

# Management of ischaemic heart disease in smokers

Anam Jawad Siddiqi, Anum Yousuf, Saleha Sadeeqa

**Abstract**— Ischaemic heart disease is caused by narrowing of heart arteries. When arteries are narrowed, less blood and oxygen reaches muscles of heart. Smoking is one of the major risk factors which cause ischemia and other cardiovascular diseases. Smokers are more prone towards the ischaemic heart disease and death than are the non smokers. This report emphasizes the management of ischaemic heart disease particularly in smokers both clinically and by changing the lifestyle. A questionnaire based study was carried on 50 ischaemic heart disease out patients who were smokers. The patients were selected randomly at Punjab Institute of Cardiology, Lahore. The aims and objectives of the study were:

- to study the management of ischaemic heart disease in smokers
- to study the side effects of medication

The medication given was aspirin, clopidogrel, beta blockers, angiotensin converting enzyme inhibitors, angiotensin receptor blockers, nitrates and lipid lowering drugs called statins. Life style changes involved cessation of smoking, low fat diet and regular walk. The side effects mostly seen were gastric disturbances, probably due to aspirin. According to prescribers the patients of ischaemic heart disease were mostly smokers.

**Index Terms**— aspirin, beta- blockers, ischaemia, ischaemic heart disease, smoking, statins, management

## 1 INTRODUCTION

Ischaemic heart disease is a disease caused by reduction of blood supply to the heart muscles. The meaning of Ischaemia is "reduced blood supply". (Ambrose and Singh [1] show) Mostly the cause of ischaemic heart disease is atherosclerosis, usually present even when the lumen of the artery appears to be normal by angiography. Either the artery is narrowed or the large coronary artery/ its branches is closed by debris showering downstream in the flowing blood. Firstly it is felt as angina, especially when a large area is affected. Myocardial infarction (MI), is the most important form of IHD, in which ischaemia is severe and its duration is sufficient to cause death of heart muscle. In angina pectoris, the ischemia is less severe and usually does not cause death of cardiac muscle. Chronic IHD is ischaemia with heart failure and sudden cardiac death.

(J-M.R. Detry [5] shows that) The sequence of ischaemic cascade is as follows: local ischaemia, metabolic abnormalities, abnormal diastolic performance, abnormal systolic function, ECG abnormalities, chest pain. It is clear that painful ischaemia is the final phenomenon in the ischaemic cascade.

(John A Ambrose [6]) The toxic components of cigarette smoke like tar and nicotine increase inflammation, thrombosis, and oxidation of low-density lipoprotein cholesterol leading to oxidative stress as a potential mechanism for initiating cardiovascular dysfunction. (John A Ambrose, 2004)

(Donald D and Haritha [3]) Factors that can increase your risk of developing myocardial ischemia are:

Hypertension, hyperlipidemia, diabetes, lack of exercise, obesity, smoking, lifestyle modification diet, emotional stress, tachycardia, anemia, hyperthyroidism.

(A Report of Surgeon General - 2010, [2] shows that)

Smoking is one of the most important risk factors of the ischaemic heart disease. Quitting smoking is probably the most important step along with medications that can be taken to decrease the chance of IHD and a heart attack.

(Jacobs DR, et al [4] shows that) In a study, after 25 years, 57.7% of persons smoking 30 cigarettes per day had died, as compared to only 36.3% of non-smokers.

(A Report of Surgeon General - 2010, [2]) Smoking may be life threatening as it causes the platelets in blood to clump together easily by making blood cells more "sticky" and more likely to form clots. Clumping platelets can then block coronary arteries and cause a heart attack. Or it can cause spasms in coronary arteries, which can reduce the blood flow to heart in a way similar to that of atherosclerosis. Or it lowers "good" cholesterol (high-density lipoprotein, or HDL). Cholesterol-carrying lipoproteins also more easily enter the walls of your arteries, where they can develop into a hard plaque and atherosclerosis

(Rekha Mankad, [8] shows). Treatment of myocardial ischemia in smokers is directed at improving blood flow to the heart muscle by aspirin / clopidogrel, nitrates, beta blockers, calcium channel blockers, cholesterol-lowering medications, ace inhibitors, angiotensin receptor blocker

(Julia A. Critchley and Simon Capewell, [7]). Treatment also includes to follow a heart-healthy lifestyle which includes;

Quitting smoking. Cessation of smoking following onset of IHD reduces the risk of death. Advice and support to quit smoking can considerably improve patient's conditions.

(Rekha Mankad, [9]) The other treatment guidelines

are: to manage underlying health conditions, eat a healthy diet, exercise, maintain a healthy weight and decrease stress.

