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PREVALENCE OF NEUROLOGICAL "SOFT SIGNS" IN AFFECTIVE DISORDER AND THEIR CORRELATION WITH RESPONSE TO TREATMENT

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SUMMARY

A prospective study was undertaken in fifty patients who were diagnosed to have major affective disorder, to assess the prevalence of neurological soft signs, their localization and their correlation with response to treatment. Neurological soft signs have been shown to be very common in major affective disorder. They were mainly localized in the temporal and parietal lobes. There was no difference between depressed and manic patients. There was no correlation between the presence of soft signs and response to treatment. These soft signs may be nonspecific signs of psychosis. It has not been possible to assess whether neuroleptic use can explain the presence of neurological soft signs by the present study.

A neurological soft sign is a particular form of deviant performance on a motor or sensory test in the neurological status examination. The designation "soft" is usually taken to indicate that the person with the sign shows no other features of a fixed or transient neurological lesion or disorders. The clinical importance of soft sign is not in any impairment of motor or sensory function associated with their presence, for there does not seem to be any, but in their value as an indicator of some CNS factors, that might have causal or predictive value for associated psychological dysfunction and in particular learning and/or psychiatric abnormalities (Shaffer, et al., 1983). High incidence of neurological soft signs have been reported in minimal brain dysfunction (Clements et al., 1962; Wikler et al., 1970), emotionally unstable character disorders (Quitkin et al., 1976) hysteria (Benfeldt et al., 1976) heavy poly drug users (Grant et al., 1976) and consistently so in schizophrenia (Gur, 1977). Rockford et al. (1970) and Cox and Ludwig (1979) studied patients with alcoholism, unipolar depression, bipolar illness, schizophrenia and mixed neurotic disorders. Schizophrenia was the only group in which the incidence of specific soft signs was significantly present. Nasarallah et al. (1982) reported that the soft signs are as common in mania as in schizophrenia. Mukherjee et al. (1984) also has reported neurological soft signs in bipolar disorder. Keshavan et al. (1979) reported that primitive neurological soft sings like grasp, snout and palmomental reflexes are present in a considerable number of older people and in organic and functional psychosis.

The presence of neurological soft signs in affective disorder is poorly studied, scanty and controversial. The present study was aimed at achieving further data on the prevalence and localization of neurological soft signs in affective disorder.

AIMS

1. to study the prevalence of neurological soft signs in major affective disorder;
2. to study their localization;
3. to study their correlation with response to treatment.

METHODOLOGY

50 patients, both outpatients and inpatients who fulfilled the research diagnostic criteria (Spitzer et al., 1978) for major affective disorder (mania or depression) formed

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the test group. 20 people were chosen as normal controls, after they were screened for any evidence of psychiatric or physical disorders.

The following were the exclusion criteria: organic brain syndrome, major physical illness, ECT within the previous six months, impairment of sense of smell, hearing or vision, alcohol or drug dependence, mental retardation, impairment of attention and concentration and un-cooperative patients.

Detailed data collection was done at the beginning. The severity of illness and response to treatment were recorded at weekly intervals using depression rating scale (Hamilton, 1960) and Modified Mania rating scale (Blackburn et al., 1977). Tests for presence of neurological soft signs were done on all the patients. Patients were treated with antipsychotics, antidepressants, lithium or carbamazepine. A few patients were given ECT, but psychological tests were done prior to that. Response to treatment was recorded as good, moderate or poor depending on the score on the rating scale. Patient scoring less than ten on the rating scales was considered as showing good response.

Neurological Soft Signs (Cox and Ludwig, 1979)

The testing was done by the same rater on all patients and controls. Testing was done in one session. An average of one hour and fifteen minutes was taken for each session. Neurological soft signs were assessed using the condensed Neuropsychiatric Examination (Cox and Ludwig, 1979). The degree of abnormality in the soft signs was rated from 0 (absent) to 3, 4 or 5 (severe) depending on the type of test and the number of patient errors on the particular test item.

