International Journal of Advanced Community Medicine

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Assessment of outcomes of smoking cessation after ischemic heart diseases

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Abstract
Background: Smoking is strongly associated with coronary heart disease, many patients continue or resume smoking after being diagnosed with coronary heart disease. The present study was conducted to assess the outcomes of smoking cessation after ischemic heart diseases.
Materials and Methods: 76 smokers who had stroke of both genders was divided into 2 groups. Group I was quitted smokers and group II was present/continued smokers. The subjects were followed for 1 year at the interval of 3 months, 6 months, and 12 months. Risk of outcomes for stroke, MI, and mortality depending on the smoking state was recorded.
Results: Group I had 23 males and 15 females and group II had 24 males and 14 females. Outcome at baseline in group I and group II was MI seen in 35% and 34%, at 3 months in 38% and 35%, at 6 months was 40% and 37% and at 12 months in 41% and 48%. Stroke at baseline in 16% and 13%, at 3 months in 18.4% and 15%, at 6 months in 20.6% and 20.7% and at 12 months in 21.4% and 27.5%. At baseline was death seen in 10% and 14%, at 3 months in 13% and 19% and at 6 months in 17.5% and 21% and at 12 months in 19% and 24% in group I and II respectively. The difference was significant ($P< 0.05$).
Conclusion: Smoking cessation has positive outcomes in subjects after ischemic heart diseases in terms of reduced risk of developing future diseases like MI and stroke significantly.

Keywords: Smoking, myocardial infarction, stroke

Introduction

Smoking is strongly associated with coronary heart disease, many patients continue or resume smoking after being diagnosed with coronary heart disease and even after an important event such as a myocardial infarction, angioplasty or coronary bypass surgery [1]. The evidence that smoking causes cardiovascular disease and new events in patients with coronary heart disease, among other serious disorders such as lung cancer and emphysema, justifies the promotion of smoking cessation. All recommendations on the prevention of coronary heart disease emphasize the importance of smoking cessation in the reduction of the risk of coronary death and non-fatal coronary events [2].

Tobacco alone is documented to be the reason for approximately 12% to 15% of the stroke patients reported to medical care [3]. Tobacco is largely consumed in the smoke from, and hence smoking is one of the major etiological factors for stroke. Also, smoking can be stopped making it a preventable factor in stroke patients [4]. Apart from stroke, smoking is associated with various other health hazards including lung carcinomas, chronic obstructive pulmonary disease, peripheral artery diseases, and carcinomas of the urinary bladder. Inspite the documented role of smoking in various life-threatening diseases, it still is prevalent in approximately 21% adults [5]. The present study was conducted to assess the outcomes of smoking cessation after ischemic heart diseases.

Materials and Methods

The present study comprised of 76 smokers who had stroke of both genders. The consent was obtained from all enrolled patients.
Data such as name, age, gender etc. was recorded. Smoking status was recorded followed by physical examination Smoking status was divided into 2 groups. Group I was quitted smokers and group II was present/continued smokers.

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The subjects were followed for 1 year at the interval of 3 months, 6 months, and 12 months. Risk of outcomes for stroke, MI, and mortality depending on the smoking state was recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table 1: Distribution of patients

| Groups	Group I	Group II
Status	Quitted smokers	Continued smokers
M:F	23:15	24:14

Table 1 shows that group I had 23 males and 15 females and group II had 24 males and 14 females.

Table 2: Assessment of outcome in groups

Outcome	Time interval	Group I	Group II	P value
MI	Baseline	35%	34%	0.05
	3 months	38%	35%	
	6 months	40%	37%	
	12 months	41%	48%	
Stroke	Baseline	16%	13%	0.04
	3 months	18.4%	15%	
	6 months	20.6%	20.7%	
	12 months	21.4%	27.5%	
Death	Baseline	10%	14%	0.05
	3 months	13%	19%	
	6 months	17.5%	21%	
	12 months	19%	24%	