## 2 METHODOLOGY:

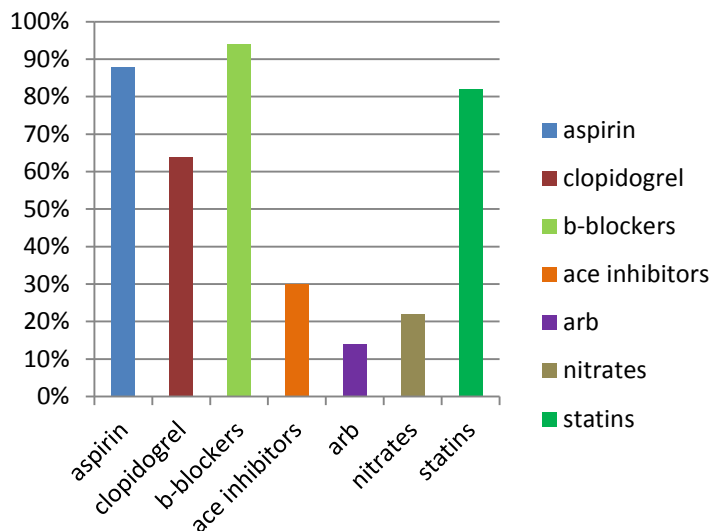
An observational and questionnaire based study was conducted about the management of ischaemic heart disease in smokers. 50 out patients who were smokers and had ischaemic heart disease were randomly selected for the study at Punjab Institute of Cardiology. The study was carried out from August to September. Patients were mostly males, a few were females. The age of the patients was between 40 to 75 years. A data collection form was designed and was filled during face to face interview with the patients and health care providers. The data collected was computed and results were interpreted in the form of graphs.

## 3 RESULTS:

During the study it was observed that medication prescribed by the doctor to smokers with ischaemic heart disease was 88% aspirin, 64% clopidogrel, 94% beta blockers, 30% ACE inhibitors, 14% angiotensin receptor blockers, 22% nitrates and 82% statins or lipid lowering drugs. 70% patients were advised low fat diet, 8% no beef intake, 18% were advised with low fat diet, less spices in food and no beef intake. 30% patients were suggested by the physicians to walk and exercise regularly. 84% patients tried to quit smoking. 64% patients had not experienced any side effects where as 24% had a complaint of gastric disturbances. Very few patients experienced headaches and dryness. Gastric disturbances were treated by prescribing the patients proton pump inhibitors like esomeprazole.

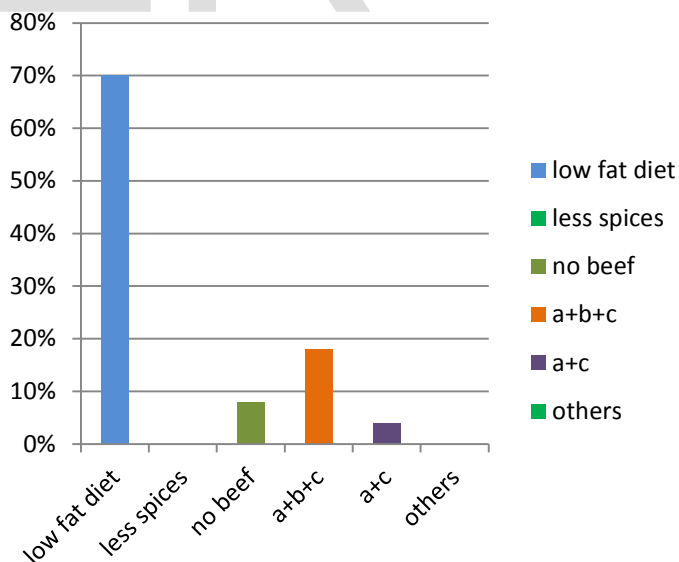
### 3.1 Prescribed medications

Medication	aspirin	clopidogrel	b-blockers	ACE inhibitors	Angiotensin receptor blockers	nitrates	statins
Percentage	88%	64%	94%	30%	14%	22%	82%



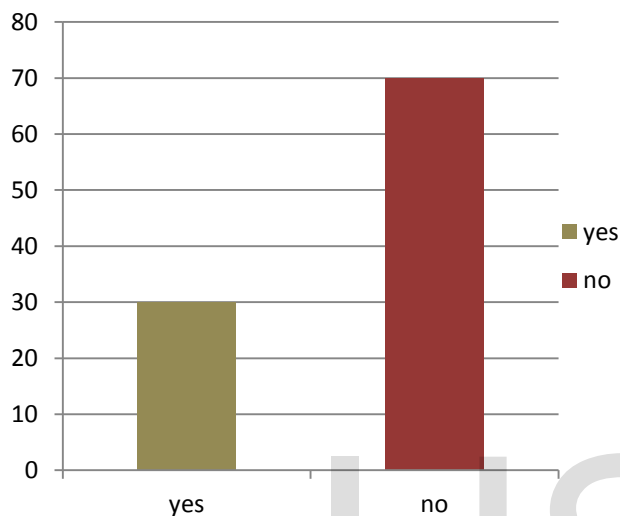
### 3.2 Diet changes prescribed by doctor:

