

A Study of Patients with Cerebral Vascular Accident (CVA) Regarding to Risk Factors in Iraq

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ABSTRACT

Background: The findings of the present study indicated that the cerebral vascular accident patients were ischemic stroke more than hemorrhagic who O+ blood group and ischemic attack in morning as a time and other risk factors.

Objective: this study was to identify the demographic and Clinical data of the patient with cerebral vascular accident (CVA).

Materials of the study: The study a survey descriptive study, the sampling it is non-Probability "purposive" sample was a conducted on 138 patients that include outpatients who were diagnosed with CVA by CT scan and MRI brain attending the Neurological clinic in AL-Najaf AL-Ashraf city to receive a medication in privet neurology clinic in AL-Najaf city for period from January 2019 to December 2020.

Results: (44.2%) of the study sample are within (50-59) years old, (60.9%) are male, (97.8%) are married, according to level of education was (64.5%) are illiterate, also (67.4%) no smoking and (38.4%) was worker according to occupational level, according to clinical data was (89.9%) patient with ischemic stroke according to stroke type, (44.9%) right paralysis regarding to side paralysis and (60.1%) at morning in time attack of stroke, patient (50.75) with DM, (68.8%) patient with hypertension and (65.2%) from patients with blood group O+.

Conclusion: a cerebral vascular accident is an alarming problem between elderly people in Iraq, and there are many associated risk factors contributing to developing it such (low educational level, blood group O+, diabetes mellitus and hypertension), therefore, its necessary to understand and evaluate the evolving trends to reduce the health risks among people in the middle east.

Recommendation: Physical exercise on a regular basis is advised. It is recommended to have a diet rich in fiber, fruits, and vegetables, low in salt and saturated fat. A healthy lifestyle that includes not smoking, having a low BMI, exercising regularly, and eating a balanced food has been associated with a decreased risk of stroke.

Keywords: ABO Blood Group System, Stroke, Time of attack, Ischemic and hemorrhagic stroke, DM, HT.

INTRODUCTION AND BACKGROUND

The study offering the primary universal estimation on the burden, of 135 as a disease, and CVA illnesses defined as the next leading cause of mortality after IHD was published in 1990. The most likely causes of data on the unlike disease were employed, and extrapolations on or after populations in surrounding countries were used to approximate the disease pattern for nations or regions where no data was available. The amount of routine mortality data has expanded over the last decade, and it currently covers around one-third of the world's population. As

data becomes more readily available, it will be possible to update the estimated worldwide burden of cerebrovascular accident¹.

A cerebrovascular accident is defined by inadequate or completely disrupted flow of blood to the brain. Its etiology may be ischemic (thrombotic) or caused by a rupture of a cerebral blood artery, resulting in blood leakage into the brain parenchyma (hemorrhagic type). Both cause brain problems, although their lesion processes are distinct. The former results in decreased blood circulation to the brain, while the latter results in a brain injury caused by direct contact between

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blood structures and brain cells. The most common form of CVA is an ischemic one (eighty percent%), followed by a hemorrhagic one (fifteen percent)².

Stroke is a public health issue at present time due to its incidence, the severity of its effects, mortality, and chance of recurrence. After Alzheimer's disease, stroke is the second largest cause of dementia (thirty percent of dementias are caused totally or partially by CVA) and the third leading cause of death (after cancer & heart disease). According to the World Health Organization, a stroke happens every four minutes in France and every five seconds worldwide (WHO). The annual incidence ranges from 100 000 to 145 000 AVC in France, making it a common disease³.

A CVA (stroke) is a common neurological condition that can have serious consequences. Treatment is a medical emergency since it poses a risk of death and is a significant source of disability. Physical and neuropsychological sequelae both contribute to dependency³.

A Patients with aged twenty to twenty-nine years had the greatest rate of hemorrhagic stroke among SS patients. In the two weeks after a hemorrhagic stroke, the death rate was 26% across all ages. There were no fatalities as a result of the infarction stroke. Prior transient ischemic attack, low steady-state haemoglobin concentration, rate of and recent episode of acute chest syndrome, and increased systolic blood pressure were all risk factors for infarction stroke. Low steady-state haemoglobin and a high leukocyte count were linked to hemorrhagic stroke⁴⁻⁷.

Blood group antigens A and B are found on red blood cells and other cells and molecules in the body. People with these antigens have a higher risk of both arterial and venous blood clots (VT). Most studies say that people who have the non-O blood group are more likely to get a thrombosis. A blood group classification system was used in the early studies. The discovery of the ABO gene and new genotyping techniques have made it easier to study how blood group genotype affects the risk of thrombosis^{5,6,8}.

