

Original Research Article

Assessment of Testosterone and Luteinizing Hormones among Sudanese Psychiatric Patients

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Abstract: Psychiatric and mental disorders are the most common disease affecting the populations. The aim of this study was to assessment the level of serum testosterone and luteinizing hormones among Sudanese psychiatric patients. Cross sectional study was conducted during the period from November to December 2016, fifty samples from known psychiatric patients as case and fifty samples from healthy persons as control. The level of testosterone and luteinizing hormones was measured using Enzyme Linked Immunosorbent assay (ELISA) methods. Data were collected using structural questionnaire. Data analysis was carried out by means of statistical package for social science (SPSS version 16). The mean level of testosterone showed significant increase in psychiatric patients when compared to healthy individuals with P.value = (0.029), and the level of luteinizing hormone showed significant decreased in psychiatric patients when compared to control with p-value (0.000) respectively. There was significant increase of testosterone level in psychiatric patients with ages less than 40 years when compared to age more than 40 years p-value (0.000). There was insignificant variation in level of luteinizing hormones in case group when compared according to age. Increase level of testosterone and decrease level of luteinizing hormones in psychiatric patients.

Keywords: testosterone, luteinizing and psychiatric

INTRODUCTION:

The Mental disorder or mental illness or psychiatric disorder is a diagnosis, most often by a psychiatrist, of behavioral or mental pattern that may cause suffering or a poor ability to function in life [1]. Such features may be persistent, relapsing and remitting, or occur as a single episode. Many disorders have been described, with signs and symptoms that vary widely between specific disorders [1, 2].

Definitions of mental illnesses have changed over the last half-century, mental illness mental refers to conditions that affect cognition, emotion, and behavior e.g., schizophrenia, depression, autism [3]. Many studies focused of long term antidepressant medication's side effects, one of those on male fertility. One of them in Brazil conducted among adult male patients admitted during a 1-year period (December 1999 to December 2000) to 1 of 2 Brazilian public psychiatric inpatient units that provide care for severely ill patients [4]. For all treated patients serum concentrations of hormone including luteinizing

hormone (LH) and free testosterone (FT) were determined. The outcome revealed that high concentration of LH and low FT in comparisons with control healthy subject [5]. Another study was a review, which mentioned findings of many studies as one of them did find low testosterone hormone in men with schizophrenia, especially those with negative symptoms [6, 7]. Reductions in the free androgen index, a measure of biologically active testosterone, were recently found in a study of first episode antipsychotic-naive men with psychosis [8, 9]. Similarly, lower testosterone levels were reported in a recent study of male adolescents, suggesting that lower levels may precede illness onset [10, 11]. However the aims of this study to assessment the concentration of testosterone and luteinizing hormones among Sudanese under psychiatric drugs.

MATERIALS AND METHODS

Cross-sectional study was conducted at Taha Baasher Hospital during the period from November to December 2016. Fifty psychiatric patients aged from 20-70 years as case, and fifty healthy individuals as

control were enrolled in the study. Permission of this study was obtained from to local authorities in the area of the study. An informed consent was obtained from each participant in the study after explaining objectives of the study. Interview and questionnaire was used to collect data. 5 ml of venous blood was collected from each participant. Serum was separated directly from the plain container by centrifugation at (300 rpm) for 5 minutes. Serum levels of testosterone and luteinizing hormones were measured using Enzyme Linked Immunosorbent assay (ELISA) methods. Statistical analysis was performed using statistical package for windows (SPSS v16). Fisher's exact test was used to assess the categorical variables and student *t*-test or

kruskal wails for continuous variables. Data are presented as mean ± standard deviation (SD). *P* value less than 0.05 was considered statistically significant.

RESULTS:

Fifty sample from known psychiatric patients and fifty samples from healthy person as control were enrolled in the study. As shown in (Table 1), the mean level of testosterone showed significant increase in psychiatric patients when compared with healthy individuals (*P*.value = 0.029). Also there was significant decreased of luteinizing hormones level in psychiatric patients when compared with healthy individuals (*P*.value = 0.000).

Table-1: comparison the level of testosterone and luteinizing hormones between patients and control

Measured units	Means +/- SD		P-value
	Patients No. = (50)	Control No(50)	
Testosterone	6.23±2.6	5.4	0.029
Luteinizing	3.95± 0.93	6.2	0.000

Result expressed as mean ± SD

Significant different conceder as *P* – value ≤ 0.05

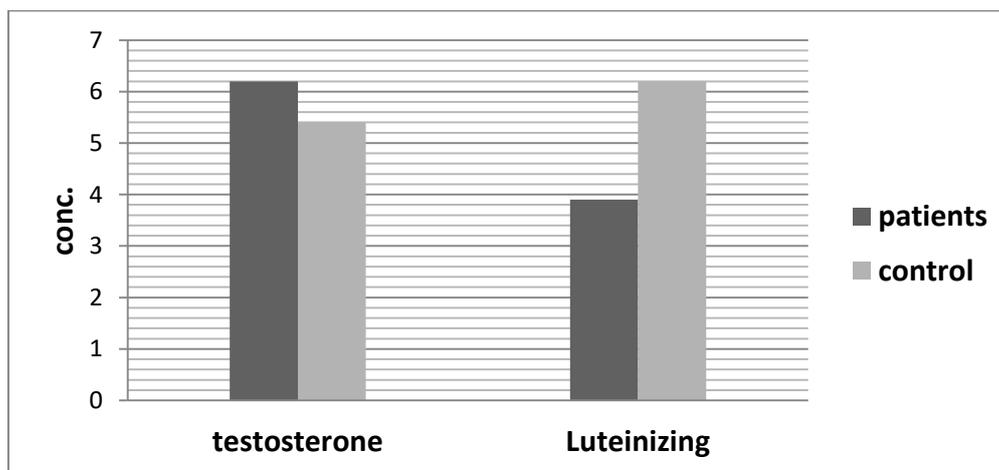


Fig-1: comparison the level of testosterone and luteinizing hormones between patients and control

