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ORIGINAL ARTICLE

Serological evidence of infection with C. pneumonia and occurrence of abdominal aortic aneurysm and atherosclerosis.

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Abstract: ***Seroepidemiological and some experimental evidence relate Chlamydia pneumoniae with the pathogenesis of vascular diseases such atherosclerosis and Abdominal aortic aneurysm. Methods and Materials: Study group: sixty consecutive patients operated on in our department, thirty patients operated for Abdominal Aortic Aneurysm (AAA) and thirty patients for aortoiliac occlusive disease: Leriche's syndrome (LS). Each research group assessed separately, each with various manifestations of ischemic vascular diseases of lower limbs. Control group were 31 patients admitted to our surgery department for treatment of abdominal hernia and gallbladder stones diseases without evidence of atherosclerosis nor aortic aneurysm.The blood samples were sent for serological tests: ELISA to detect IgG and IgA anti- C.pneumonia.So our aim was to study the relationship between serological evidence of infection with C.pneumonia and occurance of AAA and LS. Result: Sixty patients; 30 with abdominal aortic aneurysm (mean age 67.4: 27male, 3female) and 30 with aortoiliac arteriosclerosis (mean age 58.5; 29 male, 1fe male) undergone surgery of the abdominal aorta for atherosclerotic obstructive lesions were the study group. In our study detectable IgG antibodies to C.pneumonia was more common among the study group patients than the control group (85% VS 61% , P<0.02). It was also noted that IgG anti C.pneumonia detected more in patients with AAA((96,6%) than patients with LS (73,3%); P<0.01. Study group patients were roughly have had the same level as the control group regarding IgA antibodies anti-C.pneumonia(58% VS 67%; P value is insignificant).So we conclude that these findings suggest that infection with C.pneumonia may play a role in the pathogenesis of AAA and LS and further studies in this area are needed.***

Key words: chlamydia pneumonia, serology , atherosclerosis, Aneurysm.

INTRODUCTION:

Sero-epidemiological and some experimental evidences relates Chlamydia pneumoniae with the pathogenesis and natural history of vascular diseases such atherosclerosis and abdominal aortic aneurysm (AAA)[1,2]. As for all chlamydial infections, those of Chlamydia pneumoniae tend to remain persistent in some individuals as manifested by the continuous presence of elevated Chlamydia pneumoniae-specific IgG and IgA antibodies in serum [3]. As mentioned in many studies; high percentage of AAA patients exhibited serologic markers of persistent Chlamydia pneumoniae infection significantly [4,5,6].

METHODS AND SUBJECTS:

Study group: sixty consecutive patients operated on in our department, thirty patients operated for Abdominal Aortic Aneurysm (AAA) and thirty patients for aorto-iliac occlusive disease: Leriche's syndrome (LS). Each research group assessed separately, each with various manifestations of ischemic vascular diseases of lower limbs .All cases were operated on electively. Demographic characteristics, smoking habits, and medical history (arterial hypertension, ischemic heart diseases, diabetes, and hypercholesteremia) were recorded for each patient (Table 1). Sample of 5 ml of venous blood were taken from the 60 patients of the study group preoperatively.

Control group: Sample of 5ml of venous blood were taken also form the control group which were 31 patients admitted to our surgery department for treatment of abdominal hernia and gallbladder stones diseases without clinical nor image evidence of atherosclerosis nor aortic aneurysm. All blood samples were sent for serological tests: ELISA to detect IgG and IgA anti- C.pneumonia using testing set of Euroimmune produced by Euroimmune co. So our aim was to study the relationship between serological evidence of infection with C.pneumonia and occurrence of AAA and LS.

Statistical analysis: The results in this study were expressed as numbers and percentages or a mean ± standard deviation. comparison of quantitative measurements between groups was performed

using Student t-test. For all statistical tests analyzed, level of significance accepted as: highly significant when P<0.05 or significant if P=0.05.

Our study has got the approval of the local committee of Ethics .

RESULTS:

1. The demographic data of the patients in the study group and the control group are listed in Table
No significant differences were found between the two groups with respect to age, sex, known risk factors, and cholesterol levels

Table1: Demographic characteristics of the study and control population.

