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Use of Smokeless Tobacco Among Young Patients With Acute Ischemic Stroke

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ABSTRACT

To determine the frequency of smokeless tobacco use among young patients with acute ischemic stroke.

METHODS: This cross sectional study was conducted from April to September 2015 at emergency department of Aga Khan university. A total of 135 patients presented with signs and symptoms of acute ischemic stroke were included in this research. Participants were selected through non-probability consecutive sampling technique. SPSS 20 was used for data analysis. A predesigned proforma was filled. It has three parts including Socio-Demographics, Factors for stroke like hypertension, diabetes Mellitus, dyslipidemia, cigarette smoking and History of smokeless tobacco use. Young stroke was defined as patients between 20-49 years of age having symptoms of acute ischemic stroke. Smokeless Tobacco users: An individual taking greater than and equal to 3 packets of anyone among gutka, main puri and pan daily for the last two years, is a smokeless tobacco user.

RESULTS: There were 62.2% male and 37.78% were female. Hypertension (81.5%), diabetes mellitus (75.6%) and dyslipidemia (63%) were observed that were commonly associated with stroke. Smoking habit was observed in 17.04% (23/135) cases. Mean duration of smoking of these patients was 10.22±2.43 years and median number of cigarettes smoked per day was 5 (IQR=2)

Frequency of smokeless chewable tobacco in the form of gutka, main puri and pan daily in the ischemic stroke patients was found to be 28.15% (38/135) cases. Mean duration of smokeless chewable tobacco use was 7.55±2.79 years

CONCLUSION: Frequency of use of chewable tobacco products is high in acute ischemic stroke patients.

KEY WORDS: Acute ischemic stroke, Smokeless tobacco, Cigarette smoking

INTRODUCTION:

Stroke in young has emerged as a major public health problem in Pakistan. Several hospital based studies have revealed relatively high proportion of young stroke.

Tobacco use is a risk factor for atherosclerosis. Stroke-related morbidity stems from the fact that tobacco contains over 4000 different chemicals including heavy metals and other toxins that promote the development of free radicals, inducing vascular endothelial dysfunction and inflammation, ultimately leading to the development and acceleration of the atherosclerotic process. Tobacco also causes the development of a global circulatory procoagulant state thought to be induced by altered hemostatic and inflammatory marker concentrations. It decreases cerebral blood flow, which may further increase the

risk of clot formation and subsequent stroke risk through a slowed flow or stasis phenomenon. Oral and nasal smokeless tobacco products have been used in many countries for centuries. During most of the 20th century, use of these products declined in Europe and North America, but a reverse trend in prevalence of use has been reported in the past few decades, particularly among people younger than 40. [9] Several studies were done to see association between smokeless tobacco use and stroke. Meta-analysis from both the United States and Sweden showed an increased risk of fatal myocardial infarction and fatal stroke among users of smokeless tobacco products compared with non-users. [10]

Two prospective studies of mortality among the use of chewing tobacco [11] done in United States, provide evidence that current use of spit tobacco was statistically significantly associated with death from

coronary heart disease (CHD), stroke, and diseases of the respiratory, digestive, and genitourinary systems, but not with death from cancer. Recent study among the adolescents and adults of Karachi squatter settlement reported that 40% of the population was using at least one chewable product of betel, areca and tobacco on a daily basis.¹⁴

The purpose of this study is to determine the frequency of smokeless tobacco use in acute ischemic stroke in young patients so that strategies can be made for further research in this respect and to improve the quality of care we provide to these patients.

MATERIALS AND METHODS:

This Cross-sectional study was conducted from April to September 2015 in the Aga Khan University Hospital Karachi. The sample size was calculated by using the WHO sample size calculator, taking the frequency of smokeless tobacco in ischemic stroke patient as 22% and margin of error 7% with the confidence interval of 95% than the estimated sample size was 135 patients with acute ischemic stroke.

Sample was collected through non probability consecutive sampling.