Frontal lobe signs

1. Grasp reflex
2. Palmo mental reflex
3. Visual perseveration of spoken commands
4. Conceptualization and follow through of difficult tasks
5. Mnestic disturbance due to poor effort or due to perseveration

Parietal lobe signs

1. Complex Motor act
2. Imaginary acts
3. Oral apraxia
4. Blunt Vs. Sharp discrimination
5. Simultaneous bilateral tactile extinction
6. Two object test
7. Astereognosis

Temporal lobe signs

1. Memory
2. Optokinetic Nystagmus
3. Draw a face test
4. Failure to recognize anomalies
5. Tapping rhythm test
6. Reproduction of oppositional and correlating phenemes

Occipital lobe signs

1. Visual fields
2. Optic gnosis
3. Optic agnosia

Statistical Methods

Statistical analysis was done by using students 't' test for testing differences between the means. Chi square test was used to test association between the groups. Correlation coefficient was calculated to find the intensity of relationship between two scores. Test for the significance of correlation coefficient was also done.

RESULTS

There were 34 males and 16 females between 18 and 60 years, in the experimental group. The control group consisted of 11 males and 9 females. There were 27 patients

TABLE I. *Age distribution among males & females*

	Controls				Patients			
	M	F	T	%	M	F	T	%
Upto 20	0	1	1	5	4	1	5	10
21—30	3	6	9	45	11	6	17	34
31—40	3	1	4	20	11	6	17	34
41—50	2	2	4	20	4	2	6	12
51—60	1	1	2	10	4	1	5	10
Total	9	11	20	100	34	16	50	100

with mania and 23 patients with depression at the time of the study. The patients and controls were matched for age, education and socioeconomic status.

TABLE II. *Economic status*

	Controls		Patients	
	No.	%	No.	%
Low Middle Class	2	10	8	16
Middle Class	13	65	29	58
Upper Middle Class	5	25	13	26
Total	20	100	50	100

TABLE III. *Educational status*

	Controls		Patients	
	No.	%	No.	%
High School and Below	10	50	27	54
Above High School	10	50	23	46
Total	20	100	50	100

Frontal lobe signs

40% of patients and 45% of controls showed frontal lobe signs when scoring on points were used.

Mean for patients 0.64 (S.D. = 0.93)
Mean for controls 0.70 (S.D. = 0.95)
$t = 0.16$, N.S.

Parietal lobe signs

45% of controls showed parietal lobe signs whereas 94% of patients showed parietal lobe signs. Scoring on points showed—

Mean for patients 3.24 (S.D. = 2.04)
Mean for controls 1.50 (S.D. = 1.89)
$t = 2.57$, $p < 0.01$

Temporal lobe signs

95% of patients and 70% of controls showed temporal lobe soft signs when scoring on points were used, it showed—

Mean for patients 6.26 (S.D. = 3.76)
Mean for controls 4.00 (S.D. = 2.70)
$t = 2.57$, $p < 0.05$

Occipital lobe signs

70% of the patients and 40% of control showed occipital lobe soft signs scoring on points showed—

Mean for patients 1.6 (S.D. = 1.4)
Mean for controls 0.85 (S.D. = 1.39)
$t = 1.75$, N.S.

There was no difference in the number of neurological soft signs between the two groups of patients, Mania and Depression.

There was no correlation between the number of neurological soft signs and response to treatment.

