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# COUNSELLING PATIENTS WITH ACUTE CORONARY SYNDROME FOR SMOKING CESSATION

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**Abstract:**

***Background:*** *It is an established fact that cigarette smoking has been associated with long-term cardiovascular diseases. Today it is a major risk factor for all manifestations of coronary artery disease, stroke, and peripheral vascular disease. Acute coronary syndrome patients, who quit smoking, reduce their risk of cardiovascular disease as compared to patients who don't. We undertook this study to determine the frequency of smoking cessation after counselling in patients of acute coronary syndrome (ACS).*

***Methods:*** *Patients of both genders between 35–80 years diagnosed with Acute coronary syndrome enrolled in emergency within 12 hours of presenting with symptoms, had a history of smoking (less than 1pack year for >5 years) were included in the study. 225 patients were enrolled in the study in emergency of Services hospital, Lahore for the duration of six months with their informed consent. We collected the data regarding their demographic information. Patients had counselling session with researchers in presence of psychiatrist from Department of Psychiatry, Services hospital, Lahore. All patients were admitted in ward and received standard in-hospital smoking cessation care which consisted of an assessment and a personalized brief advice to quit smoking. A 12-week follow-up was undertaken consisting weekly visits, included counselling for smoking cessation. Patients were assessed after 12 weeks for cessation of smoking.*

***Results:*** *Only 37 (16.4%) in ACS patients showed smoking cessation. Patients >65 years of age showed highest cessation rate, i.e., 35.1%. Patients having BMI <30 (70.3%) showed the highest cessation rate, Factors such as low socioeconomic status (45.9%) and educational status as under matric (40.5%) were not associated significantly with smoking cessation in patients who presented with ACS.*

***Conclusion:*** *The results of this study suggest low frequency of smoking cessation among patients with ACS. However, we found that there is a dire need to identify factors that are responsible for failure in smoking cessation.*

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## INTRODUCTION:

Cardiovascular disease is the leading cause of death and the second largest source of healthcare costs.[1] A third of cardiovascular disease mortality and hospital admissions are caused by coronary heart disease.[2] The pathologic process leading to coronary artery disease begins early in life, though the clinical consequences of atherosclerosis are apparent mainly in older adults. Smoking seems to be the most important risk factor for myocardial infarction events among young individuals. In fact, active and passive smokers are exposed to a wide range of substances with a potential impact on atherogenesis.[3]

Smoking cessation after a first coronary event such as a myocardial infarction significantly reduces the risk of mortality, hospitalization rates and reoccurrence. Over half of those patients who were smokers prior to hospitalization for coronary heart disease continue smoking after hospital discharge.[4]

Cardiac patients who continue smoking after hospitalization are characterized as highly dependent smokers with no or low future intentions to quit.[5] Earlier studies suggest that providing a brief cessation support are not as effective in helping cardiac patients to permanent smoking cessation.

Therefore, more intensive smoking cessation interventions are needed for this patient group. Interventions for smoking cessation in hospitalized smokers have been positively proven to increase rates of cessation in general.[1] Continued smoking after presenting with symptoms of acute coronary syndromes is associated with increased mortality, and counselling interventions should be integrated into the post- discharge support to reduce the negative effects of smoking resumption.[6]

One study conducted in Spain, has reported that the smoking cessation was observed in 61.9% cases.[7] Another study conducted in Czech, Central Europe showed that about 57.9% cases quit smoking after counselling.[8] A study conducted in Netherland, Europe, showed that about 30.8% cases quit smoking after counselling.[9] Another study conducted in Boston, USA showed that about 28.9% cases quit smoking after counselling.[10] Chouinard et al also reported that about 24.5% cases quit smoking after counselling.[11]

However, one study conducted in USA, showed that only 10% cases quit smoking after counselling.[12] And one more study conducted in Newcastle, Australia also supported the evidence and reported that only 7.7% cases quit smoking after counselling.[13]

Rationale of this study is to determine the frequency of smoking cessation after counselling in patients presenting with acute coronary syndrome. The research work conducted in Western countries or say in developed countries showed that there are high chances of smoking cessation after counselling in cardiac patients. However, in some countries the smoking cessation after counselling was low. Moreover, the previously reported data has also controversy. Unfortunately, there is no local evidence available in literature which showed that how much counselling is effective in a developing country like Pakistan. Through this study we want to get the local estimates, so that in future we may be able to implement the results of this study and implement the post-ACS counselling sessions during follow-up visits to prevent the patients from hazardous effects of smoking particularly after ACS. This will improve our practice as well as will also decrease the number of patients with repeat ACS.

