Serum Concentration of S100B as Prognostic Parameter in Acute Schizophrenia Patients

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Abstract

Schizophrenia (SZ) is an ongoing mental issue portrayed by certain (e.g., pipedreams and fancies) ,negative (e.g., indifference and disabled inspiration), and psychological symptoms(e.g., lackluster showing in leader fu/nctions and consideration). S100B protein has been one of the most habitually examined proteins in schizophrenia. A few examinations have highlighted an expected part of s100B in SZ ,with most investigations detailing modified fringe levels of s100B when contrasted and sound controls,the point of this work is to decide serum level of S100B in an example of intense schizophrenic patients. Additionally to analyze the serum levels of s100B in schizophrenic patients and solid controls and to examine a potential relationship between's them. This scientific (case control) study included fifty patients intense schizophrenia and a comparative number of typical sound people as control gathering. The two gatherings were exposed to a semi organized meeting, SCID,PANSS and serum level of s100B.

Keywords: S100B, Schizophrenia.

1. Introduction

Schizophrenia is an exemplary mental finding wherein patients experience maniacal manifestations for more than a half year. It is one of the most unpredictable and testing insane issues being the world,s fourth driving reason for inability with lifetime pervasiveness of 1% so expanded the logical requirement for approval of natural markers for markers for the illness [1].S100B ,AA a calcium restricting protein delivered by astroglial cells, it crosses the blood cerebrum barrier(BBB), being utilized as a marker of BBB disturbance because of expanded penetrability and astroglial cell imtegrity. it controls cell cycle, cytoskeleton, energy digestion, cell correspondence, and cell growth [2]. Therefor,s100B can be considered as a marker of astroglial harm that can be prescient of a troublesome development after mind harm , and can consequently be a future biomarker of CNS diseases [3].Increased in S100B focuses have been considered as a part of the neuroinflammatory response.S100B plasma levels may fill in as a marker for intense phase of schizophrenia and might standardize or even lessening in a persistent phase of the disease [4].

2. Patient and methods

This case control study included fifty patients with schizophrenia who were selected from inpatient and outpatient facility of Benha Psychiatric Hospital. Fifty coordinated solid people with same age , sex, social class as patients were added. The examination was surveyed and endorsed by the institutional morals advisory group. The strategy was disclosed to the patients and educated assent was acquired. All members went through a semistructured meet, organized Clinical Interview for DSM Disorders (SCID I),positive and negative condition scale (PANSS) for seriousness of insane indications, and S100B estimation by ELISA. Rejection measures were age under 18 years of age , comorbid immune system sicknesses or substance misuse, other neuropsychatric or neurological problems. All patients griping of insane indications were inspected for approval of finding of schizophrenia. This occurred in the inpatient and outpatient center of Benha mental Hospital . An all out number of 77 schizophrenic patients were inspected. Comorbidity was available in 7 cases which was either substance misuse or mental or neurological disorder..12 would not take an interest because of long season of system or were reluctant with respect to blood test. Another 8 cases exited and didn't catch up. All cases and controls were exposed to intensive clinical, mental history and assessment. They were given another arrangement for the psychometric appraisal and the blood inspecting ,as a rule it took more than one visit. Because of a few visits and at times patients and of exited. at last the 50 cases and 50 controls were inspected, evaluated and a blood was gotten.

3. Statistical analysis

In statistical comparison between the different groups, the significance of difference was tested using one of the following tests: student T test: used to compare mean of two groups of quantitative data, and inter group comparison of categorical data was performed by using chi square test and fisher exact test(FET) and correlation coefficient: to find relationships between variables. A P value<0.05 was considered statistically significant(*)while>0.05 statistically insignificant p value<0.01 was considered highly significant (**) in all analysis.

4. Results

The study enrolled 28 male and 22 female in case group with a mean age of 30.3_+6 years and 26 male and24 female in control group with mean age of 30.1_+5.7 Table (1)

s100B level showed significantly higher concentration in studied schizophrenic patients before treatment when

compared to control group, s100B level decreased significantly 6 weeks after treatment Table (2).

s100B level was significantly higher in younger age, males, married, rural, unemployed Table (3).

