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PSYCHIATRIC DISTURBANCES FOLLOWING STROKE*

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SUMMARY

Details regarding the presence of various pre-stroke factors and pathogenetic factors were obtained in 50 stroke patients. Of them, 9 who were unconscious/semiconscious were considered separately and 1 was dropped because of inconsistent reporting. The psychiatric symptoms were rated on a self-designed scale. The relationship between these two sets of variables were studied. Male sex and the presence of past history of stroke were related to emotional withdrawal. Right-sided lesion was related to depression. Hypertension was related to hostility. The unconscious/semi-conscious patients had high levels of anxiety and tension in the pre-stroke week.

Introduction

Psychiatric disturbances following stroke, not only influence the clinical picture and therapeutic considerations but also affect the overall rehabilitative potential of the patient (Lishman 1978, Binder 1984). Among the various disturbances, mood disturbances have been studied in great detail and the various factors related to it have been reported (Lishman 1978, Folstein 1977, Robinson and Price 1982, Robinson *et al* 1983). Cognitive disturbances have also been studied in relation to their emotional and behavioural disturbances (Robinson *et al* 1984).

The aim of the present study is to examine the relationship between various pre-stroke factors, pathogenetic factors and post-stroke psychiatric disturbances in a group of hospitalised stroke patients.

Material and Methods

50 patients admitted in the medical wards of Government General Hospital, Madras, during the period between September – December 1985 were selected for the study. The diagnosis of "Cerebrovascular Accident" was made following a neurological consultation and by obtaining a CT scan if necessary. The patient was included in the study only when a co-operative relative who had stayed with the patient for the major part of the post-stroke period was available.

Of these 50 patients 9 cases, who were unconscious or semiconscious were considered separately. One patient was not included because of inconsistent repotting. The sample left behind (N = 40) consisted of 35 males (87.5 %) and 5 females (12.5 %). The age range was 25-80 years (mean 54.1 years; SD = 13.55). Of these patients 26 (65 %) were interviewed within the first 15 days following stroke, 6 (15 %) of them between 16 and 30 days after stroke and 8 patients (20 %) between 30 and 90 days after stroke. Of these 40 patients 97.5 % were married, 92.5 % were Hindus, 90 % were employed and 75 % were earning less than Rs. 400 per month. None of these patients had a family history or previous history of mental illness.

A rating scale (see appendix) was adapted from Brief Psychiatric Rating Scale (Overall and Gorham 1962) and Present State Examination Schedule (Wing *et al* 1974) for purpose of measuring psychiatric symptoms in this study. It was decided to cover both the pre-stroke week and the post-stroke period for scoring on the rating

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scale. Some of the relatives could not avoid overlapping in reporting. Hence the period of coverage for the conscious patients was limited to the entire length of post-stroke period upto the time of the interview. The rating scale was used in the case of unconscious/semiconscious patients to cover the week prior to the stroke, and rating was done based on reports of relatives.

The pre-stroke factors included in the study were tobacco use, alcohol consumption, hypertension, diabetes, cardiac disease and the distribution of patients are given in Table 1.

All the interviews were conducted in the afternoons, between 14.00 hrs and 16.00 hrs in order to avoid contamination due to diurnal variations, if any. Each patient and his relative were interviewed for eliciting information regarding psychiatric disturbances, based on overtly, observable behavioural items only. The data collected from interviews and the experimenter's observation were used for scoring on the rating scale mentioned above. The disagreement between the three sources of information were minimal, and did not affect scoring.