There was significant increase of testosterone and decreased of luteinizing hormones level in

psychiatric patients when compared to control groups with *p*-value (0.029) and (0.000) respectively.

Table-2: Comparison the levels of testosterone and luteinizing hormones in psychiatric patients according to duration time of disease.

Measured units	Means +/- SD		P-value
	≥ 5years No.=(34)	< 5years No.=(16)	
Testosterone	6.41±2.7	5.84±2.3	0.481
Luteinizing	4.02±0.93	3.77±0.93	0.375

Result expressed as mean ± SD

Significant different conceder as *P* – value ≤ 0.05

There was no effect of duration times of hormones in psychiatric patients. disease on the level of testosterone and luteinizing

Table-3: Comparison the levels of testosterone and luteinizing hormones in psychiatric patients according to age.

Measured units	Means +/- SD		P-value
	≥40 No.=(33)	<40 No.=(17)	
Testosterone	7.33±2.1	3.95±1.6	0.000
Luteinizing	3.87±0.88	4.09±1.04	0.433

Result expressed as mean ± SD

Significant different concenter as P – value ≤ 0.05

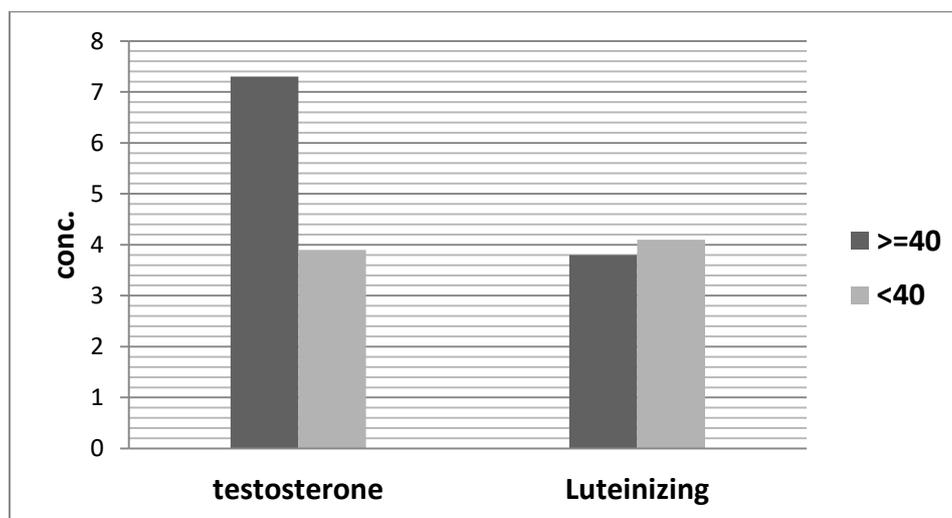


Fig-3: Comparison the levels of testosterone and luteinizing hormones in psychiatric patients according to age.

There was significant increase of testosterone level in psychiatric patients with ages group less than 40 years when compared to ages group more than 40 years with p-value (0.000), and no effect of the age on level of luteinizing hormones in psychiatric patients.

DISCUSSION:

In this study fifty psychiatric patients and fifty age and gender matched healthy individual as control were enrolled in the study .serum testosterone and luteinizing hormones were measured. The level of testosterone hormone showed significant increase in psychiatric patients when compared with healthy individuals(P.value = (0.026), also showed significant decreased in level of luteinizing hormone in psychiatric patients when compared to health individual with p-value(0.000). this finding was agreement with study done in Brazil conducted among adult male patients admitted during a 1-month at period from (September to October 2006), who reported that there was strong relationship between the concentration of these hormones and psychiatric disorder [14]. the study showed that there was insignificant variation in level of

testosterone and luteinizing hormones in psychiatric patients when compared according to duration time of disease this finding disagreed with previous studies, also the present study showed significant increase in level of testosterone in psychiatric patient with ages less than 40 years when compared to those with ages more than 40 years with p-value(0.00), this finding agreed with previous studies which reported that, the Testosterone levels begin to decrease after 30 years old, which is followed by a decrease in sex drive [15], there was insignificant variation in level of luteinizing hormones in psychiatric patients when compared according to ages.

CONCLUSIONS

The present study concludes, increase the level of testosterone and decrease level of luteinizing hormones in psychiatric patients when compared to normal individual, and also increase the level of testosterone in psychiatric patient with age less than 40 years and no effect of ages on the level of luteinizing hormones, and the present study found no effect of

duration time of disease on the level of testosterone and leutinizing hormones in psychiatric patients.

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