Mean decrease in s100B levels before treatment and 6 weeks after treatment Fig (1).

Table (1) Comparison of demographic data between acute paranoid schizophrenic patients and control groups.

			Schizophrenic patients N=50		Control N=50		p
Age (years)		mean ±SD	30.3	±6	30.1	±5.7	0.892
Age	18-25	N, %	13	26%	12	24%	0.910
	>25-30	N, %	15	30%	17	34%	
	>30	N, %	22	44%	21	42%	
Gender	Male	N, %	28	56%	26	52%	0.688
	Female	N, %	22	44%	24	48%	
Residence	Rural	N, %	44	88%	42	84%	0.564
	Urban	N, %	6	12%	8	16%	
Married		N, %	25	50%	30	60%	0.312
Single		N, %	18	36%	16	32%	
Divorced		N, %	4	8%	4	8%	
Widow		N, %	3	6%	0	0%	
Employed		N, %	29	58%	32	64%	0.539
Unemployed		N, %	21	42%	18	36%	
Illiterate		N, %	18	36%	10	20%	0.182
Primary		N, %	17	34%	10	20%	
Secondary		N, %	10	20%	13	26%	
University		N, %	5	10%	17	34%	

* Significantp <0.05; **high significant p<0.01; *** very high significant p<0.001.

Table (2) Comparison of S100B levels between controls, studied schizophrenic patients before treatment and 6 weeks after treatment.

S100B levels (pg/ml)	schizophrenic patients N=50		Control N=50	P^1	P^2	P^3
	Before treatment	**6 weeks after treatment**				
Mean	127.9	86.9	36	<0.001***	<0.001***	<0.001***
±SD	±11.2	±10.3	±7.8			
	101.8-146.5	64.6-112.1	23.4-47.8			
Min-max						

P1, comparison between studied schizophrenic patientsbefore treatment and control; P2, comparison between studied schizophrenic patientsbefore treatment and 6 weeks after treatment; P3, comparison between studied schizophrenic patients6 weeks after treatment and control.

* Significant p <0.05; ** high significant p<0.01; *** very high significant p<0.001.

Table (3) S100B levels according to studied schizophrenic patients' features before treatment.

		s100B at admission					p
		N	mean	SD	min	max	
Age	18-25	13	141.6	3.1	136.8	146.5	<0.001***
	>25-30	15	131.6	3.2	125.7	136.7	
	>30	22	117.4	6.4	101.8	125.6	
Male		28	131.8	11.3	101.8	146.5	0.005**
Female		22	123.1	9.1	106.7	136.8	
Married		25	131.5	9.6	107.6	146.5	0.048*
Single		18	122.8	8.4	112.1	140.3	

Table (3) Continue

Divorced	4	127.3	19.6	101.8	144.4	
Widow	3	130.1	20.3	106.7	142.6	
Rural	44	130	10.1	106.7	146.5	<0.001***
Urban	6	113.1	7.9	101.8	123.2	
Employed	29	123.6	10.7	101.8	140.9	0.001**
Unemployed	21	133.9	9.1	119.6	146.5	
Illiterate	18	125.1	10.2	101.8	144.4	0.301
Primary	17	127.0	12.1	106.7	146.5	
Secondary	10	132.6	11.2	112.7	145.2	
University	5	132.1	11.0	120.2	144.6	

* Significant p <0.05; ** high significant p<0.01; *** very high significant p<0.001.
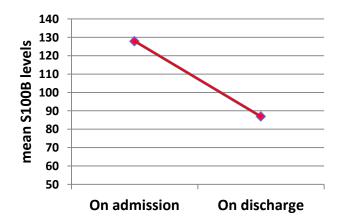
schizophrenic patients.

Fig (1) S100B levels 6 weeks after treatment and before treatment.

5. Discussion

In light of current medical services spending, it has been anticipated that before and more precise conclusion and mediation in schizophrenia would diminish sudden passing, hospitalization clinic affirmations. Thusly , the backslide rate could likewise be diminished and, in the more extended term, helpless result would be decreased [5].

Markers can assess neuronal injury and as of late, neurobiochemical markers of mind harm have increased specific consideration in distinguishing proof of schizophrenic patients .

