

Somatosensory Evoked Potentials in Somatization Disorder

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Abstract

Using SEPs we examined 20 patients with SD diagnosed according to the ICD 10 and 20 matched controls. Comparing both groups we found increased amplitude of N20 in the patient group. This indicates neuronal hyperexcitability and suggests

the role of biological therapy in combination with psychological therapy.

Introduction

Somatization disorder (SD) is largely a disorder of women with chronic disability. It is a stable disorder overtime, even though lifetime comorbidity with major depression (87%) panic disorder (45%), mania (40%) and phobic disorder (39%) often intervene (Liskow et al, 1986).

The most common medical problems in SD encompass irritable bowel disorder (48%) and ovarian cysts (37%) (Orenstein, 1986). Such patients consume physician hours, undergo many laboratory tests, submit to numerous surgeries and frequently apply for disability all with high associated costs and disappointing outcomes (Smith et al, 1986).

However, the lack of biological research in SD is striking, as it remained in the realm of the psychogenic disorders without much biological thought given to how a particular psychological stressor, being a trigger for SD, might lead to multiple physiological dysfunction in various bodily systems. Numbers of psychiatric and preclinical investigators have proposed limbic and/or other neurobiological sensitization mechanisms as a basis for SD (Bell et al 1992).

As SD offers us a challenge that represents the prototypical psychobiological disease process whose elucidation will enrich our

understanding of the mechanisms of mind-body interactions. The need for biological research in SD became of utmost importance since psychiatrists and physicians now participate in the control of health care costs. In this work we tried to study the sensory cortex excitability in patients with SD using somatosensory evoked potential (SEP).

Subjects and Methods

Subjects

The subjects were 20 patients with Somatization disorder 5 males and 15 females, aged 20-45 years.

The control group was composed of 20 subjects matched with the patient group in terms of age, sex and educational level. Diagnoses for the patient group were based on the ICD-10 research and diagnostic criteria for SD. The purpose of the study was explained to the patients and also to family members when necessary and a consent was obtained. As the topic of this study was concerned with patients with somatic complaints without organic basis, those whose symptoms could be associated to physical disorders or were on regular treatments for well established diagnosis were excluded. Conditions leading to ex-

clusion were diabetes mellitus, malignant tumours, hepatic and renal dysfunction, ulcerative colitis and fractures. Also, patients known to have other psychiatric illness were excluded.

Methods:

Somatosensory evoked potentials

(SEPS) SEPs were recorded from the hand Somatosensory area of the contralateral hemisphere after median nerve stimulation at the wrist. The electrical stimulus was a constant voltage square-wave pulse of 0.2msec duration and its intensity was adjusted to produce a SEP of saturated amplitude to a single stimulus (usually 10-20% above the motor threshold). The recording electrode was placed 2cm behind the standard 10-20 system C3 or C4 position (Shagassf point). An electrode placed over the midfrontal position (Fz) was used as a reference.

Responses were amplified and at least 20 responses were averaged. We recorded the SEP response elicited by a single stimulus. Normal values for SEP were obtained from 20 normal volunteers. We compared patients and controls for the amplitude of N20.

Statistical methods

Statistical System Analysis (SSA) was used for data management and analysis. Quantitative data were summarized as means and standard deviations. Qualitative data were summarized as percentages. Comparisons between groups means were done using the Students t-test (Armitage and Berry 1987).

Results

The demographic data and clinical characteristics of the Patients meeting the entry criteria and controls are presented in Table (1). There were 10 women among them and the differences were not statistically significant. The mean duration in months for the disorder in the patient group was 5.9±5.9. Therefore, most of the Patients were considered to be chronic (6 months or more). Table 2 shows the most frequent somatic symptoms in the patient groups. Backache was the most frequent somatic presentation. Table 3 shows SEP finding in patients and controls. The N20 amplitude was found to be greater in patients than controls.

