Title: Association of smoking with Acute Myocardial Infarction and clinical outcomes in cosmopolitan population of Makkah

Category: Prevention

Abstract

Background: Smoking is a strong risk factor for cardiovascular disease with its effects on atherogenesis, thrombosis and vasomotion. We aimed to assess the association of smoking with other cardiovascular risk factors and its effect on clinical outcomes after acute myocardial infarction (AMI).

Method: This is a retrospective single center study at a King Abdullah Medical City in Makkah, which is the only tertiary cardiac service in Makkah. All patients with AMI between 2015 and 2018 for whom smoking status was recorded were included and data were collected from case notes and electronic records. Data are presented as mean ± standard deviation for continuous data and percentages for categorical variables. Univariate analysis were done using t-test or chi-squared test for continuous and categorical data respectively.

Result: Out of 1554 AMI patients included in this study, more than one-third (n=588, 38%) were current smokers. 30% of Pilgrims and 51% of residents with AMI were smokers. According to ethnicity, 50% of Arab patients and 35% of South Asian patients with AMI were smokers. Smokers were predominantly males (98.1%) and had AMI at younger age than non-smokers (53.6±10.8 vs. 59.6±11.3, $p<0.001$), despite having lesser prevalence of diabetes mellitus (50.7% vs. 58.4%, $p=0.013$) and hypertension (52.0% vs. 62.5%, $p<0.001$). Smokers had higher incidence of multi-vessel disease (18.4% vs 13.3%, $p=0.005$). Smokers were also more likely to have ST elevation MI and higher incidence of complications at presentation including pulmonary edema (3.4% vs 0.9%, $p=0.001$) and cardiac arrest (5.3% vs 3.1%, $p=0.042$). Smokers had a trend towards higher in-hospital mortality (4.0% vs 2.4%, $p=0.08$).

Conclusion: Smokers get heart attack at a younger age than non-smokers and have more complication and worse outcomes. Public health education to raise awareness of hazards of smoking and interventions to help smokers quit smoking are warranted.

Variable	Smoker %	Nonsmoker %	P value
Total 1554	558, 38%	996, 62%	
Age	53.57+-10.9	58.6+-11.6	< 0.001
Gender	M =98.1% , F =1.9%	M=77%, F=23%	< 0.000
Pilgrim	P=30%, R=51%	P=35% ,R=65%	<0.000
Middle East	ME=50.2%, O=49.8%	ME=56.5%,O=43.4 %	<0.000
South Asian	S=35%, O=65%	S=32%, O=67%	<0.000
DM2	50.7 %	58.4 %	< 0.013
HTN	52%	60.1 %	< 0.001

STEMI	94%	88%	< 0.000
Pulmonary Edema	3.4 %	0.9 %	< 0.001
Cardiac Arrest	5.3%	3.1 %	<0.042
MVD	18.4%	13.3%	< 0.005
COPD	1.2 %	1.3 %	NS