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PREVALENCE, TYPES AND COMPLICATIONS OF AORTIC ANEURYSMS DURING A FIVE-YEAR PERIOD IN THE HEALTH CARE CENTERS OF KHUZESTAN, IRAN

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Abstract

Objective: To evaluate the prevalence of aortic aneurysm by age and gender during a five-year period in healthcare centers affiliated with the Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Materials and Methods: This was a cross-sectional study conducted during 2005 to 2009, from the university hospital pathology archive sections, biopsies of patients undergoing vascular surgery were separated by age and sex. Concurrent diseases and smoking history are considered too. Aortic aneurysm samples were separated and then according to morphological types were separated again.

Results: From 100 vascular biopsy samples, 36 cases (36%) were true aortic aneurysm, 8 (8%) were false aortic aneurysms. from cases of true aortic aneurysm 30 (33.83%) were male and 6 (67.16%) were female. The most prevalent age group of men and women for aortic aneurysms was respectively 50 to 60 and 60 to 70 years old. Of the aortic aneurysm patients, 28 (78%) were secular and 4 (11%) fusiform, and 4 (11%) were of unknown morphology. From patients with aortic aneurysm, 5 patients (89.13%) were men and 3 (33.8%) women with hypertension and 8 males (22.22%) and two females (55.5%) had dyslipidemia. Sixty-nine percent of patients with aortic aneurysm were cigarette smoking, all from males.

Conclusion: The prevalence of aortic aneurysm and its distribution by age and gender is similar to previous studies. Smoking is an important risk factor for aortic aneurysm in the studied region.

Key words: Aneurysm**,** Aortic aneurysm, Saccular aneurysm, Fusiform aneurysm, Abdominal aortic aneurysm, Thoracic aortic aneurysm.

Introduction

Aortic aneurysm is defined as aortic constant and local dilation with a diameter of at least 50% more than its normal diameter. It causes 14,000 Americans die annually because of fatal complications and non-specific clinical signs. Its annual incidence is 9.5 cases per 10,000 people that the prevalence has a direct contact with aging, male gender and factors such as smoking, hypertension and dyslipidemia.

Any disorder leads to weakness in the artery walls, and this weak wall facing with vessel wall blood pressure causes aneurysm dilation and its aggravation. Factors such as genetic vascular disease, trauma, atherosclerosis, infections, and high blood pressure and so on would cause it. All aneurysms with any cause pass a common path toward dilation and discontinuity. The speed of progress of this process is different in different types of aneurysms in men and women.

Symptoms are usually non-specific and vary from a dull ache in the abdomen or chest to severe pain indicating the imminent rupture. Therefore, they are identified in the diagnostic imaging examines with other goals. Its therapeutic method can vary according to the size of the aneurysm. In the case of small and without complication and slow-growing aneurysms, continuous follow-up through imaging methods is appropriate, but in other cases, surgery is necessary (1, 2). This disease causes very severe and fatal complications with minimal symptoms and in several cases, imposes emergency surgery to health care systems. Therefore, awareness of the amount of prevalence, risk factors and identifying groups at risk in any society allow us to design screening useful program to identify and treat these patients early, and thereby preventing fatal complications' incidence that sometimes imposes more expensive vital and financial costs than screening programs to individuals and health care systems.

Materials and Methods

The studied population in this study consisted of all patients who underwent vascular surgery during a 5-year period. Their vascular pathology biopsy files were available in the archives of the pathological departments of academic hospitals. In cross-sectional study for 5 years (2006 to 2010) vascular biopsies of patients who had undergone surgery were isolated from the archives of the pathological departments of academic hospitals, and age, sex, concurrent diseases and smoking or non-smoking recorded in the patient's pathological file information were considered in this selection. After collection, the samples were also separated in terms of pathological diagnosis. All aortic aneurysm samples were isolated, and then were separated again according to the type of morphological aneurysm (if noted by the pathologist).

Mean and mode indicator were used in this study in order to determine the age of the maximum prevalence of aortic aneurysm. No intervention takes place in this study in terms of observance of ethical issues.

Results

Of 100 isolated vascular biopsies samples, 36 cases (36%) were true aortic aneurysm, and 8 cases (8%) were pseudo aortic aneurysm (Table 1). Of true aortic aneurysm in 36 cases, 30 persons (33.83%) were male, and 6 parsons (67.16%) were female (Figure 1). The highest aneurysm frequency was in men of 50-60 years old, and women of 60-70 years old, and the average age of patients was 57 years old (Table 1). Of aortic aneurysm samples 28 cases (78%) were saccular, and 4 cases (11%) were fusiform, and 4 cases (11%) were unknown morphology (Figure 2). Of aortic aneurysm patients, 5 patients (89/13%) were male, and 3 patients were female (33.8%) with hypertension, and 8 males (22.22%) and 2 females (5.55%) were hypercholesterolemia (Figure 3). 69% of patients with aortic aneurysm were smokers, all of whom were male, and others were non-smokers.