Total number of neurological soft signs present in patients were compared with the total number of neurological soft signs present in the control group. Neurological soft signs

TABLE IV

	Depression				Mania			
	Fron.	Pari.	Temp.	Occi.	Fron.	Pari.	Temp.	Occi.
Mean	0.54	2.70	6.41	1.45	0.75	3.4	6.05	1.8
ST. DE.	0.88	2.29	3.38	1.53	0.96	2.29	3.05	1.54

TABLE V. *Response to treatment depression*

Frontal	Good	%	Moderate	%	Poor	%	No response
0–1	17	85	2	10	1	5	1
2–3	5	100	—	—	—		1
Total	22		2		1		2
Parietal							
0–1	10	90.9	1	9.1	—		—
2–3	6	85.7	1	14.3	—		—
4–5	4	100	—		—		1
6–7	1	100	—		—		1
8–9	1	50	—		1	50	—
Total	22		2		1		2
Temporal							
0–1	2	100	—	—	—	—	—
2–3	2	100	—	—	—	—	—
4–5	5	71.4	1	14.3	1	14.3	1
6–7	5	100	—	—	—	—	—
8–9	4	80	1	20	—	—	—
10–11	4	100	—	—	—	—	1
Total	22		2		1		2
Occipital							
0–1	13	92.9	1	7.1	—	—	—
2–3	6	85.7	—	—	1	14.3	2
4–5	3	75.0	1	25	—	—	—
6–7	—	—	—	—	—	—	—
Total	22		2		1		2

TABLE VI. *Response to treatment mania*

Frontal	Good	%	Moderate	%	Poor	%	No response
0–1	12	66.7	5	27.5	1	5.6	2
2–3	3	100	—	—	—	—	—
Total	15		5		1		2
Parietal							
0–1	3	60	1	20	1	20	—
2–3	4	57	3	43	—	—	1
4–5	5	83	1	16.7	—	—	—
6–7	1	100	—	—	—	—	1
8–9	2	100	—	—	—	—	—
Total	15		5		1		2
Temporal							
0–1	1	100	—	—	—	—	—
2–3	3	60	2	40	—	—	1
4–5	4	100	—	—	—	—	—
6–7	3	75	1	25	—	—	1
8–9	3	75	—	—	1	25	—
10–11	1	33.3	2	66.7	—	—	—
Total	15		5		1		2
Occipital							
0–1	7	70	3	30	—	—	1
2–3	8	88.9	1	11.1	—	—	1
4–5	—		—	—	1	—	—
6–7	—		1	100	—	—	—
Total	15		5		1		2

TABLE VII. *Soft signs*

	Frontal	Parietal	Temporal	Occipital
Patients	45%	94%	95%	70%
Controls	40%	45%	70%	40%
t-value	0.6	2.8	2.57	1.5
Sig.	NS	$p < 0.01$	$p < 0.05$	NS

were more prevalent in the patient group. The difference was statistically significant.

Control	Patient
Mean = 3.95	Mean = 6.22
S.D. 2.16	S.D. 2.08
$t = 4.08$	$p < 0.001$

DISCUSSION

The main findings in this study are—patients with affective disorders have more neurological soft signs when compared to general population. This increased prevalence is statistically significant ($p < 0.001$). The dysfunction is mainly shown in the temporal and parietal lobes. There was no difference in the performance between the groups, mania and depression. There was no correlation between the number of neurological soft signs and response to treatment.

The present study has shown that neurological soft signs are more common in affec-

tive disorders compared to general population. This finding is the same as in the study of Nasrallah et al. (1982). In the present study, it was also found that parietal and temporal lobes were more affected in affective disorders as compared to frontal and parietal lobes in schizophrenia (Cox and Ludwig, 1979).

It is possible that drug effect may account for neurological soft signs (Mukherjee et al., 1984). In the present study 41 patients had history of antipsychotic treatment. Nine patients were only on antidepressants. They also had neurological soft signs, but since the number of patients on antidepressants was small, no conclusion could be made.

Neurological soft signs have been described even in untreated pre-schizophrenic children (Fish, 1977). So it is more likely that the soft signs are related to pathophysiology of psychosis rather than due to drug treatment of psychosis. These soft signs do not seem to affect the patients response to treatment, according to this study.

The limitations of the present study are that most patients were on treatment with neuroleptic drugs and whether drugs could produce neurological soft signs cannot be ruled out. All patients were symptomatic during the study and were not tested after the remission of symptoms. Control group was small compared to the patient group.

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