Original Article

EFFECT OF VERBAL ADVICE TO QUIT SMOKING AFTER PERCUTANEOUS CORONARY INTERVENTION

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ABSTRACT

BACKGROUND AND OBJECTIVE:Cigarette smoking has long been established as an, independent, and reversible risk factor for coronary heart disease (CHD). Smoking cessation is an important component of secondary prevention strategy. The objective of this study was to determine the frequency of smoking cessation, with counseling to stop smoking in post PCI patients.

MATERIAL AND METHODS:The study was conducted at Punjab Institute of Cardiology, Lahore from 1st December 2013 to 30th June 2014. A total of 150 patients with history of smoking and undergoing elective PCI were selected. Baseline parameters of these cases were recorded. Patients were given a brief advice regarding the hazards of smoking on their stents and overall disease process. Smoking status at the time of enrollment was recorded as pack years of smoking. Patients were then recalled 3 months later and were asked about the status of smoking during that period.

RESULTS:Mean age of the study population was 54.42±11.99 years and 131 (87.3%) were males. They were counseled to quit smoking. On 3 months follow up 94 (62.7%) patients tried their best to quit smoking but only 73 (48.67%) were successful.

CONCLUSION: After PCI, verbal advice to quit smoking had an effect on about two third of the patients and about half of the patients actually stopped smoking

KEY WORDS:Smoking cessation, Percutaneous Coronary Intervention (PCI), Coronary Heart Disease (CHD)

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INTRODUCTION

Atherosclerosis is characterized by deposition of lipids in the wall of arteries leading to their thickening. Multiple atherosclerotic plaques appear in the arteries.[1] coronary heart disease (CHD) was responsible for death of nearly 16.8 million adults in 2006 in United States. [2] CHD has a negative impact on the quality of life of affected individuals.[3] Percutaneous Coronary Intervention (PCI) and surgical revascularization are the common invasive treatments for this disease.[2]

Smoking is a major health problem. Overall prevalence of smoking is in a local study was reported to be 15.2%. [4]

Leading preventable cause of death in the United States is the disease resulting from smoking.[5] All cause mortality is directly proportional to the pack years of smoking and per day cigarette smoking.[2] Smokers encounter 80 to 90% greater risk of death from any cause as compared to non smokers.[6]

Constituents of cigarette smoke include nicotine, carbon monoxide and other gases.[7] Smoking disturbs the lipid profile, (increases triglycerides and reduces high-density lipoproteins) and produces a hypercoagulable state through different mechanisms.[8] Cigarette smoke also has a causal relationship with certain cancers like Lung cancer.[9-11] Studies suggest that smoking increases the risk of malignancies of cervix, oropharynx, urinary bladder and liver.[12]

Smokers have a two to four times greater risk of dying from CHD as compared to nonsmokers. [13] We can improve health if we can increase the number of smokers ready to quit smoking. Invasive Cardiovascular procedures for treating CHD like CABG and PCI have increased the risk of some complications.[14, 15] PCI is associated with death risk of 0.5% to 3.5% per year.[16] Smoking is associated with increased risk of a Myocardial Infarction following cardiovascular (CV) intervention, though the mechanism remains unknown.[14, 17] invasively treated patients may have a false perception of cure.[18]

Some men and women consider them respon-

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sible for relapse of their disease after PCI because they restarted smoking.[19] suffering an MI is a predictor of smoking cessation. Invasive cardiovascular procedures may also have a similar effect. [20]

Secondary prevention means risk reduction in patients who already have CHD.[21] Prevention and control of CHD both have a role in promoting health of a community.[22] To decrease the number of recurrent events is a main concern in preventive cardiology.[22] Lifestyle changes are a major part of secondary prevention.[23] Health care provider and patient both are responsible for risk reduction. [24]

American Heart Association and the American College of Cardiology, like other such organizations, have made guidelines for smoking cessation and other life style changes in this regard.[25, 26] The AHA "Get with the Guidelines" program helps hospitals to implement these guidelines for secondary prevention.[27] The AHA/ACC guidelines for secondary prevention of CHD recommend perfect smoking cessation, hypertension control, optimal treatment of dyslipidemia, physical activity, control of diabetes mellitus and CV preventive medications. [17, 28]

