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Research Article

**THE CORRELATION OF AGE AND GENDER WITH
SEVERITY OF CAROTID ARTERY STENOSIS IN PATIENTS
WITH ISCHEMIC STROKE**Dr. Muhammad Arslan Iqbal^{1*}, Dr. Ameer Hamza¹, Dr. Hasnain Ahmed¹^{1*}Dr. Muhammad Arslan Iqbal: MBBS, Multan Medical and Dental College, Multan, Pakistan¹Dr. Ameer Hamza: MBBS, Multan Medical and Dental College, Multan, Pakistan¹Dr. Hasnain Ahmed: MBBS, Multan Medical and Dental College, Multan, Pakistan

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Abstract:

Introduction: Stroke is a medical condition marked by the presence of sign and symptoms of localized or generalized cerebral inactivity. Normally indications remain for 24 hours or more, often causing death. Reason being not obvious other than the vascular event. Ischemic stroke being the foremost cause of demise and debility reports 250 new cases out of 100,000 individuals which means 350,000 ischemic stroke patients in whole year.

Aims and Objective: To determine the rate and severity of carotid artery stenosis among patients with ischemic stroke.

Materials and Methods: This cross-sectional study was conducted at Medicine and Neurology unit of Nishtar hospital, Multan from August 2018 to April 15, 2019. Total 150 individuals suffering from ischemic stroke were included in this cross-sectional study. Their age was ranging from 25 to 85 years including 85 males and 65 females. The individuals were divided in to four age groups. All the subjects were presented in medicine and neurology unit in Nishtar Hospital, Multan. The patients whose ischemic stroke were caused by other possible sources like vasculitis, meningitis etc. were omitted. The diagnosis was made by using MRI and Doppler ultrasound.

Results: There were 150 patients, eighty-eight (88) were suffering from CAS from which 55 were males and 33 were females. Out of 88 patients who were suffering from CAS, 35 had minor stenosis, 42 had modest stenosis and 11 had sever stenosis.

Conclusion: In our population, the rate and severity of CAS in ischemic strokes is high as compared to other studies. Life style modification is the key to prevent the recurrence of CAS in ischemic stroke.

Key words: Carotid artery stenosis, Stroke, Ischemia, MRI, Doppler, Meningitis

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INTRODUCTION:

Stroke is a medical condition marked by the presence of sign and symptoms of localized or generalized cerebral inactivity. Normally indications remain for 24 hours or more, often causing death. Reason being not obvious other than the vascular event [1]. Ischemic stroke being the foremost cause of demise and debility reports 250 new cases out of 100,000 individuals which means 350,000 ischemic stroke patients in whole year [2].

Frequent risk factors are linked to the progress of stroke. This comprise non-flexible hazards alike oldness, gender, family history and origin although hypertension, heart disease, diabetes, hyperlipidemia, smoking, alcohol, sedentary lifestyle can be coordinated via medication and life style change [2]. From all these risk factors, the main menace for CVD will be the CAS, causing 20-30 percent of the ischemic strokes [3]. The provision of blood supply by parallel artery makes CAS asymptomatic [4].

Duplex ultrasound can be used for evaluating the stenosis of carotid artery. Although arteriography is an absolute test for recognition of carotid stenosis, however arteriography is a costly and invasive technique with severe impediments [5,6]. The grades of carotid stenosis are one of the important indications for applying multiple treatment alternatives that are available for carotid artery stenosis. The adequate treatment options for insignificant stenosis are antithrombotic treatment and risk factor management. Carotid angioplasty or carotid endarterectomy can be used for moderate to severe stenosis [4]. The best treatment option for carotid stenosis is endarterectomy for the patients who are fit for surgery [7].

The rate of carotid artery stenosis is inconstant in multiple researches. UI Hadi *et al* research, for the incidence of coronary artery stenosis, CT brain were examined in 100 cases of ischemic stroke. 56 % of total had stenosis. From these 64.3% have minor carotid stenosis, 26.8% had modest, whereas 8.9% had stern carotid stenosis [6]. Barech MS research was published on the hazardous aspects of ischemic stroke, in which only 1.2% out of 156 cases had carotid stenosis. This study was directed in our native population to find out the sternness and rate of CAS in individuals of ischemic stroke [8].