History of evolution of stroke was elicited in each case and a physical examination was carried out. Past history of stroke was elicited in 9 cases (22.5 %). Onset was within 1 hour in 33 cases (82.5 %). Types of stroke were ischaemic in 34 cases (85 %) haemorrhagic in 4 cases (10 %) and indeterminate in 2 (5 %). Aphasia was present in 19 cases (47.5 %). The lesion was located in the

Table 1

Pre Stroke Factors and the Distribution of Patients (N = 40)

	Variables	N	%
1. Tobacco use	Present	23	57.5
	Absent	17	42.5
2. Alcoholism	(adapted from Jellinek 1960)		
Grade 0	no consumption/normative amounts	26	65
1	excessive drinking without dependence/ tolerance	4	10
2	excessive drinking without dependence/ tolerance but with physical complications	1	2.5
3	excessive drinking with tolerance and/or dependence	9	22.5
3. Hypertension:			
Grade 0	diastolic B.P: 95 mm Hg and below	22	55
1	diastolic between 95 to 115 mm Hg	9	22.5
2	diastolic between 115 to 125 mm Hg	5	12.5
3	diastolic 125 mm Hg and above	4	10
4. Diabetes:	Present	6	15
	Absent	34	85
5. Cardiac Disease:			
	Absent	32	80
	Present:		
	Valvular	6	15
	Ischaemic	2	5
		8	20

Table 2

Psychiatric Disturbances and the Distribution of Patients (N = 40)

Variables	Psychiatric Symptomatology			
	Grade 0	Grade 1	Grade 2	Grade 3
1. Anxiety	14(35%)	13(32.5%)	10(25%)	3(7.5%)
2. Emotional withdrawal	20(50%)	7(17.5%)	10(25%)	3 (7.5%)
3. Tension	24(60%)	3(7.5%)	13(32.5%)	0
4. Depressive mood	13(32.5%)	7(17.5%)	13(32.5%)	7(17.5%)
5. Hostility	33(82.5%)	3(7.5%)	3(7.5%)	1(2.5%)
6. Unco-operativeness	25(62.5%)	4(10%)	7(17.5%)	4(10%)
7. Excitement	24(60%)	7(17.5%)	8(20%)	1(2.5%)
8. Disorientation	13(32.5%)	10(25%)	11(27.5%)	6(15%)
9. Memory	9(22.5%)	6(15%)	1(2.5%)	24(60%)

Table 3

	Variables	N	Mean	S.D	't' & 'p'
I	Emotional withdrawal:				
	in males	35	0.9429	0.9983	2.149
	in females	5	0	0	$p < 0.05$
II	Emotional withdrawal in:				
	past history positive	9	1.5556	1.1303	2.4118
	past history negative	31	0.6774	0.9293	$p < 0.025$
III	Depression in:				
	right hemispherical lesion	17	1.8235	1.2367	2.248
	left hemispherical lesion	21	1.0476	0.9735	$p < 0.05$

(2 Patients with bilateral lesions not included)

right hemisphere in 17 patients (42.5%) and in the left hemisphere in 21 cases (52.5%). two patients had bilateral involvement and the insults affected one hemisphere after the other in quick succession. All the patients were hemiplegic and were totally dependent upon others for personal care.

The relationships of the psychiatric disturbances to variables mentioned above were statistically analysed.

Results

Table 2 shows distribution of patients according to ratings on psychiatric disturbances.

Males had higher mean scores on emotional withdrawal than females. Past history of stroke was associated with emotional withdrawal. The mean score for depression was higher in the right hemispherical lesion than in the left. Figures are given in Table 3.

The pre-stroke factor of hypertension showed a positive correlation to the symptom of hostility ($r = +0.43$; $p < 0.01$).

Among the cognitive factors, memory disturbance was positively correlated to the symptom of excitement ($r = +0.3247$; $p < 0.05$).

The unconscious/semiconscious patients had high levels of tension (mean score 2; SD = 1) and anxiety (mean score 1.8889; SD = 1.1). They were not much different from conscious patients for other variables. No statistical analysis was done to compare the unconscious and conscious patients for psychiatric disturbances because the periods of coverage were different i.e. pre-stroke for unconscious patients and post-stroke for conscious patients.

Discussion

In this study, the patients had been interviewed for a period ranging from 4 days to 90 days post-stroke. The duration of post-stroke period was not significantly related to the severity of psychiatric disturbances. This suggests the necessity for periodic followup for longer periods.

