

The Prevalence of Extracranial Carotid Artery Disease Among The Egyptian Population

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Abstract

The prevalence of atherosclerosis of the extracranial part of the internal carotid artery among the Egyptian population was studied. 116 patients were studied by Carotid Duplex. 49 patients had symptomatic Carotid Ischaemic events, among these 65% had nonsignificant Carotid Stenosis. The results were compared to a previous Egyptian study on 148 patients with Symptomatic Carotid events, both confirmed that atherosclerosis of the extracranial part of the carotid artery is not a common cause of Carotid ischemic events among the Egyptian patients.

Introduction

Atherosclerosis is a noninflammatory degenerative disease that can affect segments of almost any artery in the body. It is by far the most common vascular disorder. It begins early in life, however, it usually does not become symptomatic until middle age and peaks at 50-70 years with men twice affected than women.

Risk factors include age, sex, hyperlipidemia, hypertension, diabetes, cigarette smoking and familial and genetic factors (Toole, 1990).

According to the western literature, atherosclerosis of the extracranial portion of the carotid artery is the most common cause of carotid territory ischaemic events (TIA or infraction). (Voyce, et al 1992)

Atherosclerosis of the extracranial part of the carotid artery facilitates the incidence of stroke by repeated platelet embolization or by impairment of flow secondary to significant arterial stenosis. The risk of stroke increases significantly when the reduction of the lumen exceeds 80%.

The distribution of the atherosclerotic plaques varies according to the population studied. In the white population of the

united States, with symptomatic Carotid territory ischaemic events, the incidence of "Significant" extracranial stenosis varied from 60% to 85% at arteriography, in different series. However, in the black population of the United States, extracranial Carotid artery stenosis was found uncommon, while atherosclerosis of the intracranial portion was common. In the oriental population, atherosclerosis of the extracranial or intracranial portions of the carotid artery were uncommon, while middle cerebral artery disease was common. (Toole, 1990) To study the prevalence of Extracranial Carotid artery disease among the Egyptian Population.

Material and Methods

116 patients, 76 males and 40 females, age range from 40-78 years with the mean age of 62 years referred for Duplex Scanning for the carotid and vertebral arteries in the period from January 1995 to January 1997. These patients were subjected to:

Full Neurological and general examination.

CAT – Brain

Duplex Imaging using a high quality colour flow duplex scanner with dedicated

cerebrovascular soft ware. Calculation of severity of stenosis are based on B- mode diameter measurements in non- significant lesions and on doppler measurements of peak systolic velocity (PSV) and End Diastolic Velocity (EDV) and internal carotid to common carotid ratio (ICA / CCA) of PSV in critical lesions.

Echocardiography.

Results

The results of the different clinical presentations of the patients studied are shown in table (1). The results of the Duplex Findings in the whole group are shown in table (2). The severity of the Duplex Findings in the Carotid arteries among the whole group studied is shown in table (3). The severity of carotid disease in the symptomatic carotid is shown in table (4) and table (5) and (6)

Table (1) : Clinical Presentation

Carotid Territory Symptoms (40 with infarctions, 9 with TIA)	49 patients (42%)
Vertebrobasilar Symptoms	36 patients (31%)
Nonspecific Symptoms	31 patients (36%)

Table (2): Duplex findings in the whole groups

Nad	49	(42%)
Carotid Stenosis	45	(38%)
Atherosclerotic Occlusion	2	(2%)
Embolic Occlusion	6	(5%)
Carotid kink	9	(8%)
Vertebral Artery Disease	8	(7%)
Subclavian Stenosis	1	(1%)

Table (3): Severity in Carotid Artery Affection in the whole group

	% of affection	No.	% of total No.
Minor	0-29	15	13
Mild	30-59	13	11
Moderate	60-79	10	8
Severe	80-99	7	6
Atherosclerotic Occlusion		2	2
Embolic Occlusion		6	5
Total		53	45

Table (4): Carotid Symptoms Group

	% of Affection	No.	% of total No.
No Carotid Disease		16	32.6
Minor	0-29	9	18.4
Mild	30-59	7	14.2
Moderate	60-79	6	12.2
Severe	80-99	4	8.1
Atherosclerotic Occlusion		1	2
Embolic Occlusion		6	12.2
Total		49	100

Table (5): Carotid Symptom Group

No Carotid disease	16	32.6
Non significant carotid	16	32.6
Significant Carotid stenosis	10	20.3
Atherosclerotic Occlusion	1	2
Embolic occlusion	6	12.2
Total	49	100

Table(6) : Carotid Symptom Group

0+59%	Stenosis	65.2
60-99	Stenosis	20.3
100	Stenosis	14.2

Discussion

According to a large number of studies performed in the western hemisphere, atherosclerosis of the extracranial portion of the internal carotid artery is the most

cause of carotid territory ischaemic events (Capron 1988, Ross, 1986, Yatsu1987, Gower,1987, Schoenberg and Schulte,1988, Zins, et al 1983)

However the results of this study showed that among the Egyptian Population, significant or critical Stenosis of the extracranial portion of the internal carotid artery is not a common finding in patients with symptomatic carotid disease.

This is seen clearly from the results showing that the majority of symptomatic patients (64%) had NON-SIGNIFICANT Stenosis (less than 60%) while in the western literature, the majority of

symptomatic patients (60%-80%) have SIGNIFICANT Carotid Stenosis.

The result of this study are very similar to the results of a previous study (Zakaria and Yehia 1993) performed at the stroke unit of the Ainshams University hospital on 148 patients with symptomatic Carotid disease by Zakaria and Yehia in 1993 (table 7) which showed that 77% had non significant Stenosis ,16% had significant Stenosis and 6% had total occlusion

Table (7)

	Zakaria and Yehia 1993	Zakaria et al, 1997
O To 59% =	77%	64%
60 To 99%	16%	20%
100% =	6%	14%

Thus, the distribution of atherosclerosis in the carotid artery may be different among the Egyptian population, similar to the black Americans or the orientals, who also show minimal lesions in the extracranial parts of the Internal Carotid artery. These population differences have been previously observed by vascular Surgeons in Egypt among patients suffering from lower limb ischemia (Hussein, 1995).

They found that the majority of Egyptian patients had distal lesions (Femero-popliteal) in contrast to the westerns who have the majority of lesions proximal (aorto-iliac).

Conclusion

Atherosclerosis Of The Extracranial Part Of The Internal Carotid Artery is not a Common Cause Of Carotid Ischaemic Events Among The Egyptian Population.

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نسبة تصلب الشرايين في الجزء الخارجى الجمجمى

للشريان الثباتى ضمن المرضى المصريين

تم دراسة مرض تصلب الشرايين و نسبته في الجزء خارج الجمجمى للشريان الثباتى عن طريق الموجات فوق الصوتية و الدوبلكس في ١١٦ مريض و اظهرت النتائج ان ٦٥% من المرضى الذين كانوا يعانون من قصور بالدورة الدموية و عددهم ٤٩ لم يكن لديهم نسبة ضيق ذات قيمة و قد تم مقارنة هذه النتائج بدراسة اخرى على ١٤٨ مريض حيث اظهرت النتائج ان تصلب الجزء خارج الجمجمى ليس سبب اساسى لقصور الدورة الدموية ضمن المرضى المصريين.

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