Acetylsalicylic acid (Aspirin) may be one of the most effective and cost-efficient ways to prevent subsequent strokes. When compared to placebo, long-term aspirin monotherapy reduces the incidence of recurrent stroke by 18.1% (p = 0.013). Dipyridamole treatment also results in a substantial risk reduction (16.3 percent, p = 0.039). Furthermore, the combination treatment of acetylsalicylic acid and extended-release dipyridamole resulted in the largest decrease in stroke recurrence, and it has been indicated that this should be the standard in secondary stroke prevention (37.0 percent risk reduction (p 0.001). Clopidogrel has been demonstrated to be similarly effective at preventing ischemic stroke recurrence in people who cannot take aspirin due to allergy or other side effects. It also has no greater safety hazards than aspirin. The combination of acetylsalicylic acid and clopidogrel does not provide more benefits than either therapy alone, and it increases the risk of bleeding (absolute risk increase 1.3 percent [95 percent Confidence interval, 0.6 to 1.9]. In one trial, acetylsalicylic acid and acetylsalicylic acid + dipyridamole was shown to be equally cost-effective, despite the fact that combination treatment improved outcomes but raised expenditures. The least cost-effective of the three options treatment was determined to be Clopidogrel⁹.

The effects of a CVA vary based on the mechanism (ischemia or hemorrhage), the location of the injury, the magnitude of the injury, and the previous patient health status. They are usually at their most intense at first, then regress or compensate as a result of the numerous therapeutic procedures. Some of the common and long-term effects of stroke can be distinguished. On the contralateral side to the damage, the

patient may have one or more motor performance abnormalities, such as muscle weakness (hemiparesis) or paralysis (hemiplegia). The latter can affect any area of the body; however, it most commonly affects the facial, lower limb and upper limb^{3,10,11}.

Hypertension considered one of the most common prevalent diseases in the world. According to the American Heart Association 2018 statistical update, around 86 million Americans aged >20 years have high blood pressure. Chronic HTN remains the main risk factor for CVA, of both ischemic and hemorrhagic. The brain is also extremely liable to acute changes in pressure of blood and is the most common organ injured in hypertensive emergencies¹².

People who don't control their diabetes are more likely to have ischemic strokes or hemorrhagic. In people who have diabetes there are certain types of ischemic stroke, and they are more likely to have limb weakness and dysarthria as signs of a lacunar cerebral infarction than those who don't have diabetes. Between 1983 and 2002, people with diabetes were more likely to have subcortical infarction and less likely to have intra-cerebral haemorrhage in the Lausanne Stroke Registry (ICH). In another study, people who had ischemic stroke and diabetes were very different from people who didn't have diabetes and had a lot of lacunar infarction and high blood pressure¹³.

METHODS

Study Design: A cross sectional study carried out in order to identify the distribution of demographic characteristics of the patient with cerebral vascular accident regarding to risk factor. The study begun from January 2019 to December 2020. Study sample was a non-probability purposive sample of (138) patient who is attending a neurological clinic in Al-najaf al Ashraf province. A survey study design

Instrument: Several statements of the electronic questionnaire modified and develop to increase its validity. The study instrument data consisted of Demographic data include (age, gender, educational level, Smoking status, Marital status, Occupational status) and pathological risk factor that consist of (6) items. (Stroke type, Side paralysis, HT, DM, Time of attack, Blood group)

Data Collection of Statistical Analysis: The data gathering process began from (January 2019 to December 2020). Each responder received about (15-20) minutes to finish the electronic questionnaire type form.

STUDY RESULT

Table 1: Shows distribution a demographic data of patient with Cerebral Vascular Accident a total number of patients= 138

Demographic Data	Rating and Intervals	Frequency	Percentage
Age/Year	40-59	61	44.2
	60-79	52	37.7
	80-above	25	18.1
Gender	Male	84	60.9
	Female	54	39.1
	Illiterate	89	64.5
Educational level	Write and read	12	8.7
	Primary	17	12.3
	Secondary	12	8.7
	University	8	5.8
Smoking Status	Yes	45	32.6
	No	93	67.4

Marital Satuts	Single	3	2.2
	Married	135	97.8
Occupation Status	Worker	53	38.4
	Employed	2	1.4
	Retired	5	3.6
	House wife	45	32.6
	Handicap	33	23.9

This table 1 demonstrated a demographic data of patient with CVA a total number=138 which the majority was (61%) with age from (40-59) and most was male regarding to gender (84%). Also, most people with CVA were illiterate (89%) regarding to educational level, but mostly was no smoking (93%) and married (135%) but worker (53%) according to occupation.