S100B is restricting protein essentially gathered in astrocytes. Its levels in natural liquids cerebrospinal liquid, fringe and line blood ,salivation, amniotic liquid are perceived as a dependable biomarker of dynamic neural distress [6].

Despite the fact that the wide range of illnesses where the protein is included intense mind injury, neurodegenerative sicknesses, intrinsic perinatal issues, psychatric messes diminishes its explicitness, its levels stay a significant guide in observing the pattern of the disorder [7].

The current examination pointed toward deciding serum level of s100B in an example of intense schizophrenic patients and to research the relationship between's s100B levels and seriousness of indications in schizophrenic patients. Also, the examination pointed toward contrasting sound controls with schizophrenic patients with discover a relationship with fringe s100B level. Fifty intense schizophrenic patients were enrolled and coordinating solid people with same age, sex, social class as the example of patients were additionally enlisted. All member were exposed to a semi organized meeting that underlined some significant elements i.e.socio segment information including age, sex, residancy, conjugal status, and word related state, Athorough general clinical , neurological assessment and clinical mental appraisal was finished. Likewise they were surveyed by appropriate psychometric test for example SCID1,PANSS,and serum s100B estimation.

The mean age of the case and control bunch was 30.3 with no factual critical contrast between the two gatherings.

This might be clarified as schizophrenia is normally analyzed at the period of 30+6 (Gumley etal 2017) [8].

In concurrence with the current outcomes (Lara et al 2001) who found the mean time of patient gathering 31+7 and 31+5 years for case and control gathering [9].

The case bunch in the current examination included 28 guys (56%) and 22 females (44%) with the benchmark group comprised of 26 guys (52%) and 24 females (48%) and there was no factually critical contrast among cases and control bunch with respect to sex (schroeter etal., 2009) revealed comparable outcome with male transcendence (half) while (ling china et al., 2007) likewise detailed male prevalence (47%) in patient group [10,11].

This male prevalence may be expected to as schizophrenia happen 1.4 occasions more as often as possible in guys than females Gumley et al., 2017.

In the current investigation most of case bunch from country territories (88%) while (12%) were from metropolitan zones contrasted with (84%) of the benchmark group from rustic zones and (16%) from metropolitan regions and there was no statically huge contrasts among casa and control gathering , with respect to living arrangement [8].

This power of the example of patient from rustic regions might be that the examination happened in clinic which serve generally country territories, this was interestingly with Solmi et al.,2017 who have demonstrated expanded rate of schizophrenia in individuals conceived or brought up in metropolitan zones contrasted and those conceived or brought up in provincial areas [12].

Concerning there was no critical distinction among case and control gathering, This was in concurrence with Xuan wang et al 2019 who revealed no huge contrast among case and control gathering [13].

No critical distinction among case and controls concurring with age , sex , this is a concurrence with (Rothmenol etal 2004 ,steiner etal , Qily etal 2009, sarandol etal 2007)

There was no critical measurable distinction between the schizophrenic patients and control bunch with respect to conjugal status and occupation. There were 25(50%) hitched   patients,18(36%)single   patients,4(8%)divorced and 3(6%)widowed. With respect to 29(58%) utilized while 21(42%)unemployed [14,15,16,17].

In concurrence with our outcomes ,Xiang et al 2010 who found that 37.1% of schizophrenic patients were jobless. On the differentiation, U"coka et al 2012 discovered that,65,7% of schizophrenics were jobless [18,19].

With respect to occupation in our outcomes there was no huge contrast among case and control gathering. This was in concurrence with Wu hong et al,.2016 who detailed no critical distinction between considered gathering and control bunch as per jop.

serum S100B focus was altogether higher in situations when contrasted with the benchmark group (mean 127

,9+11,and versus 36+7.8 ,p,001 According to S100B cut of significant worth was(74.8) acquired by ROC bend all the cases were above it while in control all member were beneath it P ,001 and this kindnesses high s100B level in the contemplated schizophrenic patients when contrasted with controls.