Various pre-stroke and factors of pathogenesis of stroke are related to post-stroke psychiatric disturbances. Whether they are casually related will be a question to be answered in the face of more detailed data facilitating more sophisticated analysis.

Though differences in psychiatric disturbances between male and female subgroups could be brought out, it would be difficult to generalise the findings as the disparity in number between the sexes was large. Though reported elsewhere the age of onset had no relationship to psychiatric symptoms in the present study.

The opinion regarding the relationship between the laterality of lesion to depression has swung widely. Folstein (1977, 1983) reported a significant increase in depressive symptoms with right hemispherical lesions than with left hemispherical lesions. Other (Robinson and Szetela 1981, Robinson and Price 1982, Robinson et al 1984) have reported that depressive symptoms were commoner with left hemispherical lesions and that right hemispherical lesions tended to produce inappropriate cheerfulness and euphoria. In the present study right hemispherical lesions were associated with depression; thus supporting the findings of Folstein et al (1977).

The findings that past history of stroke was significantly associated with emotional withdrawal, suggests that the possible role of pre-existing neuronal damage in causing post-stroke emotional withdrawal.

Aphasia was not related to any of the psychiatric disturbances and this is in conformity with earlier reports (Robinson et al 1984).

In this study, cognitive disturbances were not related to emotional disturbances; keeping in line with earlier reports (Robinson et al 1984). However the finding that cognitive disturbances following stroke are related to certain behavioural disturbances as excitement, requires to be evaluated further.

In conclusion it may be said that studies on the neurophysiological and radiological correlates of psychiatric disturbances in stroke are likely to shed more light on the subject.

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APPENDIX

1. ***Anxiety*** — *Worry, fear, over-concern for the present or future:*
   - 0 – level not more than usual.
   - 1 – level more than usual, but does not require prompting to take care of himself.
   - 2 – level is more than usual, has to be prompted to take care himself.
   - 3 – has to be prompted many times, has to be helped actively.

2. ***Emotional withdrawal:*** — *lack of spontaneous interaction, isolation, deficiency in relating to others:*
   - 0 – interactions are as usual.
   - 1 – interactions less than usual, asks for many things.
   - 2 – interactions much less than usual, asks for only essential requirements.
   - 3 – interactions almost absent, others must give him even essential requirements.

3. *Tension:* *Physical and motor manifestations or nervousness, over-activity and tension.*

0 – absent, not more than usual.
1 – present but not observed and has to be elicited.
2 – present obviously, interferes with self-care and communication.
3. – disturbance in self-care, and communication are in the extreme range.

4. *Depressive mood:* *Sorrow, sadness, despondency, pessimism:*

0 – absent, not more than usual.
1 – mild, observed only on questioning.
2 – is not able to respond to pleasant events in the environment.
3 – severe, not lifted by anything.

5. *Hostility:* *Animosity, contempt, belligerence, disdain for others:*

0 – absent, not more than usual.
1 – mild, elicited only on questioning.
2 – quarrelsome.
3 – very quarrelsome to the point of being considered a nuisance.

6. *Unco-operativeness:* *Resistance, guardedness, rejection of advice or help:*

0 – absent, not more than usual.
1 – occasionally present, co-operates for medical treatment.
2 – frequently present, responds to coercion.
3 – not responding to coercion.

7. *Excitement:* *Heightened emotional tone, agitation increased reactivity:*

0 – absent, not more than usual.
1 – is mild and occasional.
2 – excited many times a day.
3 – very excited any time of the day.

8. *Disorientation:* *Confusion or lack of proper association for person, place or time:*

0 – absent.
1 – occasionally.
2 – frequent.
3 – marked or severe.

9. *Memory Disturbances:* *Occurring with any specific type of memory as long-term, short-term, ultra short-term etc.:*

0 – absent.
1 – present for a period of less than 12 hours and then recovered.
2 – present for a period of 12 to 24 hours and then recovered.
3 – present for a period of 24 hours and more.