MATERIALS AND METHODS:

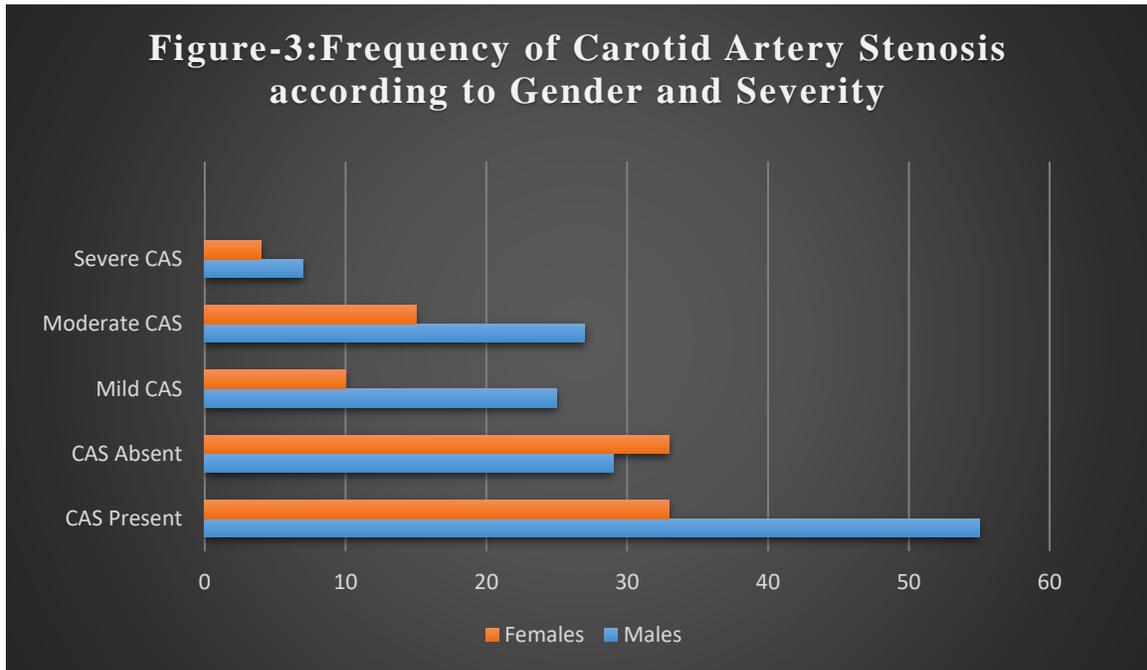
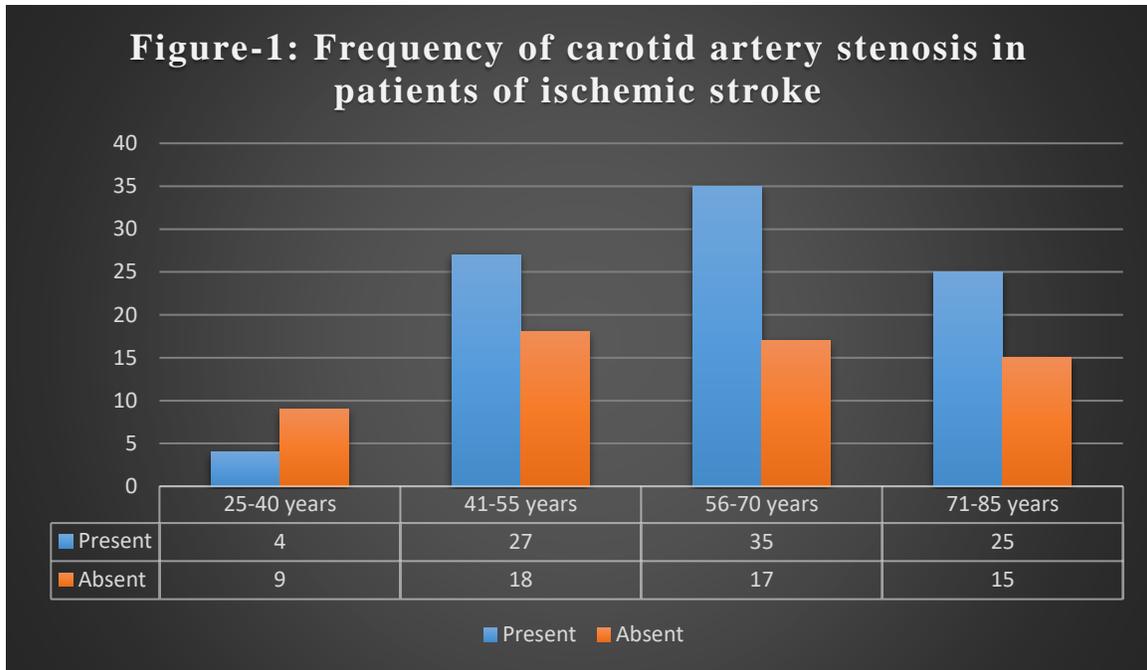
Total 150 individuals suffering from ischemic stroke were included in this cross-sectional study. Their age was ranging from 25 to 85 years including 85 males and 65 females. The individuals were divided in to four age groups. All the subjects were presented in medicine and neurology unit in Nishtar Hospital, Multan from August 2018 to April 15, 2019. The patients whose ischemic stroke were caused by other possible sources like vasculitis, meningitis etc. were omitted. The technique that was employed was consecutive non-probability sampling. The diagnosis was made by using MRI and Doppler ultrasound. CAS was classified by the reference of Radiologists Society in Ultrasound Consensus Conference 2003. The data were analyzed by using SPSS (23.0).