Table 2: Illustrated Clinical data of patient with Cerebral Vascular Accident Total number of patients=138

Stroke type (CVA)	Ischemic Stroke	124	89.9
	Hemorrhagic Stroke	14	10.1
Side Paralysis	Left	53	38.4
	Right	62	44.9
	Bilateral	23	16.7
Time of Attack (TOA)	Morning	83	60.1
	Afternoon	55	39.9
Diabetes Mellites (DM)	Yes	70	50.7
	No	68	49.3
Hypertension (HT)	Yes	95	68.8
	No	43	31.2
Blood Group (B.G)	O+	90	65.2
	O-	5	3.6
	A+	12	8.7
	B+	22	15.9
	AB-	1	0.7

This table 2 pathological risk factor data of patient with CVA and was a majority with ischemic stroke (124%) according to stroke type, and right-side paralysis according to side paralysis (62%). at morning according to time of stroke (83%) and this patient with DM (70%) and HT (95%) and with blood group O+ (90%).

DISCUSSION

Through an overview of the study finding, table number one indicates a demographic data of patient with CVA a total number=138 which the majority was (61%) with age from (40-59) and most was male regarding to gender (84%). Also, most people with CVA were illiterate (89%) regarding to educational level, but mostly was no smoking (93%) and married (135%) but worker (53%) according to occupation.

Regarding to age and gender this finding supported by Alter and et al study¹⁴. The research examined hospital data, nursing facility records, and physician records in three counties. Additionally, death certificates were checked. The age-specific incidence rate in men over 35 years of age and in the general population.

Also, in study to Gibson and others study¹⁵, was females have a lower risk of having an ischemic stroke, and hormonal factors have been looked at as possible treatments. It's possible that sex differences in ischemic stroke are caused by a mix of things, like things that are inside the sex chromosomes and the effects of sex hormone exposure over time, but we can't rule out cultural and social factors as well.

According to occupational level and gender, age I supported my result by Costa and et al study¹⁶⁻¹⁸, were 302 women and 152 males among the 454 participants. There were 241 between the ages of 60 and 69, 176 between the ages of 70 and 79, and 37 beyond the age of 80. Although women were found to have a higher prevalence of illiteracy than men, more than 200 older people could not read or write. 147 of them had studied up to the incomplete fourth grade of a Brazilian elementary school. 52 of them finished elementary school, 16 went to high-school, and only 19 of them had a college degree.

According to Smoking status by Pan and et al study¹⁹, found smokers were more likely to have a stroke than nonsmokers, which was in line with previous research. Most of the time, people who are still smoking have a higher risk of having a stroke. There was also a link between current smoking status and total stroke risk, with the risk increasing by 12% for every extra 5 cigarettes smoked per day. The link between total stroke and ex-smokers, on the other hand, did not show the same results.

Also, by Caroa et al study²⁰, show smoking tobacco roughly doubles the chance of having a stroke and is also connected to an increased risk of hemorrhagic stroke. Due to a dose-response relationship, heavy smokers have a larger risk of stroke than light smokers. Cigarette usage and stroke risk studies have historically concentrated on smokers' risk, although ambient tobacco smoking is also a risk factor for stroke. Previous studies based on reference groups without separating non-smokers' exposure may have resulted in a general underestimation of the risk of CVA among smokers, according to this research.

According to marital status the finding supported by Kauhanen and others study²¹, most of the patients were married or living together, but 26 (31 percent) were single, divorced, or widowed. Some 18 (21%) patients were living alone in the acute phase, 15 (18%) in three months, and 14 (18%) in a year.

Also, in study of Wan and others²², there were 12,118 patients, 1220 of whom were single and 10,898 of whom were married. The percentage of one-year post-stroke occurrences was greater in unmarried individuals than in married patients. The adjusted odds ratios with ninety-five percent confidence intervals for being married versus being unmarried for the following outcomes for all-cause mortality were 0.70 (0.58-0.84), 0.78 (0.66-0.91), 0.77 (0.66-0.90), and 0.75 (0.65-0.88) for stroke disability. Marital status and education played a big role in all of the outcomes, except for stroke disability.

According to occupational a study by Naana and others³, was a degree anxiety is an unpleasant condition characterized by an excessive and prolonged obsession with something that causes exhaustion, irritability, sleep disturbances, and interferes with daily activities or social functioning. This ailment is widespread among stroke patients, specifically in those who have had a right cerebral damage. About twenty percent and fifty percent of patients develop generalized anxiety (with or without depression) during the first few months after a stroke, with prevalence reducing only modestly after two-three years. Post-CVA anxiety, such as depression, is clearly linked to psychological factors: the preoccupation with not being able to regulate one's emotions (cognitive, emotional, motor, and perceptual) is especially common in the discourse of stroke patients.