Table 1. Frequency of aortic aneurysm based on age and gender during 5 recent years in academic hospitals in Ahvaz.

Sample / Type / Gender	Vascular samples	Aneurysm	
		Pseudoaneurysm	True aortic aneurysm
Man	68	8	30
Female	32	-	6
Total	100	8	36

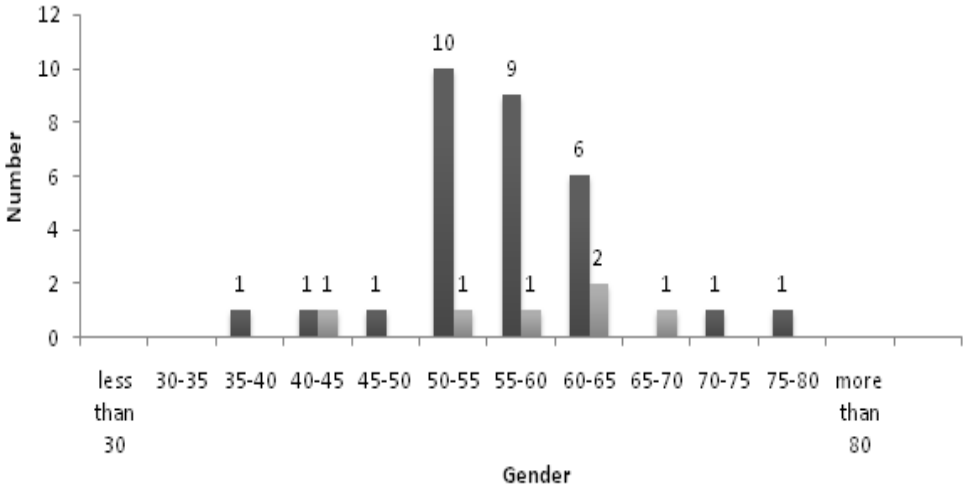

Fig. 1. Frequency of vascular diseases based on gender in 5 recent years in academic hospitals in Ahvaz.

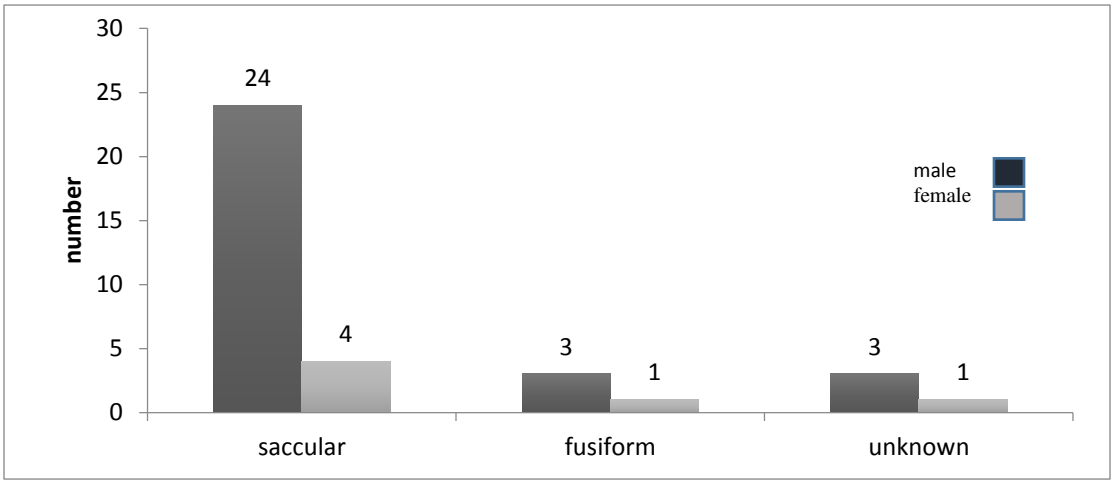

Fig. 2. Frequency of different type's aortic aneurysm morphology during 5 recent years in academic hospitals in Ahvaz.

