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Association of IL-β1, PGj2 Among Patient with First Episode Psychosis (Case-control study)

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ABSTRACT

Background: *A first episode of psychosis is the primary point in time a person experiences a psychotic period. it is frequently very confusing. frightening and distressing, particularly for the reason that it is an unusual experience. unluckily, there are moreover many negative misconceptions and stereotypes linked with psychosis that can additional to one's distress. Aim of the study Investigate the association between some inflammatory biomarkers with first episode psychosis (FEP) and to find out the correlation with different socio demographic profile*

Methods: *A case-control study was involve patients with first episode psychosis and healthy control. peripheral Blood samples collected from 44 cases they were attending AL-Hakeem General hospital, Psychiatric Department, in the period between January, 2019 to may, 2019. the cases included females and males, and the age was 18-70 years. Control: 44 healthy controls who had no history or clinical evidence of fist episode psychosis or any other disease.*

Results: *revealed that increase in the level of Interlaken β1, and decrease PGJ-2 among FEP patients (1591.8±108.6, and 3.82±0.36) respectively in comparison to control were mean (554.8±54.8, and 9.94±0.67).*

Conclusion: *The inflammatory response is an immune system that allow the individual to cope with various menacing advise, but in long-lasting conditions and pathological, the continuous of this stimulate could develop into harmful. The regulation of the all development involves endogenous counter-balancing mechanisms that control special effects of deleterious pro inflammatory mediators. information showing a misbalance in some pro inflammatory/anti inflammatory in blood of person with FES.*

Key Words: First Episode Psychosis, Interleukin B1 , Prostaglandin J2

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INTRODUCTION

The word first episode psychosis (FEP) is applied to describe conditions that impact the mind, in which people have problems distinguishing between what is true and what is not. When this occurs, it is called a psychotic episode. The pathogenesis and aetiology of FEP is understood, although the facts suggests a contribution from both genetic Pro-inflammatory cytokines, those chemical messengers released in response to psychological stress or physical, can trigger FEP symptoms in some people, leading to change in feels and behaves. Inflammation can lead to symptoms that resemble FEP, and in people who already have FEP, inflammation can exacerbate the symptoms[1]

The Prostaglandin 15d-PGJ2 is the newly discovered type of prostaglandin. dehydration product of PGD2, unlike other prostaglandins in numerous respects. 15d-PGJ2 production by no specific prostaglandin synthase (PGS) and no specials 15d-PGJ2 receptor has been well-known to date. In place of, 15d-PGJ2 worked by PGD2 receptors. These characters are accountable for numerous of anti inflammatory functions [2] and environmental [3,4] In the deficiency of a biological marker, the diagnosis relies upon clinical assessment, besides

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participate to difficulties in early diagnosis, therapeutic choice, disease stratification, (treatment is largely experimental and prediction of outcome) [5].

The purpose of the study was to examine the role for using Interleukin-1(IL1) and Prostaglandin J2(PGJ2) as serum biomarkers. however, the biomarkers could help to explain the pathogenesis of the disease and the present of biomarkers for FEP which would be supportive for diagnosis and might help to know the molecular basis for these conditions, in the outlook studies, to be directly concerned in causing the disease symptoms, they would be very important targets for prevention efforts and rational treatment [6].

MATERIAL AND METHODS

Methods: Study Design : case-control study**.**

Patients: The study population involve patients with first episode psychosis. peripheral Blood samples collected from 44 cases at AL-Hakeem General hospital, Psychiatric Department, in the period between January, 2019 to Aprial, 2019. From 44 cases, there females and males, and the age was 18-70 years.

Control: 44 healthy controls who had no history or clinical evidence of fist episode psychosis or any other disease.