The current outcomes were in concurrence with Chen et al 2017 who revealed that serum s100B was raised in considered gathering when contrasted with control gathering and it was a measurably huge P 0,001. Likewise Hong et al 2016 and Lara et al 2001 detailed that serum s100B fixation was essentially higher in situations when contrasted with control group [20,21,9]

More over these information were not in concurrence with Gattaz et al 2000 who revealed that schizophrenic patients had essentially lower s100B level than solid control . Likewise Uzbay et al 2013 and Hendouei et al 2016 detailed no huge contrast among tolerant and solid control [22,23,24]. Two contrasts may clarify the inconsistency of the outcomes in the event of Gattaz et al 2000 their example were outpatient while our example are primarily intensely inpatient so we can accept that the patients of Gattaz et al 2000 had less serious side effects than our patients .if there should be an occurrence of Uzbay et al 2013 2 contrasts may clarify the disparity with our outcomes. First the benchmark group was included by family members of the patients, second, patients test are more seasoned than our patients test. While in the investigation ofHendouei et al 2016 the patient example was basically involved Regarding the connection of serum s100B level and sex we found that there is sex distinction among people 131.8 versus 123.1 with men having more elevated level of s100B than ladies.

In concurrence with current outcome Yelmo et al 2013 who revealed more elevated level of s100B in men than ladies [25].

Interestingly with current outcome O. connell et al 2013 who demonstrated measurably critical expansion in degree of s100B in female patient gathering 97.78-10.34 ng L contrasted with male patient gathering [26]. This is upheld by contemplates have recommended that adipocyte tissue discharge s100B notwithstanding astrocyte cells. Increment of BMI in the female patient gathering contrasted with male patient gathering and control bunch is likely connected with expanded fat tissue and is in concurrence with theory that s100B protein in serum is affected by relesae from astrocyte as well as because of delivery from adipocytes in schizophrenia.

This distinction from our outcome might be because of our patients were of intensely beginning and medication innocent patient while patients of 0,C0NNEL were ongoing taking drug for long time so may have weight gain, glucose narrow mindedness and expanded BMI.

Interestingly with current outcome Qi ly et al 2009 who announced no sex distinction with serum s100B fixation [16].

In the current examination there was negative connection among's s100B and age might be as the vast majority of our example was of youthful age and varieties in serum s100B identified with age, from babies to grown-up have additionally been discovered Faugere et al 2015 [27].

In concurrence with current outcomes Lara et al 2001 who announced negative relationships with age, while Chen et al 2017 and furthermore Schumberg et al 2016 revealed no critical connections among's s100B and age. [9,20,28].

Consistant with our outcomes s100B level have diminished altogether between first estimation and second estimation yet s100B level at second estimation still fundamentally higher in patient than control. These outcomes were in concurrence with Ling et al 2007 who estimates serums100B level at affirmation and following 12 weeks of treatment. They found that at confirmation and following 12 weeks of treatment tolerant had more elevated levels of s100B than control and somewhere in the range of first and second estimation s100B had diminished significantly [11].

These information were not in concurrence with Rothermundt et al 2000who estimated serum s100B levels in schizophrenia inpatient at affirmation and following a month and a half of treatment. They found that patient had essentially higher s100B level than controls at confirmation yet this distinction was absent following a month and a half of treatment [14] Also Hendoeui et al 2016 didn't discover contrast in s100B levels between patients at affirmation and a month and a half later and control subjects, moreover s100B levels didn't diminish altogether among confirmation and a month and a half later in spite of that the clinical pictures of patients improved [24].

Such outcomes are likewise like Steiner et al 2009 who contemplated inpatient at affirmation and a month and a half later, they discovered patient had essentially higher s100B levels than sound control at confirmation yet at week six patients had diminished altogether the s100B level contrasted with affirmation those levels were like those of control group [15].

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We propose that distinction of our exploration is because of that our example was intensely persistent with prominant positive side effects which more reacting to therapy than negative manifestations that are less receptive to psychopharmacological therapy.

6. Conclusion

This study concludes that no statistical significance difference between case and control group regarding sociodemographic data while there was statistical significance between serum level of s100B and positive, general and total score of PANSS , s100B might get involved in the severity of psychopathological state, suggesting that s100B seems to be a promising molecular biomarker for further investigations in severity of schizophrenia.

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