ORIGINAL ARTICLE

Serum Prolactin Levels in Patients of Major Depressive Episode with Dissociative Symptoms: a co-relational study

OMER JALAL, SALIM JEHANGIR, NAJAM AKHTAR

ABSTRACT

Aim: To determine the correlation between mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode.
Study Design: Cross-sectional Study.
Setting: The study was carried out in the Armed Forces Institute of Mental Health.
Results: Majority of the patients i.e., 29(38.66%) between 18-30 years mean and sd was 43.54+6.22 years, 32(42.67%) male and 43(57.33%) female patients. Mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode were recorded as 221.34+11.54 (mIU/l) prolactin levels while mean score of dissociative symptoms was 44.19+20.99%, R=0.57 while p value was calculated as 0.003.
Conclusions: A higher significant correlation between mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode and it may be used as routine biological marker for substantiating the diagnosis of dissociation and can be used as diagnostic protocol of these patients.
Keywords: Major depressive episode, mean prolactin levels, dissociative symptoms, correlation

INTRODUCTION

Depression is a well-known public health problem and 4th leading contributor towards world-wide burden of diseases. It is estimated to increased two folds by the year 2020[1]. Frequency of depressive disorders seems to be high in Pakistan[2]. In current era, other health issues, "political instability, lawlessness, unemployment terrorism and poverty are the major contributors of psychiatric illness." Depression association with dissociative symptoms is also increasingly higher in Pakistan as compared to developed countries.[3.] Depression is reported to be coexisted with other dissociative symptoms e.g., amnesia, fugue, depersonalization, possession state identity-disorder, depersonalization. Conventionally, these dissociative symptoms are considered as stress related issues with a psychiatric basis. The dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis in adults with major depressive disorder is among the most consistent and robust biological findings in psychiatry[4]. The dysfunction of HPA axis can be examined biochemically by dexamethasone suppression test, by assessing basal serum cortisol levels and by administering corticotropin-releasing hormone (CRH) challenge test.The glucocorticoid, cortisol, has been studied extensively by researchers in the context of HPA dysfunction and depressive disorders. However a correlation study reports serum

----

Armed Forces Institute of Mental Health, Rawalpindi
Correspondence to Dr. Omer Jalal, Department of Psychiatry, CMH, Quetta Email: dr_jalal79@hotmail.com

prolactin levels to be altered in addition to serum cortisol among depressive patients presenting with dissociative symptoms. The study indicated a strong correlation between dissociative symptoms and serum prolactin levels[5] (r=0.55, p=0.00027). Other studies in depression without dissociative symptoms have not shown similar changes in serum prolactin levels. Resting plasma levels of prolactin did not differ between depressed and healthy subjects (p-values>0.12)[6]. Prolactin level changes have thus been correlated with dissociative symptoms, rather than depression alone. It has also been suggested that psychoendocrine mechanisms during enormous stress experienced by patients experiencing dissociative symptoms may lead to alterations in serum prolactin levels.[7]Recent studies have shown that dissociative disorders have their own specific etiological backgrounds and not merely a medical or psychiatric misdiagnosis. Physicians and psychiatrists are quite handicapped in finding any cerebral lesion in dissociative disorders because there is no cerebral anatomical aberration as such which can be visualized on CT & MRI scans and EEG[8].

Hence, changing patterns of serum prolactin levels have been postulated to signify physiological brain aberrations rather than anatomical ones. The project is quite unique in the sense that almost no current work has surfaced in Pakistan in this regard. This study may help to understand the biological markers of dissociation. Serum prolactin may be used as routine biological marker for substantiating

the diagnosis of dissociation and results of my study may help in recommending its use in diagnostic protocol of these patients.