Collection of Sample: Samples of blood were taken from the individuals enrolled in this study after obtaining the oral consent of them. 5 ml of blood was obtained from cases and controls but, before drawing the blood , had to be cleaned the skin and blood sample were distributed to 2ml of blood to EDTA tube that for (ESR and WBC) and 3ml of blood to plain tube for immunological tests the Centrifuge samples at at 2 - 8°C 2000-3000 Round Per/Minutes for 15 minutes within 30 minutes.

Study Parameters: All suspected patients first episode psychosis and control group subjected to the following immunological tests Interleukin β-1 by ELISA, Prostaglandin J2 by ELISA and Serological Tests Erythrocyte Sedimentation Rate (ESR), White Blood Cell Count.

STATISTICAL ANALYSIS

The data of present important study were articulated as Mean ± Standard Error, the statistical analysis Descriptive statistics, Correlation coefficients, P-value were using Graphpad prism to calculated. The comparison between two groups were analyzed by t-test and the comparison among subdivided. when P-value < 0.05 was statistically a significant.relations between 2 categorical variables was explored by cross- tabulation. The statistical significance of such associations was assessed by Chi-square ($\chi 2$) test. An estimate was considered statistically significant if its P value was less than an α level of significance of 0.05.

RESULTS

1: Socio-demographic characteristics of the study groups.

44 patients with FEP and 44 healthy control enrolled in the present study, Table (1-1) shows the socio demographic characteristics of them, the majority of diseases occur in female 26(48.1%), among age group (30-50)years (65%) On the other hand, out of 44 FEP patients only, no statistically significant differences had been reported in gender, ,p-value >0.05, whereas statistically significant differences had been reported in regard to age.

Table (1): Socio demographic characteristics among cases with FEP and controls .

Socio demographic	Cases with FEP		Healthy Controls		Chi-square	P-value
	N	%	N	%		
Gender						
Female	26	48.1	28	51.8	0.19	0.660
Male	18	52.9	16	47.1		
Age						
(30-55) y	26	65.0%	14	35.0%	6.6	0.0102
(15-29)y	18	37%	30	62.5%		
Non- smoker	36	51.4%	34	48.65		

2: Distribution of Interlaken-β1, PGJ-2 in the Studied Groups.

The result of table (1-2) revealed that increase in the level of Interlaken β1, and decrease PGJ-2 among FEP patients (1591.8±108.6, 3.82±0.36) respectively in comparison to control were mean (554.8±54.8, 585.87±47.059 and 9.94±0.67).

Table (2): Distribution of Interluken β1, PGJ2 in the Studied Groups.

Biomarkers	FEP N=44	Controls N=44	P value
	Mean± SE		
Interluken β1	1591.8±108.6	554.8±54.8	0.00024
PGJ2	3.82±0.36	9.94±0.67	0.000119

3: The correlation between biomarkers among patients with FEP .

To determine the association between following biomarkers IL-B1, PGJ2, with first episode psychosis diseases**,** There is a Inverse (negative) correlation (r = -0.51) between ILβ1 and PGJ2 of FEP patients, figure (1.1).

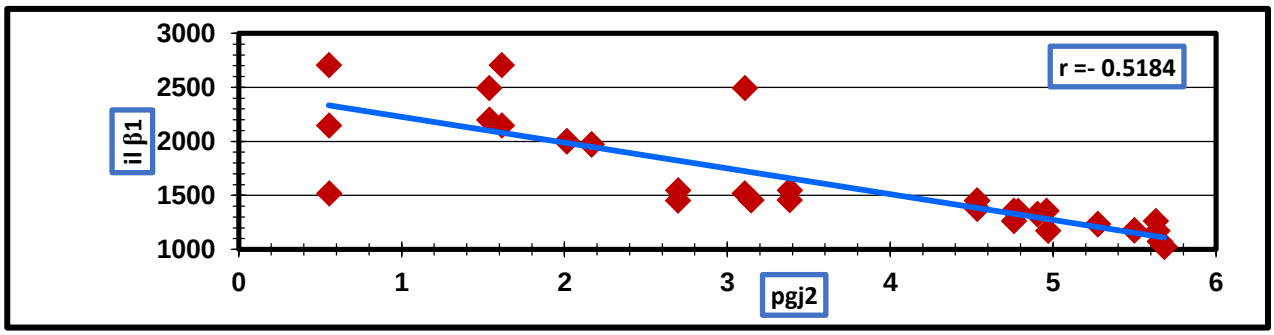

Figure (1.1) the graphical presentation of the inverse correlation between ILB1and PGJ2 FEPr =-0.5184 .

