

## **A Survey on the Prevalence of Stroke Risk Factors in CVA Diagnosed Patients, Hospitalized in Shahid Beheshti Hospital in 1998**

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**Key Words:** Stroke, risk factors, hyperlipidemia diabetes, hypertension

### **ABSTRACT**

A stroke is the sudden onset of focal neurologic deficit from a vascular mechanism and is the 3<sup>rd</sup> cause of death in developed countries. This study was carried out to evaluate the known risk factors of stroke and their effect on the onset of it in Shahid Beheshti hospital in Kashan in 1998. The descriptive strategy of this study was conducted on 300 patients with CVA, that their illness was documented based on their clinical and CT-Scan findings. The informations about the patients was listed in an information list after hospitalization. Most cases were between 70-80 years old. 64% of cases had hypercholesterolemia, 15% diabetic history, 54% hypertension, 40.6% had positive history of smoking and 22.4 % had combined hyperlipidemia. Considering the high incidence of hypertension, hyperlipidemia and diabetes among the patient with CVA, and the high incidence of smoking as well, more attention is needed to reduce these risk factors in the society.

### **INTRODUCTION**

Stroke or cerebrovascular accident is the sudden onset of focal neurologic deficit from a vascular mechanism. Stroke, after the coronary artery diseases and cancer, is the most common cause of death in western countries (10.6%) and has a frequency of 200 in every 100,000 death (1,7). In addition, it may lead to many disabling sequelae in alive patients including hemiparesis, facial hemiparesis etc. It is an important point that many patients had no health problems before the onset of CVA (1). Vascular disorders that lead to stroke are occlusion and disruption and may lead to some changes in brain tissue because of ischemia with or without tissue necrosis, and bleeding (2,3,4) The most Known risk factors are hypertension, diabetes, alcohol and tobacco use, hyperlipidemia and oral contraceptive pills (3-5) Since the treatment of CVA is almost impossible, so the only way is prophylaxis. In a study, on 270 patients with CVA in 1995, 46% was smoker, 30% hypertensive and 26% had hypercholesterolemia (2). In another study, in Australia, hypertension, smoking, diabetes and hypercholesterolemia were reported as the main risk of CVA(4).

Considering the emphasis of CVA risk factors and to find out the incidence of these risk factors, this study was carried out on patients with CVA hospitalized in Shahid Beheshti hospital in 1998.

### **MATERIALS AND METHODS**

The descriptive strategy of this study was conducted on 300 patients with CVA, whose illness was documented based on their clinical and CT-Scan findings, and hospitalized in Shahid Beheshti hospital in 1998. After the hospitalization, a 5cc venous blood sample was obtained from the patients rather than other specific laboratory test, to determine total cholesterol and triglyceride level in a random way and with use of "Man" kit made by "Man" company of IRAN and the levels were measured with RA 1000 equipment. Information about age and sex and past medical history of hypertension, diabetes and smoking was obtained from the family of the patient and listed

in an information list. They were analyzed with statistical methods.

### **RESULTS**

From 300 patients, 163 were male (54.4%) and 137 female (45.6%) 56.7 % over 70 years old. Past history of hypertension was observed in 162 patients (54%) 50% male and 50% female. Past history of diabetes was detected in 45 patients (15%) 46.7% male and 53.3% female. Frequency of smoking was 122 (40.7%): 98.4% male and 1.6% female.

### **CONCLUSION**

Hypercholesterolemia (total cholesterol over 220 mg/dl) was observed in 192 patients (64%), was 50% male and 50% female. Combined hyperlipidemia (total cholesterol; over 220 mg/dl and triglycerides over 200 mg/dl) was seen in 67 patients 22.3% , 46.3% male and 53.7% females.

### **DISCUSSION**

This study was carried out to determine the frequency of known risk factors of CVA and their effects on onset of CVA on 300 patients with definite diagnosis of CVA based on clinical and imaging findings, in neurologic ward of Shahid Beheshti hospital during 10 months.

According to Table 1, 162 patients (54%) were hypertensive (50% male and 50% female). In a study on 270 patients in 1955 in Denmark, the frequency of hypertension was 30% (2). In another study on 150 patients between 20-49 years old in Yugoslavia, the incidence of essential hypertension was 47.9% (3). In another study in 1996, in Australia, it was reported that the presence of past history of HTN and diabetes were more important than hypercholesterolemia (5). In a research in Japan in 1996, HTN was reported as the main risk factor for cerebral infarction and bleeding (6).

According to the Table 2, 45 patients (15%) of 300 were diabetic 21 (46.7%) male and 24 (53.3%) female. In a research in 1996 in Yugoslavia on 150 patients between 20-49, 5.3%

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were diabetic (3). In a research in 1996 in Australia some of the risk factors in CVA were reported (5).

Table 3, shows the distribution frequency of stroke and its relationship with smoking and sex. 122 patient (40.6%) had the

**Table 1. Distribution frequency of patients with stroke and its relationship with hypertension and sex**

Sex	Hypertension					
	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Male	81	50	82	59.4	163	45.4
Female	81	50	56	40.6	137	45.6
Total	162	100	138	100	300	100

**Table 3. Distribution frequency of patients with stroke and its relationship with positive history of smoking and sex**

Sex	Smoking					
	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Male	120	98.4	43	24.4	163	54.4
Female	2	1.6	135	75.8	137	45.6
Total	122	100	178	100	300	100

history of smoking, 120 male and 2 female. In a research in 1995 in Denmark, 46% of patients were smoker (3). In another study in 1996 in japan, the emphasis of smoking in incidence of stroke was more than hypercholesterolemia(6).

**Table 2. Distribution frequency of patients with stroke and its relationship with Diabetes and sex**

Sex	Diabetes					
	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Male	21	46.7	142	55.7	163	54.4
Female	24	53.3	113	44.3	137	45.6
Total	45	100	255	100	300	100

**Table 4. Distributing frequency of patients with stroke and its relationship with Sex and Hypercholesterolemia**

Sex	Hypercholes - trolemia					
	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Male	96	50	67	62	163	54.4
Female	96	50	41	38	137	45.6
Total	192	100	108	100	300	100

**Table 5. Distributing frequency of patients with stroke and its relationship with Sex and Hyperlipidemia**

Sex	Combined Hyperlipidemia					
	Positive		Negative		Total	
	No.	%	No.	%	No.	%
Male	31	46.3	132	56.6	163	54.4
Female	36	53.7	101	43.4	137	45.6
Total	67	100	233	100	300	100

Table 4, shows the distributing frequency of stroke and its relationship with sex and hypercholesterolemia. 192 patients (64%) had total cholesterol level of more than 220 mg/dl, 50% male and 50% female. This study showed that sex is not a risk factor for CVA.

In a study in 1995, on 270 patients, with TIA and ischemic CVA, 26% had hypercholesterolemia (4). In another study in 1996, it was reported that hypercholesterolemia is one of the risk factors that may lead to mortality & morbidity inpatient with CVA. But its emphasis is less than hypertension, diabetes and smoking (3). In another study 14.6% of patients had hypercholesterolemia (6)

Table 5 shows the distributing frequency of stroke and its relationship with sex and combined hyperlipidemia. 67 patients (22.3%) had combined hyperlipidemia, 31 (46.3%) male and 36 (53.7%) was female. According to these results, more studies on more cases is recommended.

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