MATERIALS AND METHODS

A total of 75 cases between ages of 18 to 60 years with major depression associated with dissociative symptoms fulfilling the DSM IV-R diagnostic criteria were included in the study while pregnancy and lactation, current use of antipsychotic / any medication use that can influence prolactin secretions and co-morbid medical disorders that can influence prolactin secretion like neuroendocrine and metabolic disorders(pituitary tumours, Hypothyroidism) were excluded from the study. The study protocol was approved by the ethical committee of Armed Forces Postgraduate Medical Institute (AFPGMI) as well as by AFIMH. All patients were inducted into the study after obtaining a written informed consent. The presence of dissociative symptoms were confirmed by the use of Dissociative Experiences Scale II (DES). DES represents 28 items questionnaire examining main dissociative symptoms. Serum Prolactin levels were measured within twelve hours of their assessment and inclusion in the study. Standard protocols of sample preservation and measurement were used. Serum prolactin levels were measured at Armed Forces institute of Pathology by technique of chemiluminiscent immunoassay (CLIA) using analyzer (ADIVIA) by consultant pathologist. The relevant entries of serum prolactin were made in the data collection.

Data analysis: Data was entered and analyzed in SPSS 17.0. Frequencies & Percentages were calculated for qualitative variables like gender and marital status. Means & Standard Deviation was calculated for quantitative variables like age of patient and mean serum prolactin levels and mean score of dissociuative symptoms. To calculate Correlation between serum prolactin and mean score of dissociative symptoms correlation coefficient R in the range of +1,-1 was calculated. $P < 0.05$ was taken as level of significance.

RESULTS

Age distribution of the pateints was done which shows majority of the patients i.e., 29(38.66%) between 18-30 years, 21(28%) between 31-40 years, 17(22.67%) between 41-50 years and only 8(10.67%) were between 51-60 years of age, 43.54 ± 6.22 years.(Table 1) Gender distribution of the patients was done which shows 27(36%) male and 48(64%) female patients (Table 2). Frequency of marital status of the patients revealed 63(84%) married and

12(16%) unmarried (Table 3). Mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode were recorded in Table No. 4, where 221.34 ± 11.54 (mIU/l) was mean prolactin levels while mean score of dissociative symptoms was $44.19 \pm 20.99\%$, R=0.57 while p value was calculated as 0.003 (Table 4).

Table 1: Age distribution of the patients (n=75)

Age (in years)	n	%age
18-30	29	38.66
31-40	21	28
41-50	17	22.67
51-60	8	10.67
Total	75	100
Mean SD	43.54 ± 6.22	

Table 2: Gender distribution of the patients (n=75)

Gender	n	%age
Male	27	36
Female	48	64

Table 3: Frequency of marital status of the patients (n=75)

Marital status	n	%age
Married	63	84
Unmarried	12	16

Table 4: Mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode

Mean prolactin levels (mIU/l)	Mean score of dissociative symptoms
258.49 ± 124.500	44.19 ± 20.99
R=0.57	P value=0.003

DISCUSSION

Major depressive disorder has significant potential morbidity and mortality, contributing to suicide, incidence and adverse outcomes of medical illness, disruption in interpersonal relationships, substance abuse, and lost work time. With appropriate treatment, 70-80% of individuals with major depressive disorder can achieve a significant reduction in symptoms. Prolactin level changes have been correlated with dissociative symptoms, rather than depression alone. It has also suggested that psychoendocrine mechanisms during enormous stress experienced by patients experiencing dissociative symptoms may lead to alterations in serum prolactin levels[7].

Changing patterns of serum prolactin levels have been postulated to signify physiological brain aberrations rather than anatomical ones. We planned this quite unique project in the sense that almost no current is surfaced in Pakistan in this context. The results of the study will help to understand the biological markers of dissociation. Serum prolactin

may be used as routine biological marker for substantiating the diagnosis of dissociation and results of my study may help in recommending its use in diagnostic protocol of these patients.

The results our study reveal that mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode are 258.49 ± 124.500 (mIU/l) mean prolactin levels while mean score of dissociative symptoms was $44.19\pm20.99\%$, R=0.57 while p value was calculated as 0.003.

These findings are in agreement with a study conducted by Bob P and workers[5] which indicate a strong correlation between dissociative symptoms and serum prolactin levels[5].(r=0.55, p=0.00027).