One study of patients suffering an acute MI (N= 372) showed smoking cessation was associated with a 66% reduction in all cause mortality, but not all patients were counseled to stop smoking.[23]

The results about smoking cessation with advice are contradictory. A study reports a brief advice –as brief as half a minute- can achieve smoking cessation in 40% of the patients,[29] while another research promotes that advice has a small impact on smoking cessation rates.[30] Cessation of cigarette smoking is a difficult challenge for the patient after PCI; (63%) continued to smoke in a trial of 200 patients. In another study conducted in china 77.4% tried to quit smoking while 55.4% succeed.[31]

The objective of this study is to see the frequency of smoking cessation after counseling for it in post PCI patients.

MATERIAL AND METHODS:

This study was conducted at Punjab Institute of cardiology Lahore from 1st of December 2013 to 30th June 2014. A total of 568 PCIs were done during this period. Out of them, 150 patients from both genders were smokers and were included in the study; unwilling patients and those suffering from Interstitial Lung Disease were excluded. Baseline parameters were recorded including age, sex, smoking status, risk factors and presentation mode. At the time of discharge after PCI, all the patients were given advice regarding the hazards of smoking on their stents and the overall disease process; current smoking status was noted in the form of pack years of smoking. Patients were recalled 3 months after the procedure for follow up and they were given a questionnaire regarding their smoking habit within the period since PCI. The data collected was subjected to analysis using SPSS version 12. In descriptive analysis, frequencies and percentages were calculated for qualitative variables like gender and smoking cessation. Mean+ Standard Deviation was calculated for age.

RESULTS:

Out of 150 patients studied, 131 (87.3%) were males and 19 (12.7%) were females. Overall mean age was 54.42±11.99; range 20 to 80 years. Frequency of different age groups is shown in Table 1.

Distribution of coronary risk factors among men and women is shown in Table 2.

According to smoking habits, maximum number

Table 1: Distribution of study population according to different age groups.

Age group (years)	Frequency	Percentage
20-40	14	9.3%
40-49	29	19.3%
50-59	51	34%
60-69	41	27.3%
70-79	15	10%
Total / 20-80	150	100%

Table 2: Coronary risk factors other than smoking in study population

Variables	Male n (%)	Female n (%)	Total n (%)
Diabetes	46(35.11)	7 (36.84)	53 (35.33)
Hypertention	47(35.87)	6(31.58)	53 (35.33)
Dyslipidemia	53(40.46)	8(42.11)	61 (40.67)
Family History	35 (26.72)	5 (26.31)	40 (26.67)

Table 3: Study population grouped on the basis of magnitude of smoking and behavior after PCI.

Pack Year	Tried to quit		Total
	Yes	No	
1-5	74 (78.7%)	43(76.8%)	117 (78.0%)
6-10	11 (11.7%)	8 (14.3%)	19 (12.7%)
>10	9 (9.6%)	5 (8.9%)	14(9.3%)
Total	94(100.0%)	56 (100.0%)	150 (100.0%)

Table 4: Initial presentation of the patients and smoking cessation after PCI

Presentation	Total Patients n =150	Smoking Cessation n=73
Acute Myocardial Infarction- n (%)	40 (26.66%)	25 (16.67%)
NSTEMI- n (%)	32 (21.33%)	22 (14.67%)
Unstable Angina- n (%)	52 (34.66%)	14 (9.33%)
Stable Angina- n (%)	26 (17.33%)	12 (8.0%)

Table 5: Patients who tried and achieved smoking Cessation.

Gender	Tried to quit-n (%)	Achieved cessation- n (%)
Male (131)	78 (59.5)	60 (45.8)
Female (19)	16 (84.2)	13 (68.4)

of patients had smoked 1 to5 pack years. Ninety four patients (63%) tried to quit smoking and 56 (37%) did not. Seventy three (49%) patients succeeded in their effort to quit smoking. It was further observed that more than 75% of the patients who tried to quit smoking were those who smoked less (1-5 pack years), Table 3.

Unstable angina was the mode of presentation in 52 (34.66%) patients followed in that order by STEMI, NSTEMI and chronic stable angina. It was further noticed that patients who suffered STEMI had maximum chances of smoking cessation, Table 4.