Table (1) Demographic and clinical characteristics of patients and Controls.

Characteristics	Patients	Controls
1- Number	20	20
2-Age	20-45	20-45
Range	32.7±6.2	35.6±6.8
M±SD		
3-Sex		
M/F	5/15	7/13
F.H.		
+ve / -ve	14/6	
Duration of illness in months		
M±SD	5.9±5.9	

Table (2) The Most Frequent Somatic Symptoms in Somatization Disorder.

Somatic Symptom	Percentage
Backache	75.2%
Shortness of breath	52.3%
Palpitation	51.6%
Joint pain	47.1%
Abdominal pain	39.2%
Joint pain	47.1%
Checking and difficult swallowing	30.9%
Painful menstruation	22.4%
Irregular menstrual	20.1%
Excessive menstrual bleeding	18.3%
Pain during urination	10.2%

Table (3) SEP Results in Patients and Controls

SEP	Control	Patients	P-value
N 20 amplitude M+SD	2.24+0.06	4.1+1.2	< 0.005

Discussion

Somatization has been defined in various ways , but all describe patients wit somatic complaints without organic basis .Some definitions state that there must be evidence of psychological factors or conflicts linked to the physical symptoms (e.g. in DSM-III-R).

Inspite, that SD patients tend to deny or minimize their psychological problems Somatization should be regarded as a basic mechanism which the human species has in response to stress (Goldberg and Bridges 1988).

But why do some people respond to stress in such a way while others do not Females constituted the majority in our patient group This goes with most of the literature and might have some cultural inferences as expressing their pains in somatic terms

gives them more respect and ensure more care and attention Most of the patients were coming from low educational categories and below average social classes In such circumstances the woman is totally dependent on a father or husband especially when she is not working .

The positive family history in the majority of cases points to the effect of parental teaching but it also carries a genetic weight.

Backache was the most frequent somatic presentation in our study. Palpitation and joint pains came next while abdominal and genitourinary symptoms were the least. However, careful analysis of such somatic presentations and their relation to other factors require a more specific report.

We tried in our study to accommodate these psychosocial observations under specific

biological mediating mechanisms. Teicher et al, 1993 have suggested that limbic kindling via early overstimulation of the developing limbic system from a variety of environmental stressors causes a spectrum of persistent neurobiological dysfunction.

These might range from behavioral to endocrine dyscontrol involving autonomic,, hormonal, immune and psychological systems regulated by the limbic system.

Pitman et al (1993) asked why would SD not also have a possible neurobiological basis in kindling like phenomena? In other words SD patients oversimplify their somatic and psychological responses to endogenous and exogenous experiences, but the source of the current amplification would be not simply psychological coping but rather an underlying neurological hyperactivity.

Our finding of greater amplitude of N20 in SEPs in the patient group compared with controls indicate hyperexcitability of the sensory cortex where this wave is generated This observation carries the assumption that hyperexcitability at the cortical level is due to subcortical lesions (Ugawa et al 1996).

Similar findings were reported by Marlowe, 1995 as he examined the amplitude of somatosensory evoked potential in patients with tension headache and reported that these patients may be more reactive to somatosensory input than control subjects.

However these findings need more confirmation in future studies Until proved the expected role of antiepileptics in SD is still questionable It might act on the kindling phenomena and reduces the cerebral hyperexcitability.

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الجهد المستفز الحسي في اضطرابات الجسدية

تم فحص عشرون مريضاً باضطرابات الجسدية وفقاً للتصنيف الدولي العاشر للأمراض النفسية بواسطة الجهد المستفز الحسي وبمقارنة مجموعة المرضى مع مجموعة التحكم وجد زيادة مدى الموجة ن ٢٠ في مجموعة المرضى.

من هذا يتضح زيادة قابلية الاستثارة العصبية في المرضى مما يبين دور العلاج الدوائي البيولوجي بالإضافة إلى العلاج النفسي.

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