These findings are in agreement with the findings that increased or decreased level of prolactin could be linked to psychological stressors.[8-11] Other findings include longitudinal studies indicate that stressful experiences associated with passive coping behavior are associated with increased plasma prolactin levels whereas stress situations associated with active coping are associated with unchanged or even lowered levels[11] Theorell[11] found that serum prolactin reacts in a bimodal fashion in conjunction with stress, i.e. it increases in subjects that experience passive helplessness, whereas it decreases in conjunction with increased anxiety and active coping. In comparison to the results obtained during acute (phasic) emotional states that report decreased prolactin[12-13]. Theorell focused his research on chronic (tonic) stress condition[11,12].

Dissociation is an analogical form of human response to inescapable and threatening stress with the same defensive tendency toward passive and avoidant coping that emerge as hopelessness, learned helplessness, social and emotional withdrawal and disengagement.[14-15] With respect to these findings the present study presents supporting material that documents close relationship between prolactin and dissociation as a typical form of passive coping behavior related to withdrawal and disengagement related to chronic stress conditions.

However, considering the facts of the study with the agreement with other studies, a higher significant correlation between mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode is determined and recommended that serum prolactin may be used as routine biological marker for substantiating the diagnosis of dissociation and can be used as diagnostic protocol of these patients.

CONCLUSION

We concluded a higher significant correlation between mean prolactin levels and mean score of dissociative symptoms in patients of major depressive episode and it may be used as routine biological marker for substantiating the diagnosis of dissociation and can be used as diagnostic protocol of these patients.

REFERENCES

1. Muhammad Gadit AA, Mugford G. Prevalence of Depression among Households in Three Capital Cities of Pakistan. Need to Revise the Mental Health Policy PLoS. One. 2007;2(2):209.
2. Husain N, Chaudhry IB, Afridi MA, Tomenson B, Creed. Life stress and depression in a tribal area.Br J Psychiatry. 2007;190:36-41.
3. Tabassum K, Farooq S. Sociodemographic Features, Affective Symptoms and Family Functioning in Hospitalized Patients With Dissociative Disorder (Convulsion Type) J Pak Med Assoc. 2007;57(1):23-6.
4. Guerry JD, Hastings PD. In Search of HPA Axis Dysregulation in Child and Adolescent Depression Clin Child Fam Psychol Rev. 2011;14(2):135-60.
5. Bob P, Fedor-Freybergh PG, Susta M, Pavlat J, Jasova D. Depression, prolactin and dissociated mind.Neuro Endocrinol Lett. 2007;28(5):639-42.s
6. Krogh J, Nordentoft M, Mohammad-Nezhad M, A. Growth hormone, prolactin and cortisol response to exercise in patients with depression. J Affect Disord. 2010 Sep;125(1-3):189-97.
7. Halford C, Ekselius L, Anderzen I, Arnetz 6.B, Svärdsudd K. Self-rated health, life-style, and psychoendocrinemeasures of stress in healthy adult women.Ups J Med Sci. 2010;115(4):266-74.
8. Simeon D, Guralnik O, Knutelska M. Hypothalamic-pituitary-adrenal axis dysregulation in depersonalization disorder. Neuropsychopharmacology 2001;25:793–5
9. Sonino N, Navarrini C, Ruini C. Life events in the pathogenesis of hyperprolactinemia. Eur J Endocrinol, 2004;151:61–5
10. Uhart M, Oswald L, McCaul ME. Hormonal Responses to Psychological Stress and Family History of Alcoholism. Neuropsychopharmacology, 2006;31:2255–63.
11. Theorell T. Prolactin- a hormone that mirrors passiveness in crisis situations. Integr Physiol Behav Sci, 1992;27:32–8.
12. Codispoti M, Gerra G, Montebarocci O. Emotional perception and neuroendocrine changes. Psychophysiology 2003;40:863–8
13. Olff M, Guzelcan Y, de Vries GJ. HPA- and HPT-axis alterations in chronic posttraumatic stress disorder. Psychoneuroendocrinology, 2006;31:1220–30
14. Nijenhuis ERS, Spinhoven P, Vanderlinden J. Somatoform dissociative symptoms as related to animal defensive reactions to predatory imminence and injury. J Abnorm Psychol 1998;107:63–73
15. van der Kolk BA, Greenberg M, Boyd H, Krystal J. Inescapable shock, neurotransmitters and addiction to trauma: towards a psychobiology of posttraumatic stress. Biol Psychiatry 1985;20:314–22.