Diet changes	Low fat diet	Less spices	No beef	a+b+c	a+c	Others
Percentage	70%	0%	8%	18%	4%	0%



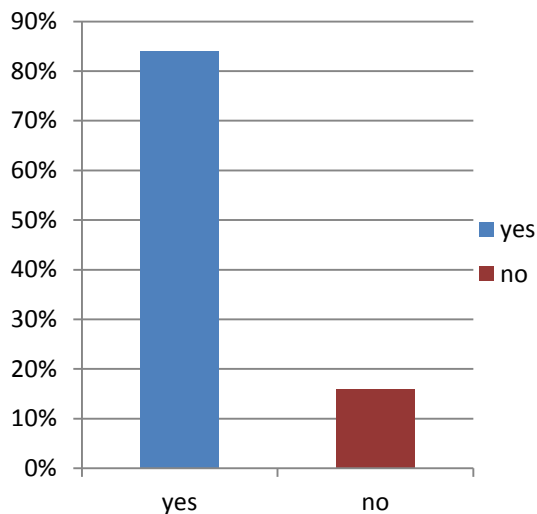
### 3.3 Walk and exercise suggested by doctor to patients:

	Yes	No
Percentage	30%	70%



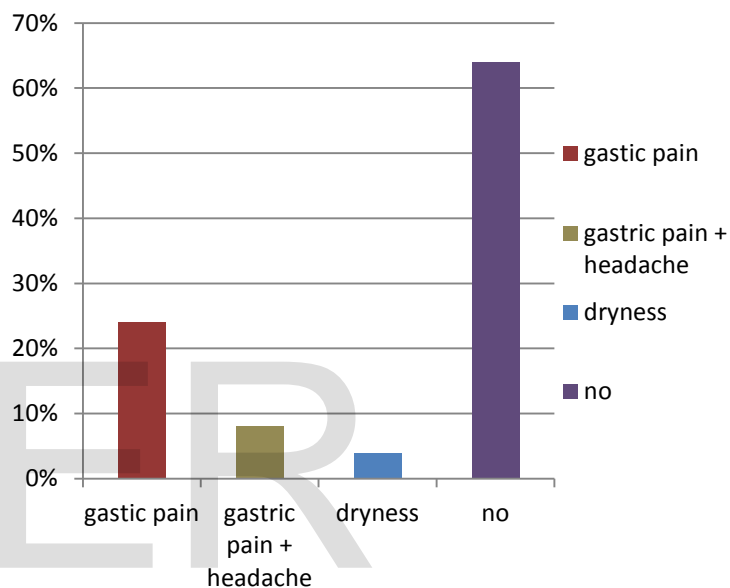
### 3.4 Patients tried to quit smoking:

	yes	No
Percentage	84%	16%



### 3.5 Side effects observed:

Side effects	Gastric pain	Gastric pain + headache	Dryness	no
Percentage	24%	8%	4%	64%



## 4 DISCUSSION:

Persons who develop IHD were mostly chain smokers. The medication suggested for smoker IHD patients was: Aspirin, a blood thinner. Clopidogrel, a platelet aggregating inhibitor. Nitrates, temporarily open arteries. Beta blockers, help relax your heart muscle. Cholesterol-lowering medications (statins), decrease the deposits on the coronary arteries. ACE inhibitors, help relax blood vessels. Angiotensin receptor blockers, were also used.

Other life style changes were also advised to the patients. All the patients were suggested to cessate smoking. Usually no nicotine transdermal patches or nicotine chewing gums were in practice for cessation of smoking. A low fat diet, no beef and less spicy food was suggested to the patients. Usually walk and exercise was suggested by the physician to the patient.

The side effects usually observed were the gastric disturbances, abdominal pain, severely ulcers, headache and less commonly dryness. Long term use of aspirin caused these GIT disturbances. These GIT disturbances were treated with

Proton Pump Inhibitor. No trend of visiting a pharmacist was being followed by the patients with cardiovascular diseases.

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## 5 CONCLUSION:

Chain smokers are more prone to Ischaemic Heart Disease. The tobacco blocks the coronary arteries reducing the blood supply to the heart leading to ischaemia. Proper medication and treatment is necessary otherwise it may worsen to Heart attack. Blood thinning agents, lipid lowering agents, b-blockers, ACE inhibitors/ angiotensin receptor blockers are included in treatment drugs.

Smoking cessation may reduce the disease to one half. Other life style changes also contribute towards the recovery of the disease. Usually GIT disturbances are seen as the side effects of medication. Pharmacists are not usually consulted, although they may contribute a lot towards the disease recovery.

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