

RISK FACTOR FOR STROKE IN ELDERLY

Genc Nurja¹ and Arsen Seferi²

¹Regional Hospital of Shkodra, Albania

²University Hospital Centre “Mother Teresa”, Tirana, Albania

E-mail: nurjagenc@gmail.com (*Corresponding author*)

Abstract: The prevalence of certain stroke risk factors including diabetes, hypertension, atrial fibrillation, and coronary and peripheral artery disease steadily increases with age. The risk factors are not equivalent in predicting the stroke risk across all age groups. The relative risks of stroke conferred by body mass index, high-density lipoprotein cholesterol, systolic blood pressure, blood glucose, or cigarette smoking declines with increasing age. Nevertheless risk factors often cluster among older adults, thereby, significantly modifying the occurrence of stroke. Emerging evidence indicates that hypertension, diabetes, and obesity may cause structural and functional alterations in the brain beyond their effect on incident stroke. Awareness of these risk factors, their early and effective treatment and adaptation of various preventive measures is warranted.

Keywords: Prevalence, risk factors, stroke, elderly

INTRODUCTION

Low back pain is one of the most common health problems among all the population of the world. Most people experience low back pain at some point of their lives [1]. Although most of the people recover from the pain quickly, the disability which is the result of such pain most often leads to a limited range of activity among the adults, which is only next to arthritis [2].

The prevalence of low back pain has been reported among many people especially when resulting from work related and occupational activities [3]. 75-84% of the general population suffer from low back pain and among them, it is estimated that 5-10% of the people experience LBP resulting in severe morbidity, increased health care costs, sick leaves and individual suffering [4]. It is also one of the common reasons for a person to seek medical help [5].

Men and women are equally reported to be affected by this condition. 50% of adults and 30% of adolescents are said to be affected at least once [6]. Of late, there has been rising incidence of LBP among many young adults and children, which is of concern. 12 Sports and physical activity is one of the main factors causing LBP [7]. It was also reported that children below 14 year of age who experienced LBP, got it in more severity before 25

years.¹⁴ Other risk factors which contribute towards a LBP is obesity and a positive family history apart from depression, stress and anxiety [8].

There have been a few studies regarding LBP but very few in this part of the world. This study was hence conducted to assess the prevalence of lower back pain among the young adults in our geographical area.

MATERIAL AND METHODS

This is a prospective study. The study included all patients urgently hospitalized in the Neurology Clinic, in the Regional Hospital of Shkodra district during the period 2010 - 2013. This hospital is a Reference Center for the districts of Malësia e Madhe and Puka, and covers a population of 350,000 inhabitants. In addition to epidemiological and socio-demographic data, clinical criteria have also been considered. The patients' hospitalization day is also the date of their inclusion in the study. Patients were followed up until their discharge from the hospital and three months after discharge.

The time of onset of stroke was determined by interviewing patients and / or family members and persons present at the time the stroke occurred.

Statistical analysis

Data were analyzed with statistical program SPSS 16.0. Continuous variables are presented as mean (M) and standard deviation (SD) and their descriptive statistics. The normality of distribution of continuous variables was tested by the Kolmogorov-smirnov test. Categorical variables are presented in percentage. The Student's t test and analysis of variance ANOVA was used to compare the continuous variables and the hi-square test was used to compare the percentages of the categorical variables. The value of $p \leq 0.05$ is considered statistically significant. Statistical tests are two-tailed.

RESULTS AND DISCUSSION

The study involved 1203 patients with a mean age of 63.1 (± 11.5 years with a range 25 to 84 years. The mean age of males is 63.6 ± 10.6 years while the mean age of females is 62.5 ± 12.5 years with no statistically significant difference between them ($t = 1.6$ $p = 0.09$).

536 or 44.6% of cases live in urban areas versus 667 or 55.4% of cases living in rural areas with statistically significant difference between them $p < 0.05$. Table 1 shows the sociodemographic characteristics of patients. In the study predominate cases in the age group ≥ 65 years with a statistically significant difference with other age groups (χ^2 goodness of fit = 908.1 $p < 0.01$). From the distribution by gender and age group, there is a predominance of males in each age group with a statistically significant difference with females ANOVA two-

way ($F = 37$ $p < 0.01$). The average time of arrival of patients in the hospital is 4 hours and 20 minutes (minimum 30 minutes - maximum 7 hours).

In total, 896 cases or 74.5% of patients had hypertension, 292 or 24.3% of had with diabetes, 222 or 18.4% of patients had hyperlipidemia & obesity, 286 or 23.7% of patients were smokers, 66 or 5.4% of patients consume alcohol and were alcoholic, 241 or 20.0% of patients had ischemic heart disease, 113 or 9.4% of patients suffered from congestive heart failure, 231 or 19.2% of them had atrial fibrillation, 144 or 11.9% had dementia and 215 or 17.9% of them have had a previous stroke or AIT: ≤ 3 months.