## MATERIAL AND METHODS:

This Descriptive case study was conducted in Services hospital, Lahore from 3rd August 2016 to 2nd Feb 2017. Sample size of 225 cases is calculated with 95% confidence level, 3.5% margin of error and taking expected percentage of smoking cessation, i.e., 7.7% in patients presenting with acute coronary syndrome. Non-Probability, Consecutive Sampling technique was employed.

Patients included in this study aged between 35–80 years of both genders, upon their arrival in the emergency they presented with Acute coronary syndrome within 12 hours of symptom presence. All patients had a history of smoking (>1 pack year for >5 years). Patients who did not agree to take part in study or part of counselling sessions, Patients addict to alcohol or pan chewing or addicted to narcotics and Patients with diagnosis of psychological problem (on medical record and clinical evaluation) were excluded.

A total of 225 patients who fulfilled the selection criteria were enrolled in the study from emergency of PIC, Lahore. Informed consent was obtained from all patients. Their demographic information (name, age, gender, type of acute coronary syndrome, socioeconomic status, Education and contact number) was also noted. Then patients underwent counselling sessions with researcher himself in presence of psychiatrist from Department of Psychiatry, Services hospital, Lahore. After admitting patients in ward, patients received standard in-hospital treatment for smoking cessation which consisted of an assessment of their smoking behavior and a personalized brief quit advice. Then patients were followed-up for 12 weeks. Patients were counselled for smoking cessation on their weekly

visits to the hospital and after 12 weeks, patients were assessed for cessation of smoking. The data collection and analysis were done via SPSS version 21. Quantitative variables like age and BMI was calculated in form of mean ±S.D. Qualitative variables like gender, type of ACS, SES, education and smoking cessation was calculated in form of frequency and percentage. Data were stratified for age, BMI, gender, SES, education and type of ACS. Post-stratification, chi-square test was applied to compare frequency of smoking cessation in stratified groups. *p*-value ≤0.05 was considered as significant.

## RESULTS:

Mean age of patients was 58.12±12.91 years. Minimum and max age of patients was 35 and 80 years respectively. There were 219 (97.3%) male and 6 (2.7%) female patients included in the study. Mean body mass index of patients was 27.09±4.29. Socioeconomic status of 78 (34.7%) patients was low, 65 (28.9%) patients socioeconomic status was middle and 82 (36.4%) patients belong to high socioeconomic status. As per education status of patients 69 (30.7%) were uneducated, 58 (25.8%) were under matric, 59 (26.2%) were graduate and 39 (17.3%) were post graduate. Unstable angina was seen in 65 (28.9%) patients, 78 (34.7%) patients presented with STEMI and 82(36.4%) patients presented with NSTEMI. Smoking cessation was seen in 37 (16.4%) patients. Smoking cessation and age of patients did not show statistically significant association with each other, i.e., *p*-value = 0.897 (Table-1). Smoking cessation was higher among female patients as compared to males and it was statistically significant, i.e., *p*-value = 0.001). Patients whose BMI was <30 among frequency of Smoking cessation was higher than that of patients with BMI ≥30. However, BMI of patients and Smoking cessation did not show any statistically significant association with each other, i.e., *p*-value =0.902 Socioeconomic status of patient and Smoking cessation did not show statistically significant association with each other, i.e., *p*-value = 0.252.

Highest frequency for Smoking cessation was seen in patients whose education status was under matric (40.5%) followed by patients who were uneducated (35.1%) and then graduates (13.5%) and the lowest frequency for Smoking cessation was see among patients who were post graduates. (10.8%). As per this trend frequency for Smoking cessation was significantly higher among patients whose education status was lower, i.e., *p*-value =0.049**.** No statistically significant association was seen between ACS type and smoking cessation, i.e., *p*-value=0.846.