Patients age between 20-49 years, both male and female presented to emergency with signs and symptoms of acute ischemic stroke and confirmation of ischemia on MRI brain were included. Those who will have acute stroke due to intra cerebral bleed or subarachnoid hemorrhage were excluded. Also excluded were those who were not willing to participate in the study or transferred out to other hospitals from emergency room.

Informed consent from the patient or attendant was obtained. Patients were recruited, who fulfill the inclusion criteria. A predesigned proforma (attached as annexure) was filled out for each patient consenting to participate in this study. It has three parts including Socio-Demographics, Factors for stroke like hypertension, diabetes Mellitus, dyslipidemia, cigarette smoking and History of smokeless tobacco use.

The collected information was entered in the SPSS version 19 and analyzed through its statistical package. Quantitative variable that is age, duration of cigarette smoking and smokeless tobacco use was presented as mean with standard deviation. Qualitative variables were gender, Hypertension, Diabetes Mellitus, dyslipidemia and outcome variable in ischemic stroke patients that is the presence and absence of history of smokeless tobacco use was calculated in terms of frequency and percentage.

Stratification was done with regards to age, gender, factors predisposing to smokeless tobacco use i.e educational status, occupation, factors of stroke like hypertension/diabetes/dyslipidemia and comparison with the outcome variable i.e. history of smokeless

tobacco use, to control the effect of modifier by applying chi square, taking p value ≤ 0.05 as significant.

RESULTS:

A total of 135 patients presented to ER with signs and symptoms of acute ischemic stroke were included in this research. There were 62.2% male and 37.78% were female. Hypertension (81.5%), diabetes mellitus (75.6%) and dyslipidemia (63%) were observed that were commonly associated with stroke. Smoking habit was observed in 17.04% (23/135) cases. Mean duration of smoking of these patients was 10.22 ± 2.43 years and median number of cigarettes smoked per day was 5 (IQR=2) In this study, frequency of smokeless chewable tobacco in the form of gutka, mainpuri and pan daily in the ischemic stroke patients was found to be 28.15% (38/135) cases. Mean duration of smokeless chewable tobacco use was 7.55 ± 2.79 years. Rate of smokeless chewable tobacco was high in male cases as compare to female cases (35.7% vs. 15.7%)

DISCUSSION:

In Pakistan and South Asian subcontinent, the popular chewing products are paan, chaalia, gutka, niswar and tumbaku^[21]. The composition of these products may vary from one to another but the main ingredients remain betel, areca and tobacco. Paan contains areca nut, betel leaf and calcium hydroxide but tobacco and various other spices are also commonly added^[22]. Industrially prepared mixture of areca nut, lime, catechin containing substance, sandalwood fragrance with tobacco (gutka) or without tobacco (chaalia) were introduced in recent decades, which have contributed to growth and use of these products.^[23] In Pakistan, a recent study among the adolescents and adults of a Karachi squatter settlement reported that 40% of the population was using at least one chewable product of betel, areca and tobacco on daily basis. ^[20, 14]

Among the established vascular risk factors for stroke, hypertension is the single most important modifiable risk factor for both ischemic and hemorrhagic stroke ^[26]. Kamal et al. noted hypertension in 64% of stroke patients in their multiethnic community-based survey ^[27] In our study we found hypertension in 81.5% of stroke patients.

In our study, frequency of smokeless chewable tobacco in the form of gutka, mainpuri and pan daily in the young ischemic stroke patients was found to be 28.15% (38/135). Mean duration of smokeless chewable tobacco use was 7.55 ± 2.79 years. In one study of Pakistan, frequency of chewable tobacco in the form of pan, gutka or supari (locally available forms with areca and betel nut) in the ischemic stroke patients was found to be 22%¹⁵.

CONCLUSION:

Frequency of use of chewable products is high in ischemic stroke patients. Industrially prepared products, chaalia and gutka, are gaining popularity among the youth and it can cause a significant health burden on the community. Strategies can be made for further research in this respect and to improve the quality of care we provide to these patients.

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Author's contribution:
Saba Zaidi; concept, data collection, data analysis, manuscript writing, manuscript review