A CLINICAL STUDY OF POSITIVE AND NEGATIVE SUBTYPES OF SCHIZOPHRENIA

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SUMMARY

Using a cross-sectional phenomenological approach, 40 schizophrenic patients satisfying Research Diagnostic Criteria were divided into positive, negative and mixed subtypes. On variables like age, duration of illness and premorbid adjustment significant differences emerged between positive and negative subtypes. No significant differences were found when positive and negative subtypes were compared on variables like intelligence, memory, history of treatment with neuroleptics and electroconvulsive therapy and past and family history of schizophrenia. The results are compared with other studies.

Introduction

Bleuler (1950) in his concept of schizophrenia made distinction between 'core' symptoms and 'accessory' symptoms and gave pre-eminence to the former. For years, the 'core' symptoms-disturbances of association, affect, ambivalence and autism were considered to be pathognomonic of schizophrenia. Later, Schneider's (1959) First Rank Symptoms-FRS gained popularity and influenced diagnostic practices and diagnostic criteria for this disorder (Cooper et al 1972; WHO 1973; Wing et al 1974; Spitzer et al 1978; APA 1980). Largely because of Schneiderian influence, Bleulerian 'core' symptoms lost importance in contributing to the diagnosis of schizophrenia.

In recent years, disenchantment with Schneiderian FRS has grown because of their inability to predict prognosis and outcome of schizophrenia (Strauss & Carpenter 1974; Brockington et al 1978; WHO 1979). Reports that FRS occur in conditions other than schizophrenia have also dented the credibility of FRS as being of pathognomonic importance in the diagnosis of schizophrenia (Taylor & Abrams 1973; Carpenter & Strauss 1974). Because of these, interest in Bleulerian "core" symptoms has been rekindled and many workers have postulated two types of schizophrenia-one dominated by florid symptoms of Schneiderian FRS variety and the other by Bleulerian core symptoms. It has been suggested that Schneiderian and Bleulerian concepts could be interpreted into the "Type I" and "Type II" or "positive" and "negative" dichotomies (Strauss et al 1974; Crow 1980; Mackay & Crow 1980; Andreasen & Olsen 1982).

Till recently research pertaining to this dichotomous approach of diagnosing schizophrenia was hampered because of lack of reliable instruments to measure negative symptoms. However, research work done by many workers has resulted in the availability of scales which reliably measure negative symptoms (Andreasen 1982; Lewine et al 1983; Kochler & Sauer 1984).

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Using these scales and a cross-sectional phenomenological approach, Andreasen & Olsen (1982) and Lindenmayer et al (1984) have shown that schizophrenics can be categorised into positive and negative subtypes. It has also been demonstrated that these subtypes differ on some clinical variables, history of treatment with neuroleptics, premorbid adjustment and ventricular brain ratio (Lindenmayer et al 1984; Andreasen et al 1982; Williams et al 1985).

Most of these studies have utilized either chronic patients or hospitalized subjects. This concept of schizophrenia has not been fully investigated in a cohort of schizophrenics attending psychiatric clinic of a general hospital. These reasons prompted us to undertake the present investigation. The study was conducted to determine whether this subtyping is applicable to schizophrenics attending a psychiatric unit of a general hospital and if so, what is the relationship between this subtyping and certain clinical and socio-demographic variables.

Method

Setting:

The study was conducted in the psychiatric unit of the Institute hospital at Chandigarh. The psychiatric unit has an active out-patient clinic and a 22 bedded acute admission unit. The psychiatric unit does not have any long stay or rehabilitation beds.

Patient Selection:

Patients attending the out-patient clinic or admitted to the in-patient facility were screened. Patients satisfying Research Diagnostic Criteria-RDC (Spitzer et al 1978) for the diagnosis of definite schizophrenia were included in study. RDC diagnosis was independently reached by both investigators.

Instruments

1. Scale for Assessment of Positive Symptoms-SAPS (Andreasen, 1984): This scale is designed to assess positive symptoms, principally those that occur in schizophrenia. The scale has four major subclasses—hallucinations, delusions, bizarre behaviour and formal thought disorder. It has thirty four rateable items, the last item of each major subclass is a global rating which is based on the nature and severity of the symptoms. The rating is done on a six point scale-0 denoting absence of the symptom and 5 presence to a severe degree.

2. Scale for Assessment of Negative Symptoms-SANS (Andreasen, 1981): This scale measures five negative symptom complexes—affective flattening, alogia, avolition-apathy, anhedonia asociality and attentional impairment. There are thirty rateable items and scoring is on a six point scale. The last item in each symptom complex is a global rating.

3. Abbreviated form of Phillips Premorbid Adjustment Scale (Harris, 1975): This scale consists of two subscales—one measuring premorbid sexual adjustment and the other premorbid social and personal adjustment. The maximum score which can be obtained is twelve. Low score indicates better premorbid adjustment.

4. Wechsler Adult Intelligence Scale-Revised WAIS-R (Pershad & Verma, 1982): This scale has been adapted and standardized for use in India by Pershad and Verma and has information, digit span, arithmetic and comprehension as subtests of intelligence.