DISCUSSION

The importance of this study comes from measuring different bio marker involve tow anti and pro inflammatory markers in the itself statistical designs , and comparing them with same socio demographic characters (sex, age) to give a clear perception of all the variation included in this study.

1: Socio demographic characteristics of the studies groups. Result show the Socio demographic characteristics of the studies groups, where no statistically significant differences had been reported in gender, , smoking, residence , marital status , in all comparisons ,p-value >0.05, and statistically significant differences had been reported in age, occupation .

Distribution of FEP according to gender: this study showed that the majority of FEP patients (n=44)were females 26(48.1%), these results are similar to those of previous studies [7, 8, 9] While, The finding of the present study was incompatible with another studies like [10, 11, 12] they reported that the number of males patient more than females. FEP is higher in women than in men due to the alter in hormones levels which may influence inflammation. The estrogen hormone affecting the immune response and environmental factor could elucidate the reverse in the development for women.[13,14]

Distribution of FEP according to Age.

This study showed that the majority of FEP patients (n=44) were among age group (30-55) y. Other studies [15, 16] nearly have the same result. However, the results of the current study disagreement with results by [17, 18, 19] they mentioned that the majority of FEP patients were among age group (15-29) y . FEP is higher in group age (30-55) y among Iraqi patients may be due to the difficult social conditions experienced by the Iraq communities of wars , frequent and other social problems [20].

1: Distribution of Interlaken-β1, PGJ-2, in the Studied Groups.

The results showing an increase in the concentration of biomarker Interlaken β1 in patients of FEP with a clear difference from the concentration of the marker in the control (p-value=0.00024)These results are supported by the results of previous studies by [21, 22] p-value = 0.00031 as well as [23, 24, 25] they also reported statically significant differences in concentration of these biomarkers among cases p-value 0.01. The increase in concentration of pro inflammatory biomarker due to found of inflammatory ,but in control normal result .this increase of proinflammatory cytokines affect on the neuro-immunological chain by means of reciprocal interactions [26,27]. In this current study the concentration of the PGJ-2 was investigated in serum of 44 patients with FEP and 44 healthy controls by using ELISA kit and the results showed that the decrease in concentration PGJ-2 in patients with FEP compared with the control p-value =0.001. The results of current study are in agreement with results reported by [28_29, 30]. There is decrease in the concentration of pgj2 biomarker in patients due to the presence of inflammation consumes the natural concentration of marker , but in control ratios were normal [31].

3: Results of the correlation coefficient among biomarkers in patients with FEP.

In this study ,we have show There is a Inverse (negative) correlation between ILβ1 and PGJ2 of FEP patients. in the previous studies showing same result [32,33 ,34]. The inflammatory response is an immune system that allow the individual to cope with various menacing advise, but in long-lasting conditions and pathological, the preservation of this stimulate could develop into harmful. The regulation of the all development involves endogenous counter-balancing mechanisms that control special effects of deleterious pro inflammatory mediators. information showing a misbalance in some pro inflammatory/anti inflammatory in blood of person with FES .[35]

CONCLUSION

The inflammation association with symptoms of First Episode Psychosis. All age groups are at risk of having an equal incidence of First Episode Psychosis. Males and females have the same chance of becoming First Episode Psychosis. Biomarkers IL-β1,pgj2 can be used as diagnostic criteria.

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