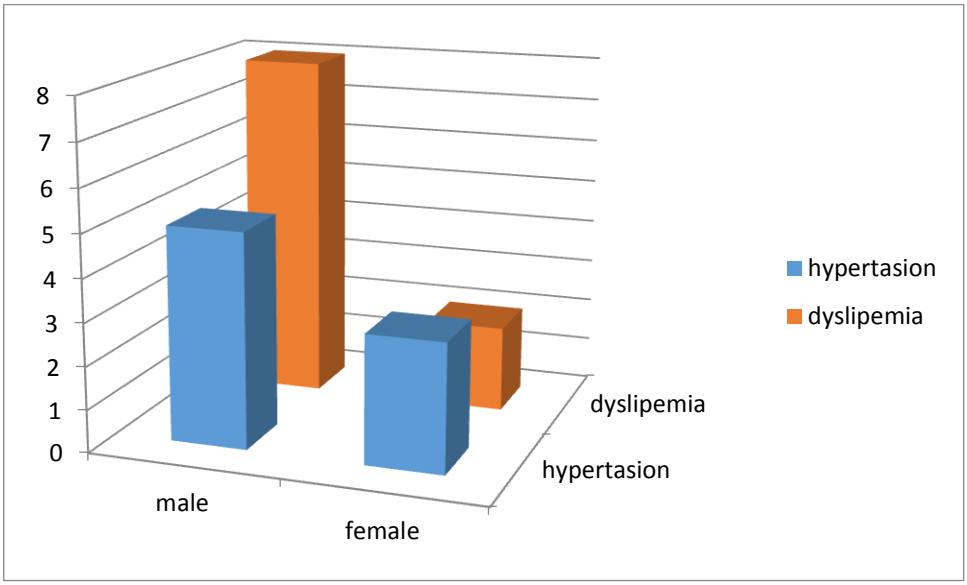

Fig. 3. Frequency of different types of aortic aneurysm morphology based on sex during 5 recent years in academic hospitals in Ahvaz.

Discussion

Aortic aneurysm as a potential fatal disease that despite being dangerous, it does not cause significant warning clinical symptoms, created the incentive of designing this study. In this study, the prevalence of aortic aneurysms in the community of patients referring to pathological departments of academic hospitals in Ahvaz during 5 years were identified as well as the age and gender distribution pattern between the two genders, average age suffering from aortic aneurysm in two genders, and frequency of different types its morphologic were determined, and while collecting this information, cases such as a history of hypertension and smoking were also taken into account. The research results were compared with previous conducted studies as follows.

In all the studies carried out in the white race the prevalence of all type of aortic aneurysms has been more in men than in women, and this despite the fact that the ratio is inverted in African society. For example, in research conducted in Norway, the percentage of men with the disease was 9.8% and women were 2.2% (3), and in research conducted in Sweden, the prevalence of aortic aneurysm in people of 65 to 75 years old, was 9/16% in men and 5.3% in women (4). According to this results and considering the fact that in the present study the ratio of the risk of having aortic aneurysm in men to women is 5 to 1, therefore this aortic aneurysm distribution pattern between the two genders in our studied society follows the pattern of most societies with white race. In conducted studies, aging, male gender and smoking were identified as risk of important factors in incidence of aortic aneurysm (1, 3-8). In research conducted in Norway, the prevalence of all types of aneurysm increases by aging and significantly in men (6). In addition in conducted researches, the average age of having aortic aneurysm of 50 to 60 years old is increased by aging, and this increase begins from age of 50 years old in men and age of 60 years old in women. In this study, the mean age of affliction was 57 years old, and the peak age of affliction in men was 50 to 60 years old and in women 60 to 70 years old. That these results correspond with previous conducted studies. In a study conducted in African society during 9 years on 264 patients, hypertension as a comorbidity existed in the 9.51 cases (9), and has been also identified as a risk factor in the many studies (4, 7); the percentage of people with hypertension in the patients with aortic aneurysm was 22% in the present study That compared to the previous study has a smaller percentage. 64% of our patients were smokers, and according to acknowledge of previous studies based on the strong role of smoking in the incidence of aortic aneurysm, this factor can be considered an important risk factor for aortic aneurysm in the present society. In research conducted in Nigeria, 67% of aneurysm cases were pseudo aneurysm that this percentage had been 8% in our study and much lower than similar studies. Due to lack of previous researches on the frequency of variety of aortic aneurysm morphology, there was not the possibility to compare the findings of this study on the variety of aortic aneurysm morphology with previous studies.

Conclusion

Since the number of patients by diagnosing aortic aneurysms that were treated, would not refer for pathological sample delivery, so these statistics cannot properly indicate aortic aneurysm prevalence in the community. Therefore, it is advisable to pay attention more to patients referring to surgical departments in future studies or screening study to be done through measuring the diameter of the aorta with sonography.

In addition, due to the high prevalence of aortic aneurysms in studied population, especially in men, it is necessary by estimation of the cost, screening for aortic aneurysm to be added to routine programs during hospitalization in men hospitalized patients over age of 50 years old or if the above patients refer with symptoms mentioned before, aneurysm to be considered diagnostic surveyed as a cause.

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