Parameter	Study group (n = 60)	Control group (n = 31)	P
Gender M/F	27/3	29/1	NS
Mean age ± SD	62.95 ± 9.1	59 ± 11,2	NS
Ischemic heart disease	32(53,3%)	-	
Hypertension	31 (51,6%)	-	
Diabetes	8 (13,3%)	-	
Hypercholesteremia	6(10%)	-	
Smoking history	44(73.3%)	19 (61,3%)	NS

NS=not significant.

2. Detection of IgG anti C.pneumonia in the serum of study and control group: the seroprevalence of IgG anti C.pneumonia was more frequent in the study group (85%) than in the control(61,3%): (P< 0.02). Table (2).

Table (2): Prevalence of the IgG anti M.pneumonia
in the serum of the study and control population.

Classification(n)	No. (%) of patients with +veIgG anti C.pneumonia
Study group (60)	51 (85%)
Control group (31)	19 (61,3%)

(P <0.02)

3. Detection of IgG anti C.pneumonia in the serum of of patients with abdominal aortic aneurysm (AAA) and aortoiliac obstruction (LS): the sero-prevalence of IgG anti C.pneumonia was more frequent in patients with AAA 29/30(96,6%) than LS 22/30 (73,2%.): (P< 0.01). Table (3).

Table (3): Prevalence of the IgG anti C. pneumonia in the serum of patients with abdominal aortic aneurysm (AAA)and aortoiliac obstruction (LS):

Classification(n)	No.and % of patientswith +veIgG anti C.pneumonia
AAA group(30)	29 (96,6%)
LS group (30)	22 (73,3%)

Difference between AAA and LS group is significant (P<0.01)

1. Detection of IgA anti C.pneumonia in the serum of study and control group: the seroprevalence of IgA anti C.pneumonia was roughly similar in the study group 35/60 (58.3%) and control group 21/31(67,7%): (u=0.88, NS). Table (4).

Table (4): Prevalence of the IgA anti C.pneumonia
in the serum of the study and control population.

Classification(n)	No. and % of patients with +ve IgA anti C.pneumonia
Study group(60)	35 (58%)
Control group(31)	21 (67,7%)

Difference between study and control group is not significant (u=0.88)

5. Detection of IgA anti C.pneumonia in the serum of of patients with abdominal aortic aneurysm (AAA) and aortoiliac obstruction (LS): No significant statistical difference in the thesero-prevalence of IgA anti C.pneumonia of patients with AAA 29/30 (96,6%) than LS 22/30 (73,2%.) : (P>0.01). Table (5).

Table (5): Prevalence of the IgA anti C.pneumonia
in the serum of the study and control population.

Classification(n)	No.and % of patients with +ve IgA anti C.pneumonia
AAA group(30)	29 (96.6 %)
LS group (30)	22 (73.2 %)

Difference between AAA and LS group is insignificant.

DISCUSSION:

Serological tests performed in different regoin in the world showed that C. pneumonia antibodies occurs in people from different countries in the world [7,8]. Development of IgG anti-C. Pneumonia depends on age of patients and it raises with ages [9]. IgG anti C. pneumonia sero-prevalence reach 50% in adult and 70% in elderly [7,9,10]. High levels of IgG anti C. Pneumonia antibodies in the serum indicate chronic infection with C.pneumonia[10,11,12], whereas IgA anti C pneumonia antibodies denotes active infection and disappear quickly after active infection passed. We used ELISA test to assess the presence and the concentration of IgG and IgA antibodies against C.pneumonia.In our study detectable IgG antibodies to C.pneumonia was more common among the study group patients than the control group (85% VS 61% , P<0.02). It was also noted that IgG anti C.pneumonia detected more in patients with AAA((96,6%) than patients with LS (73,3%); P<0.01. Our results are in accordance with those obtained by other authors [13,14]. Study group patients were roughly have had the same level as the control group regarding IgA antibodies anti-C.pneumonia (58% VS 67%; P value is insignificant).

So we conclude that these findings suggest that infection with C.pneumonia may play a role in the pathogenesis of AAA and LS and further studies in this area are needed.

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