Research Article

Determination some Immunological Aspects in Pulmonary Tuberculosis Patients in Qadisiyah Province

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ABSTRACT

This study was carried out to study of some immunological aspects among the pulmonary Tuberculosis patients infected with causative agent, *Mycobacterium tuberculosis*. A Total of 200 sputum samples were collected from patients attending the consultant Clinic for Chest and Respiratory disease center, Diwaniya. Control group (No=15) also included. According to acid fast stain of sputum, the patients were classified as positive (No=91,45.5%) and negative (No=109,54.5, Lowenstein Jensen medium used for the cultivation of samples, on which 70% of sputum samples where positive culture for this microorganism. The grown microorganism were identified as *M. tuberculosis*, based on positive A.F.B, Niacin producers ,negative for catlase at 68c. The mean IgG level was l184.053±76.684 mg/100 ml in tuberculosis group compared with 1016.533 ± 44.882 mg/100ml in control group, rendering the statistical difference significant. For IgA and IgM levels, they were at mean of 315.880±38.552 mg/100 ml and 119.527±8.464 mg/100 ml in control group compared with 396.358±38.776 mg/100 ml and 134.207±11.696 mg/100 ml in patients group respectively with significant difference.

Keywords: Pulmonary Tuberculosis

INTRODUCTION

Pulmonary Tuberculosis is one of the diseases that hit humans and animals alike[1]. It is estimated that one person gets Pulmonary Tuberculosis every minute worldwide and it causes 15 human mortalities every minute worldwide. The negligence of the affected patient is the cause of 10-155 other infection every year[2]. About 75% of the infections take place between 15-45 age group[3].

Immunological globulins are mainly occurring in blood plasma and form about 20% of plasma proteins. They also occur in the histological liquids. These globulins consist of proteins (69-82%) and sugar 44-18%). The activity of the globulins depends on their protein component[4].

Some other types of immunological globulins also occur in beta lymphoid surfaces of the cells as they work as recipients with the capability of recognizing the majority of challenging agents to the immune system. The bonding of these immunological globulins with those agents causes a chain of partial changes inside the cell. This bonding ends with the activation of the lymph cells which in turn divide and transform into plasma cells able of producing immunological globulins to be used as specialized antibodies against the agents that activated them in the first place[5].

There are five types of immunological globulins (IgA, IgD, IgE, IgG and IgM) according to the fixed part in the heavy chain in their composition. These types have biological different characteristics[5].

METHODOLOGIES

Thirty-five sputum samples were collected for this study from Pulmonary Tuberculosis patients who came to the Consultant Clinic for Chest and Respiratory Disease center, Diwaniya city and 15 sputum samples from healthy persons as a control group. The concentration of the immunological globulins was assessed (IgA, IgG, and IgM).

Plates were taken out of the fridge and left in the room temperature for five minutes. then, five microliters of plasma was added in each pit and the plates were incubated in 25C for 72 hours.

At the end of the incubation period, the diameter of the immune-precipitin ring formed around the pit was measured and the value was expressed in mg/100ml.

RESULTS AND DISCUSSION

Results in Table 3-1 show that the level of the immunological globulin IgG in the blood plasma of the control group was 1016.553 mg/100ml. this level elevated to 1148.053 mg/100ml significantly compared to the control group under the likelihood of 0.05.

Our results are consistent with the results of[6] about the high IgG level which validates the findings of this study in terms of the concentration of the antibodies. This probably suggests the freshness of the second infection.

The results of this study are also consistent with the findings in[7] that there is a significant high level of IgG in the samples of the infected group of patients due to the increase of producing the antibody as it is related to

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Table 1: IgG concentration in control and experimental groups.

Group	#	IgG concentration (mg/100ml)				
		Lowest value	Highest value	Average	SD	Correlation
Experimental	45	846.4	1706.9	1184.053	76.684	■
Control	15	473.6	1562.8	1016.553	44.882	

■ significant differences in comparison with the control group

Table 2: IgA concentration in both study groups.

Group	#	IgA concentration (mg/100ml)				
		Lowest value	Highest value	Average	SD	Correlation
Experimental	45	587.3	1025.8	396.358	38.776	●
Control	15	169.7	1706.9	315.880	38.552	

● no significant differences compared with the control group

encouraging the cellular termination mechanisms[8].

Table 3: IgM concentration in both study groups.

Group	#	IgM concentration (mg/100ml)				
		Lowest value	Highest value	Average	SD	Correlation
Experimental	45	71.8	195.3	134.207	11.696	●
Control	15	53.9	236.5	119.527	8.464	

● no significant differences compared with the control group

The level of IgA in the samples taken from the individuals in the control group reached an average of 315.880 mg/100ml. this level does not differ much from the one in the samples of the experimental group as it was 396.358 mg/100ml. there are no significant differences in these values when compared with the control group under 0.05 likelihood as shown in Table 3-2.

The average concentration of IgM in the control group was 119.27 mg/100ml, then it reached 134.207 mg/100ml. the statistical analysis did not show any significant differences in the comparison between the two groups under 0.05 likelihood as shown in Table 3-3.

The levels of IgA and IgM in the experimental group showed only a statistical insignificant increase when compared with the control group under 0.01 likelihood. This is consistent to the finding of[6] and the increase in IgA could be due to its function as an immunological detector for the producing surfaces or due to the large amount of producing cells in the lung[10].

In addition, the insignificant increase in IgA and IgM might suggest that they were confined and hard to identify[11] or to the lack of sufficient amount of bacillus in the conditions of high levels of antibodies[12].

Also, it was shown that the long history of the Pulmonary Tuberculosis infection causes the decrease in the levels of IgA and IgM[13].

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