The Pathological Risk Factor Characteristics Data of the Sample Distribution: Also, an overview of the study finding in table number two, indicates pathological risk factor data of patient with CVA and was a majority with ischemic stroke (124%) regarding to type of stroke,

and right-side paralysis according to side paralysis (62%). at morning according to time of stroke (83%) and this patient with DM (70%) and HT (95%) and with blood group O+ (90%).

According to type of stroke the findings supported by Salvadori others study²⁷, was considering stroke types, 148 (65%) patients had an ischemic stroke while 81 (35%) had a hemorrhagic stroke.

Also, by Truelsen and others¹, study was merely a subgroup of cerebrovascular disorders is stroke regarding to the definition. Subarachnoid hemorrhage, intracerebral hemorrhage, acute but ill-defined cerebrovascular illness, cerebral infarction, and stroke are all common stroke diagnoses. Stroke is the leading cause of death from cerebrovascular disorders.

According to side paralysis by Caroa and et al²², the lesions were predominantly ischemic, on the right, and the most frequent motor deficit was left hemiparesis/hemiplegia.

Also, by Bernspding and others²³, study people with "RCVA and LCVA have significantly less motor and process IADL ability than people who are not disabled". People with "RCVA and LCVA do not differ significantly in IADL ability" even though they have different hemisphere-specific impairments.

According to time of attack the findings supported with Marler and others¹¹, which was the majority in morning, some studies looked into the time of onset for at least six different types of ischemic stroke. They found that the peak of the strokes happened from 6 to 2 pm and that the strokes started at midnight or 6:00 am, but that the strokes started a lot earlier. Between 1 and 5 am, they found that the strokes started.

According to diabetes mellitus, findings supported by Snarska and others²⁶⁻²⁹, this Study: Hyperglycemia on admission to the hospital is linked to a worse clinical outcome and a higher risk of death in patients with ischemic and hemorrhagic strokes. Diabetes made people who had hemorrhagic strokes more likely to die in the hospital, but not people who had ischemic strokes.

Also, in study by Costa and et al¹⁶, hypertension was found in 289 of the elderly people who were checked out. It was found in 200 women and 89 men. As for the risk factor for diabetes mellitus, it was found in 308 people who had been checked out, with 106 cases found in men and 106 cases found in women. The findings of the study show that hypertension and diabetes mellitus are more common in women and people who are between 60 and 70 years old.

According hypertension by An-le Li and et al¹⁷, study was In this study, Among hypertension patients, (male more than female). proportion of hemorrhagic stroke more than ischemic cerebrovascular. Later, as a result of the abolition of rural household registration and the adoption of Shanghai's urban population strategy, the policy of free medicine progressively dwindled but remained available to impoverished inhabitants. Thus, in this observation of hypertensive patients, the great majority were taking antihypertensive medications; just a few individuals were unwilling to take pharmacological therapy (But received some non-drug treatment, such as lifestyle adjustment and so on). Thus, the stroke incidence rate in hypertension patients reflected mostly the stroke incidence in hypertension patients receiving medical therapy³⁰⁻³⁹.

Also, studies of incidence of non-lobar PICH and lobar are particularly unconventional by Zia and et al²⁵. In terms of relative risk, this research reveals that high blood pressure is linked to a larger risk of hemorrhagic,

specifically nonlobar, PICH than ischemic stroke. However, when it comes to the number of instances, or the standardised incidence over a certain period of time, high blood pressure is linked to a higher number of ischemic strokes cases^{40,41}.

Also, in study by Alshami and others, study was a large observational study of 11,080 patients with AIS treated with intravenous thrombolytic, showed strong association between high SBP after thrombolytic and poor outcomes.

Also, in study by Kim and et al, "there was no significant relationship between ABO blood type (blood group O vs. non-O) and overall ischemic stroke in the research (adjusted odds ratio, 0.99; 95 percent confidence interval, 0.618 to 1.598). Furthermore, no significant relationship was seen between any ischemic stroke subtype and ABO blood type".

RECOMMENDATION

Physical exercise on a regular basis is advised. It is recommended to have a diet rich in fiber, fruits, and vegetables, low in salt and saturated fat. Avoiding high alcohol use and using sympathomimetic medications may reduce the risk of ICH. Subjects with an increased BMI should follow a weight-loss diet. It is not advisable to use antioxidant vitamin supplements. A healthy lifestyle that includes not smoking, having a low BMI, exercising regularly, and eating a balanced food has been associated with a decreased risk of stroke.

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Competing Interest: None

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