RESULTS:

There were 150 patients, eighty-eight (88) were suffering from CAS (**Table-1**) from which 55 were males and 33 were females. Out of 88 patients who were suffering from CAS, 35 had minor stenosis, 42 had moderate stenosis and 11 had severe stenosis. The frequency of severity according to genders and various age groups is shown in (**Figure-1**).

Table-1: Clinical features of participants (n=150)

Variables	Groups	Number (%)
Gender	Males	85 (56.6%)
	Females	65 (43.3%)
Carotid artery stenosis (CAS)	Present	88 (58.6%)
	Absent	62 (41.3%)
Carotid artery stenosis classification	No stenosis	62 (41.3%)
	Mild stenosis	35 (39.7%)
	Moderate stenosis	42 (47.7%)
	Severe stenosis	11 (12.5%)
Age group	25-40 years	13 (8.6%)
	41-55 years	45 (30.0%)
	56-70 years	52 (34.6%)
	70-85 years	40 (26.7%)



DISCUSSION:

Carotid atherosclerosis ends in 20% of the entire strokes triggered by ischemia. Severe CAS is a well-documented threat factor for incidence of cerebrovascular disease [4,6]. Increase in degree of stenosis leads to higher rates of incidence of stroke (less than 1% to 4.8% per year for < 80% stenosis to

<90% stenosis respectively). Absenteeism of alternative flow and preceding account of ischemic attack are noteworthy. The evidence of CAS provided by Doppler ultrasound is very high including specificity of 80% and sensitivity of 90% [9]. In a study, 195 cases with stroke had undertaken carotid Doppler which displayed 124 patients had contribution

of carotid arteries narrowing which makes it 63.5%. Saber et al stated that carotid artery stenosis was present in 50 patients' i.e. (89%) from total 72 patients of stroke [10].

Hoshino et al stated that out of 403 subjects of ischemic stroke, CAS was found in 23.4% patients [11]. Atif et al stated noteworthy CAS in patients with acute ischemic stroke in 21%, much inferior than our study. Khattak et al found a very high percentage of 52.3% in Peshawar [12,13]. In different researches it was found that ipsilateral stenosis was more in incidence than contralateral stenosis [14]. The study we have conducted, in which 88 patients with coronary artery stenosis 55 (62.5%) were males and 33 (37.5%) were females, this showed male predominance. Same results have been found in Kashan, Iran and Karachi [15,16]. Females have high risk of stroke than males [17]. In our study 39.7% had mild, 47.7% had moderate and 12.5% had severe stenosis. Ul Hadi et al studied 100 people with stroke 64.3% had minor 26.8% had modest but only 8.9% had severe stenosis [6]. In another research by Wasay et al, whole 672 subjects, bilateral Doppler ultrasound of carotid artery done and it discovered 0-50% stenosis in 526 (78%) patients, 51-69% stenosis in 57 (8%) patients, 70-99% stenosis in 82 (12%) patients and complete stenosis was present in 7 (1%) patients. In our study, large number of participants of ischemic stroke with coronary artery stenosis were drop at the age group of 56-70 years i.e. 35 (34.7%) patients. The study by Mills et al stated that the occurrence of ischemic stroke in subjects aged from 55 to 59 were 9.5%, 60 to 64 were 11.7% and above 65 years were 14% [18].

CONCLUSION:

In our population, the rate and severity of CAS in ischemic strokes is high as compared to other studies. Life style modification is the key to prevent the recurrence of CAS in ischemic stroke. Early detection and prompt treatment will reduce the incidence of ischemic stroke.

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