Except ischemic heart disease, there is a predominance of all other risk factors in patients ≥ 65 years of age, with a statistically significant difference with age < 65 years, $p < 0.01$. Table 1 shows the risk factors by age group.

Table 1. Risk factors by age group

Risk factors	Total	<65 vj (n=618)		≥65 vj (n=585)		P
		N	%	N	%	
Risk factors	896	429	69.4	467	79.8	<0.01
Hipertension	292	174	28.2	118	20.2	<0.01
Diabetes	222	156	25.2	66	11.3	<0.01
Hyperlipidemia & obesity	286	212	34.3	74	12.6	<0.01
Smoking	65	44	7.2	21	3.6	<0.01
Alcohol use	241	113	18.3	128	21.8	0.1
Cardiac ischemic disease	114	41	6.6	73	12.4	<0.01
Congestive heart failure	232	56	9.0	176	30.0	<0.01
Atrial fibrillation	144	15	2.4	129	22.0	<0.01
Dementia	212	77	12.4	135	23.1	<0.01

Through epidemiological studies, a wide range of stroke risk factors have been identified and are important for primary and secondary prevention of stroke. The traditional risk factors of stroke can be classified into two, which include risk factors that are modifiable and those that are nonmodifiable. The modifiable risk factors of stroke include factors such as hypertension, diabetes mellitus, high blood cholesterol, cardiovascular diseases, sedentary lifestyle, atrial

fibrillation, smoking, and alcohol consumption [9]. The nonmodifiable risk factors are relatively few and include factors such as age and gender [10].

Age is the strongest determinant of stroke and the risk of stroke doubles every decade above age 55 [11]. Age can be considered a marker for duration of exposure to other risk factors of stroke [12]. While in Sub-Saharan Africa most stroke cases occur in people less than 60 years, in developed countries stroke usually affects much older people of 70-75 years [13]. Hypertension is the strongest risk factor after age and people with hypertension are about 3 or 4 times more likely to have a stroke. The strong association between hypertension and stroke has been attributed to the powerful effects of hypertension on the cerebral circulation [14]. In cerebral blood vessels, hypertension is known to produce wall hypertrophy and causes reduction in the external lumen diameter of the vessels. In addition, hypertension alters the ability of endothelial cells to release vasoactive factors and increases the constrictor tone of systemic and cerebral arteries. Sickle cell disease, which is relatively more prevalent in Sub-Saharan Africa, is known to increase the risk of stroke by as high as 200-400-fold [15]. Increased haemolysis and changes in rheological properties of eritrocites may be the main factors responsible for the increased risk of stroke among sickle cell patients. A previous stroke significantly elevates the risk of subsequent stroke with a recurrence rate of 5-25% in 1 year and 20-40% in 5 years [16].

Data from a recent study indicates that a list of ten stroke risk factors including hypertension, high cholesterol, current smoking, alcohol consumption, diabetes, stress, obesity, heart disease lack of physical activity, and poor diet was responsible for 90% of all strokes [17]. These risk factors, which are predominantly traditional risk factors of stroke, are modifiable, making stroke highly preventable. Several studies have shown that there are variations in the stroke risk factors among different races and populations [18]. In a comparative study of stroke risk factors among stroke survivors in Nigeria and Germany, it was observed that smoking, hyperlipidemia, atrial fibrillation, congestive cardiac failure, ischaemic heart disease, and atherosclerosis of the carotid and vertebral arteries were significantly more common among the German stroke survivors. On the other hand, hypertension was significantly more common among the Nigerian stroke survivors [19]. A biracial study in the UK also showed that cardioembolic and large vessel atherosclerotic stroke were more common in white populations than black populations. The racial differences in stroke risk factors have been attributed to interacting genetic, environmental, dietary, and socioeconomic variables and have implications for the distribution of stroke subtypes [20]. While

haemorrhagic stroke appears to be more associated with hypertension, ischaemic stroke is more related to factors such as smoking, hyperlipidemia, cardiac disease, and atherosclerosis. The relatively common occurrence of the latter group of risk factors in white populations accounts for the predominance of ischaemic stroke in the western world [21]. Western lifestyle is now commonly adopted in many African countries, and thus it is expected that the distribution of stroke risk factors and subtypes in Africa would become similar to what is observed in the western world.

CONCLUSION

Stroke remains a disease of immense public health significance in the 21st century despite the advances in our understanding of several important areas of the disease such as the epidemiology, quality of life, and pathophysiology. In both the developed and developing world, ischaemic stroke is currently the predominant stroke subtype. Hypertension remains the leading risk factor of stroke in both developed and developing countries despite the racial differences in the risk factors of stroke. Since the burden of stroke is expected to increase significantly in future, there is the need for a better understanding of the factors associated with high blood pressure, especially in countries with a high risk of stroke. It is essential to identify and modulate the factors affecting HRQoL of stroke survivors in order to promote maximal health related quality of life improvements in these patients.

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