. The patients expect a lot from the pharmacist not only to give them comprehensive information about the use of medicines but also the

disease since the physicians do not always have sufficient time to discuss these details. Previous studies showed that given the intense pressure on physicians due to increase in number of patients per physician visit average length of doctor-patient encounters become relatively shorter [6]. Based on the above reasons pharmacists have increased responsibility to play their role to convey relevant health information to community. Being community pharmacists they can actively participate in improving awareness and comprehension of physician diagnoses and recommendations. In this era of competition, the pharmacy graduates can enter numerous service fields like, research, hospital pharmacy management, pharmaceutical industries, sales & marketing, or private pharmacy shops and lost the basic instinct and ethics of this profession. They are hardly given opportunities to practice and perform their duties towards patients to enhance their knowledge and awareness about a particular medical condition. Pharmacists, being an important member not only of the community but as a part of health care system can play their role in identification, education and early management of medical conditions which require immediate medical care to save life and avoid prognosis. An early recognition and treatment of angina can help prevent or delay the onset of an acute myocardial infarction and potentially death. So far, one of the reasons of delay in use of many lifesaving treatments such as thrombolytic therapy, aspirin and nitroglycerin is due to patients' failure to recognize cardiac symptoms [7]. Poor literacy rate and low educational accomplishment is directly associated with low health literacy with lesser awareness of symptoms and also with less effective health communication [8]. Physician-patient communication is considered a fundamental aspect of medical care. Present study suggests that if pharmacists are themselves not well aware about ailments, their signs & symptoms, and treatment they would not be able to play their role towards patient satisfaction.

CONCLUSION

The results of this study concluded that it is necessary to develop methods to enhance knowledge and skills for pharmacy undergraduates which can be achieved by intervention at a stage when the students are ready to enter the profession. Present study suggests and reinforces an idea to incorporate knowledge enhancement programs including workshops and seminars in the final year curriculum. Faculties and colleges of pharmacy must develop reliable assessment procedures to collect information about the student learning outcomes throughout the professional degree program.

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