**Table-1: Smoking cessation in relation to age, gender, BMI, socioeconomic status, education status of patients and ACS type**

| **Smoking cessation in relation to age of patients** | | | **Chi-Square Test=** 0.595 | |
|---|---|---|---|---|
| **Age** | **Smoking Cessation** | | **Total** | ***p*-value** |
| | **Yes** | **No** | | |
| 35–45 | 9 (24.3%) | 39 (20.7%) | **48** | 0.897 |
| 46–55 | 7 (18.9%) | 41 (21.8%) | **48** | |
| 56–65 | 8 (21.6%) | 48 (25.5%) | **56** | |
| >65 | 13 (35.1%) | 60 (31.9%) | **73** | |
| **Total** | **37** | **188** | **225** | |
| **Smoking Cessation in relation to gender of patients** | | | **Chi-Square Test=** 11.316 | |
| Gender | **Smoking Cessation** | | **Total** | 0.001 |
| | **Yes** | **No** | | |
| Male | 33 (15.1%) | 186 (84.9%) | **37** | |
| Female | 4 (66.7%) | 2 (33.3%) | **188** | |
| Total | **219** | **6** | **225** | |
| **Smoking Cessation in relation to BMI of patients** | | | **Chi-Square Test=** 0.015 | |
| **BMI** | **Smoking Cessation** | | **Total** | 0.902 |
| | **Yes** | **No** | | |
| ≥30 | 11 (29.7%) | 54 (28.7%) | **65** | |
| <30 | 26 (70.3%) | 134 (71.3%) | **160** | |
| Total | **37** | **188** | **225** | |
| **Smoking Cessation in relation to socioeconomic status of patients** | | | **Chi-Square Test=** 2.756 | |

| SES | Smoking Cessation | | Total | |
|---|---|---|---|---|
| | Yes | No | | |
| Low | 17 (45.9%) | 61 (32.4%) | **78** | 0.252 |
| Middle | 10 (27%) | 55 (29.3%) | **65** | |
| High | 10 (27%) | 72 (38.3%) | **82** | |
| Total | **37** | **188** | **225** | |
| **Smoking Cessation in relation to educational status of patients** | | | **Chi-Square Test=** 7.846 | |
| **Education** | **Smoking Cessation** | | **Total** | |
| | **Yes** | **No** | | |
| Uneducated | 13 (35.1%) | 56 (29.8%) | **69** | 0.049 |
| Under Matric | 15 (40.5%) | 43 (22.9%) | **58** | |
| Graduate | 5 (13.5%) | 54 (28.7%) | **59** | |
| Post Graduate | 4 (10.8%) | 35 (18.6%) | **39** | |
| Total | **37** | **188** | **225** | |
| **Smoking Cessation in relation to ACS type** | | | **Chi-Square Test=** 0.335 | |
| **ACS Type** | **Smoking Cessation** | | **Total** | |
| | **Yes** | **No** | | |
| UA | 11 (29.7%) | 54 (28.7%) | **65** | 0.846 |
| STEMI | 14 (37.8%) | 64 (34%) | **78** | |
| NSTEMI | 12 (32.4%) | 70 (37.2%) | **82** | |
| Total | **37** | **188** | **225** | |

## DISCUSSION:

Not only in primary, but also in secondary prevention smoking cessation is highly relevant. Patients with ACS who quit smoking, reduce their risk of cardiovascular events immediately and significantly when compared to those who continue smoking.[14,15]

Complete cessation of active tobacco smoking is associated with a significant 30–40% reduction in the relative risk of death after ACS.[16] In light of these major benefits, active in-hospital and post-discharge interventions are currently recommended to assist smokers in quitting after ACS.[17] However, smoking cessation interventions appear to be largely underutilized in cardiovascular institutions providing acute care to ACS patients.[18] As a consequence, smoking relapse rates among smokers who have become abstinent during an admission for ACS may exceed 60% at 12 months from discharge.[6]

Furio Colivicchi from Italy in his study reported that that most of cardiology units fail to provide recommended smoking care interventions to ACS patients. In particular, brief smoking cessation advice before discharge represents the only systematically implemented approach in clinical practice (22 units; 100%).[19]

In this study smoking cessation was seen in only 37 (16.4%) patients who presented with ACS. Highest frequency of smoking cessation was seen in patients who were >65 years of age, i.e., 35.1%.In this study, we also found 6 smoker females and among them 4 females out of 6 (66.7%) had smoking cessation which was significantly higher than males. Patients whose BMI was <30 (70.3%), patients with low socioeconomic status (45.9%) and patients with educational status as under matric (40.5%). None of these factors were significantly associated with smoking cessation in patients who presented with ACS.