Table 2, graph I shows that outcome at baseline in group I and group II was MI seen in 35% and 34%, at 3 months in 38% and 35%, at 6 months was 40% and 37% and at 12 months in 41% and 48%. Stroke at baseline in 16% and 13%, at 3 months in 18.4% and 15%, at 6 months in 20.6% and 20.7% and at 12 months in 21.4% and 27.5%. At baseline was death seen in 10% and 14%, at 3 months in 13% and 19% and at 6 months in 17.5% and 21% and at 12 months in 19% and 24% in group I and II respectively. The difference was significant (*P*< 0.05).
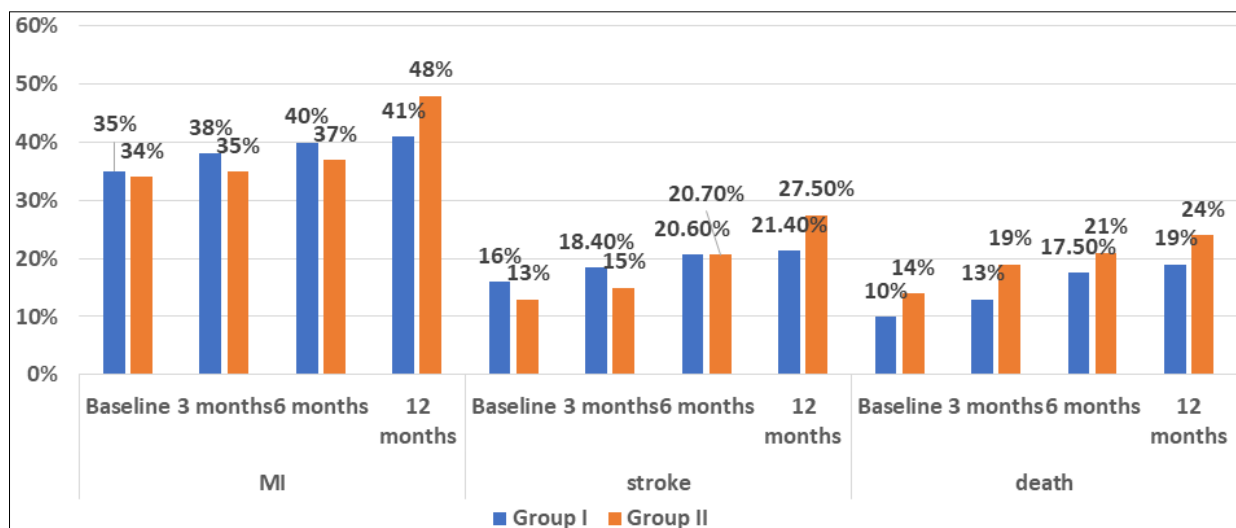
Graph 1: Assessment of outcome in groups

Discussion

Cigarette smoking causes significant exposure to nicotine, which increases heart rate, blood pressure, and thus myocardial oxygen demand, and to carbon monoxide, which decreases the oxygen-carrying capacity of the blood because of carboxyhemoglobin formation [6]. Cigarette smoking also predisposes the patient to coronary vasoconstriction [7]. Smoking cessation results in the early elimination of nicotine and carbon monoxide from the system and decreases the risks of ischemia based on these mechanisms [8]. It is observed that smoking cessation results in elimination of the increased risk of myocardial infarction in patients without previous heart disease as early as 2 years after smoking stops [9]. For patients with known coronary artery disease, smoking cessation results in an increase in HDL level, which may result in a retardation of atherogenesis and reduced cardiovascular morbidity and mortality [10]. It is important for all physicians to reiterate both the short- and long-term risks of cigarette smoking as well as the good news-that smoking cessation results in a substantial, if not complete, reversal of the risk of myocardial infarction and death, particularly for patients with established coronary artery disease [11]. The present study was conducted to assess the outcomes of smoking cessation after ischemic heart diseases.

We observed that group I had 23 males and 15 females and

group II had 24 males and 14 females. Kumar *et al*. [12]. in their study 120 smokers or quitted smoking subjects who were followed for 1 year at the interval of 3 months, 6 months, and 12 months. Following parameters were assessed at all the recall intervals: Risk of outcomes for stroke, MI, and mortality depending on the smoking state, and reason for mortality in deceased. All the collected were subjected to statistical evaluation (95% Confidence Interval). After the ischemic disease episode, out of the included 120 subjects 40% (n=48) quitted smoking whereas 60% (n=72) continued smoking after ischemic heart disease. It was seen that for MI there was significantly more risk in continued smokers at all the time intervals with the p-value of < 0.0001. Concerning stroke similar results were seen 0.0002, 0.0116, 0.0023, and < 0.0001 respectively at consecutive recalls. Regarding death, significantly lesser deaths were seen in the quitters. In deceased subjects, it was seen that the highest number of death was reported by cardiovascular diseases in continued smokers.

We found that outcome at baseline in group I and group II was MI seen in 35% and 34%, at 3 months in 38% and 35%, at 6 months was 40% and 37% and at 12 months in 41% and 48%. Stroke at baseline in 16% and 13%, at 3 months in 18.4% and 15%, at 6 months in 20.6% and 20.7% and at 12 months in 21.4% and 27.5%. At baseline was death seen in 10% and 14%, at 3 months in 13% and 19% and at 6 months in 17.5% and 21% and at 12 months in 19% and 24% in group I and II respectively. Alvarez LR *et al*. [13] evaluated smoking cessation effects on subjects after cerebrovascular diseases on 135 subjects who continued smoking and 105 smoking quitters and reported a reduction (non-significant) in mortality of quitters after 14 months. The present study was not per mentioned study as the difference in mortality was significant between smokers and non-smokers at baseline, 3 months, 6 months, and 12 months with the p-value of< 0.0001 at all the time-intervals.

Conclusion
Authors found that smoking cessation has positive outcomes in subjects after ischemic heart diseases in terms of reduced risk of developing future diseases such as MI and stroke significantly.

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