Another observation was that women tried more to quit smoking and were more likely to achieve this goal, Tables 5.

DISCUSSION

This study adds to the limited body of literature related to the smoking behaviors of the patients following Percutaneous Coronary Intervention (PCI). It revealed that about two third of the smokers who underwent PCI tried to comply with the advice on smoking cessation and about half of the patients succeeded meet this target. Smoking cessation behaviors have been a subject of several studies but no study was found in the available literature on Asian population especially in Pakistan.

Smokers who are hospitalized for PCI should be encouraged to quit smoking after discharge. [33] Secondary prevention of coronary artery disease is of utmost importance for reducing the risk of Major Adverse Cardiac Events (MACE) in future and after PCI [34]. In the United States, 25% of patients who undergo PCI are active smokers. Smokers may require frequent revascularization procedures after PCI as compared to nonsmokers[22]. Other studies have reported either no significant relationship between smoking and restenosis or higher rates of repeat revascularization in smokers.[35]

The results of smoking cessation with counseling and advice are contradictory. Cessation of cigarette smoking is a difficult challenge for the patient after PCI; in a study 63% continued to smoke. In another study on Chinese subjects, 77.4% tried to quit smoking while 55.4% succeed. [31]

The mean age in our study was 54.42±11.99 years. In a Chinese study[31], the mean age of the patient was 60 years which shows relatively earlier onset of ischemic heart disease (IHD) in Pakistani smokers. One explanation may be that our patients start smoking at a younger age. Age group of fifties, 51 (34%), was represented maximally in this study. Efforts should be directed on smokers of this age group for screening of IHD. There is no comprehensive policy on the education regarding hazardous effects of smoking on the health of an individual. There is need to launch a massive antismoking campaign at Government level on electronic and print media to educate the masses about its deleterious effects.

We found that in this group of smokers males outnumbered, 131 (87.3%) versus 19 (12.7%). In 2005, prevalence of female smokers was 10.5 % in Pakistan which reflects an increased tendency to smoke in females [35]. About a quarter of the females who underwent PCI were smokers in USA.[36] The major portion of the study population remains the male that reinforces the finding of different studies that males are more likely to smoke. Thus males should be advised on smoking cessation with greater emphasis.

As far as other risk factors of IHD are concerned, dyslipidemia was the most frequent risk factor. There is a strong correlation of smoking and hyperlipidemia and it may point towards a cause and effect relationship. Smokers with IHD should have regular testing of their lipid profile. We observed an equal prevalence of diabetes and hypertension.

Main focus of the study was to identify the frequency of smoking cessation after smoking cessation advice in patients undergoing PCI. This study showed that 94 (62.7%) patient responded to smoking cessation advice and those who tried to quit smoking among them 48.67% were successful. These numbers are less as compared to another study[31] which showed that 55.4% patients were successful in their efforts to stop smoking. A study recently conducted in China which reported that 32.6 % of study population did not try to quit smoking. [31]

Another interesting finding was that females (68.42%) responded well to smoking cessation advice as compared to the male (45.80%) population. Another finding was that smokers have greater chances of presenting with unstable angina, 52 (34.66%).This finding is most likely due to the fact

that smoking is related to endothelial damage and dysfunction which leads to diffuse coronary artery disease and thus unstable angina was mode of presentation in majority of these patients.

It was worth noting that most of the patients had less than 5 pack year smoking history 62 (41.33%).It was also noticed that less pack years of smoking was associated with maximum cessation rate (74%). It means that the greater pack years are associated with more resistance to smoking cessation.

When smoking cessation data was analyzed in relation to the mode of presentation, the patients who presented with Acute STEMI [25 (16.67%)] and NSTEMI [22 (14.67%)] had greater percentage of smoking cessation. This might be due to the fact that the severity of symptoms plays an important role in the future life style modification and smoking cessation attempts by the patient. This result of our study is comparable with a study conducted in Japan. [37]

CONCLUSION:

We conclude that more emphatic and effective means should be discovered to improve the likelihood of smoking cessation after interventional treatments.

Author's Contribution

ZH: Conducted the study and wrote the article. IW: Re-analyzed data, reviewed and corrected the article.MH: Helped in conducting the study and was research coordinator

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