Bolamn *et al*[20] and Hajek *et al*[21] who assessed the effect of a minimal smoking cessation intervention on patients with cardiovascular disease during their hospitalization period; these authors reported that the intervention had been unable to maintain abstinence from smoking at 12 months after discharge from hospital.

A Cochrane review concludes that patients admitted for cardiovascular disease are more receptive to smoking cessation interventions, probably due to their perception of the seriousness of their condition.[22] One study conducted in Spain, has reported that the smoking cessation was observed in 61.9% cases.[7] Another study conducted in Czech, Central Europe showed that about 57.9% cases quit smoking after counselling.[8] Frequency of smoking cessation in this study was quite lower as that of mentioned in the above studies. This difference can be explained on the basis of the interventional programs used for counselling of the patients for smoking cessation.

Increased quitting rates are perhaps to be found in studies where more attention is given to enhance the patient's readiness to quit smoking. Furthermore, it was believed that studies that offer a combination of smoking cessation interventions to cardiovascular patients may be more successful.

However, in our country there is no proper set up for

counselling services as well as different interventions in hospitals. It's a common practice of doctors to verbally advice the patients for smoking cessation without any proper follow up by the patients.

There are certain studies from developed countries who reported lower frequency for smoking cessation in cardiac patients.[11] However, one study conducted in USA, showed that only 10% cases quit smoking after counselling.[12] And one more study conducted in Newcastle, Australia also supported the evidence and reported that only 7.7% cases quit smoking after counselling.[13]

As indicated by the earlier studies in general populations of smokers, low SES groups profited most from high intensity face-to-face interventions.[23] Studies have shown that individuals with a lower SES have a less favourable profile towards smoking than high SES patients due to a lower self-efficacy towards non- smoking, a less favourable social environment, lesssocial support, and more stress and negative affect leading to fewer successful quit attempts.[24] Moreover, smokers with a low SES have been found to profit least from cessation methods due to, among other reasons, a lack of motivation to quit.[25,26] Studies therefore suggest the need for relatively intensive interventions for these groups.[23] In contrast, smokers with a high SES are recognized as more successful in quitting due to a higher intention to quit and may therefore profit sufficiently from somewhat less intensive interventions.

In this study, highest frequency of smoking cessation was found in patients with low socioeconomic status. This finding is quite interesting and contradicts the above-mentioned findings from different studies.

The absence of clearly effective smoking cessation treatments during hospitalization has led to research being promoted in this area, and a number of articles have now been published on the impact of different interventions and the factors that predict continued abstinence from smoking. Efforts to encourage and support smokers to quit are critical to prevent premature smoking-associated morbidity and mortality. Hospital settings are seldom equipped to help patients to quit smoking thus missing out a valuable opportunity to support patients at risk of smoking complications. Despite the availability of such interventions, smoking cessation remains a significant challenge to many individuals at risk. Previous studies have shown a significant impact of inpatient smoking cessation programs on patients with ACS. Smoking cessation (self-reported) was achieved in 46% of patients at 6 months after myocardial infarction (MI), with greater odds of cessation for those offered inpatient smoking cessation services.[18]
Limitation of our study was that patients who resume smoking after initial quilting after 12 weeks couldn't be accounted for.

## CONCLUSION:

We observed low frequency of smoking cessation in patients with acute coronary syndrome There is a strong need to identify those factors that were associated with failure to reduce smoking. Services leading to smoking cessation interventions are helpful and urgently needed as a secondary prevention for cardiovascular disease.

## AUTHORS' CONTRIBUTION

MAA: Main paper writing and data collection. SM: Paper writing, discussion. KA: Statistical analysis.

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