

## LETTER TO THE EDITOR

### Smokeless Tobacco Use and Ischemic Stroke: A Cross-Sectional Study



*To the Editor:*

The correlation between smoking tobacco and stroke is well established. Recently, a few studies conducted in Swedish and American populations suggested an association between smokeless tobacco (SLT) and stroke.<sup>1</sup> This is a relatively new concept. SLT is used in many different forms worldwide. Naswar, supari, paan, mishri, gutka, bajjar, zarda, and gundi are forms of SLT consumed in South Asia. However, in Europe, snus is the major form of SLT used, and in the Americas the varieties of SLT includes snus, snuff, plug, and chimó.<sup>2</sup> According to a report by the World Health Organization, South Asia and Southeast Asia have the highest prevalence of SLT use.<sup>3</sup> Contrary to the decline in the incidence of the disease in the Western population, stroke is emerging as an epidemic in Pakistan, Bangladesh, India, and Sri Lanka.<sup>4</sup> Frequency of SLT use in patients with ischemic stroke has previously been studied in American and European populations, but there is a lack of data from South Asia, where a different variety of tobacco is used. Through this study, we aimed to determine the frequency of SLT use in patients with ischemic stroke who attended our medical center in South Asia (Pakistan) over a period of 1 year and would like to share our experience with the international community.

#### METHODS

This cross-sectional study was conducted at the Department of Neurology of a tertiary care hospital in Islamabad, Pakistan, between June 2012 and June 2013. The study was conducted in accordance with the Helsinki Declaration and was approved by the Institutional Review Board and Ethics Committee, Shifa International Hospitals Ltd, Islamabad, Pakistan (approval no. 178-027-2012). All patients of either sex, 18 years and older, who were admitted to the neurology ward or came to the neurology outpatient department with the diagnosis of ischemic

stroke (verified by computed tomography scan or magnetic resonance imaging of the brain) were included in the study, after giving written informed consent. Patients with tuberculous meningitis, brain tumor, viral or bacterial encephalitis, multiple sclerosis, or hemorrhagic stroke were excluded from the study. All information, such as demographic profile, type of smokeless tobacco used, smoking status, stroke type, pre-existing medical conditions, and radiological investigations were entered in a structured pro forma. The data were analyzed using SPSS Statistics, Version 10.0. Frequencies and percentages were calculated for quantitative variables and mean  $\pm$  standard deviations were documented for qualitative variables.

#### RESULTS AND DISCUSSION

A total of 260 patients with ischemic stroke were enrolled. Out of them, 168 (64.6%) were men. Mean age of the patients was  $63.5 \pm 12.7$  years. Smokeless tobacco was consumed by 23 of 260 study participants (8.8%). Among them, 22 patients (8.5%) were naswar addicts and only 1 (0.3%) was addicted to supari. Of 23 users of smokeless tobacco, 7 also smoked cigarettes or hooka, however, and 16 patents used tobacco only in smokeless form. Considering the ethnicity of the smokeless tobacco consumers, majority of them were Pathans (60.8%), followed by Punjabis (21.7%), and Kashmiris (13%).

Our study found that about one-tenth of the patients with ischemic stroke abused smokeless tobacco, the majority of whom were Pathans. Naswar was the type of smokeless tobacco used by almost all the tobacco consumers. Naswar is widely used in Pakistan, South Africa, Iran, and Afghanistan and has a different composition compared with snus and other forms of tobacco used in the West.<sup>5</sup> A few studies looked at the correlation between snus and stroke in Western populations; however, none of the studies explored the correlation between naswar and stroke in South Asians or any other ethnic group. Smokeless tobacco consumption is a relatively neglected aspect of tobacco use that might be playing a part in the global burden of stroke. Large prospective multicenter studies should be carried out to find the correlation of different varieties of smokeless tobacco with stroke, especially in the South Asian population.

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