5. Bhatia's short Battery of Perfor-
mance Tests (Murthy, 1966): This test has been standardized in India and consists of Koh's Block Design Test and Alexander's Passalong Test. Raw Scores are converted into standard scores taking into consideration the influence of age and education. Conversion tables are available with the test.

6. PGI Memory Scale (Pershad, 1977): This scale comprises of ten subtests which measure various aspects of memory. It was standardized on Indian population and is equally valid for both sexes. It is not dependent on intelligence.

Assessments

One of us (PK) interviewed the patients using the 9th version of Present State Examination-PSE (Wing et al., 1974) on the basis of which scoring on SAPS (Andreasen, 1984) was done. This investigator also enquired into detailed clinical history including history of treatment with neuroleptics and ECT. Family history of schizophrenia was determined following the criteria of Andreasen et al (1977). One of us (SKK) interviewed the patients and rated them on SANS (Andreasen, 1981). SKK also administered tests of intelligence memory and premorbid adjustment. Using the guidelines of Spitzer et al. (1978), the patients were divided into paranoid-non paranoid and acute-chronic varieties. All assessments were done within 3-7 days of identification and inclusion of the patient in the study.

Criteria for subtyping patients into positive, negative and mixed varieties:

Criteria of Andreasen and Olsen (1982) were used for this subtyping. Patients having one or more positive symptom to a marked severity and no negative symptom of a marked severity were classed as positive. Patients having two negative symptoms of marked severity and no positive symptom of marked severity were classed as negative. Patients who met criteria for both subtypes or none were considered to be mixed subtype.

Analysis of data:

For parametric variables students 't' test was used. Non-parametric variables were analysed by X^2 test.

RESULTS

Forty patients fulfilling RDC of Spitzer et al (1978) were identified. Using the criteria of Andreasen & Olsen (1982) 13 patients (32.5 per cent) were classed as positive, 15 patients (37.5) as mixed and 12 patients (30 per cent) were categorised as negative subtype of schizophrenia.

The three groups did not show any significant differences on variables like sex, marital status, past history, past history of treatment with neuroleptics and ECT. However, there were significantly more paranoid schizophrenics in positive and mixed groups as compared to negative subtype (Table 1).

Positive and negative subtypes showed significant differences on variables like age of onset, current age of the patient, duration of illness and premorbid adjustment. Negative schizophrenics became ill at relatively younger age, were seen in the clinic at a young age and had been ill for a longer duration as compared to positive schizophrenics. Negative schizophrenics also had poor pre-morbid adjustment.

Of the 40 patients in the study, 31 were initial contacts. 22 patients were treated on out-patient basis and 18 were hospitalized. Of these 18 patients, 7 patients had been hospitalized on more than one occasion.
Table 1
Socio-demographic, clinical and treatment variables

| Study variable                  | Positive (N=13) | Mixed (N=15) | Negative (N=12) | X²  |
|---------------------------------|-----------------|--------------|-----------------|-----|
| Sex                             |                 |              |                 |     |
| Male                            | 7               | 8            | 6               | 0.44|
| Female                          | 6               | 7            | 6               |     |
| Marital Status                  |                 |              |                 |     |
| Single                          | 2               | 4            | 6               | 3.66|
| Married                         | 11              | 11           | 6               |     |
| Diagnosis (RDC)                 |                 |              |                 |     |
| Paranoid                        | 10              | 12           | 3               | 10.30*|
| Non-paranoid                    | 3               | 3            | 9               |     |
| Diagnosis**                     |                 |              |                 |     |
| Acute                           | 9               | 7            | 3               | 4.89|
| Chronic                         | 4               | 8            | 9               |     |
| Past history                    |                 |              |                 |     |
| Present                         | 3               | 3            | 3               | 0.09|
| Absent                          | 10              | 12           | 9               |     |
| Family history                  |                 |              |                 |     |
| Present                         | 1               | 4            | 4               | 2.59|
| Absent                          | 12              | 11           | 8               |     |
| Neuroleptic treatment in past   |                 |              |                 |     |
| Received                        | 3               | 5            | 5               | 1.00|
| Not-received                    | 10              | 10           | 7               |     |
| Electro-convulsive therapy in past |             |              |                 |     |
| Received                        | 1               | 2            | 4               | 3.12|
| Not-received                    | 12              | 13           | 8               |     |

*p < 0.01 at df = 2

** for statistical analysis, acute and subacute patients were lumped together and subchronic and chronic patients were pooled together.

Table 2
Education, Premorbid adjustment and age related variables

| Study variable                      | Positive (N=13) | Mixed (N=15) | Negative (N=12) | P-M:  | M-N:  | P-N  |
|-------------------------------------|-----------------|--------------|-----------------|-------|-------|------|
| Age at onset (years)                | Mean 31.8       | 27.2         | 23.4            | 1.74  | 1.40  | 2.96*|
|                                    | S.D 6.8         | 6.7          | 6.0             |       |       |      |
| Current age of patient (yrs)        | Mean 33.5       | 29.5         | 25.2            | 1.50  | 2.00  | 2.76*|
|                                    | S.D 7.3         | 6.1          | 7.1             |       |       |      |
| Years of schooling                 | Mean 10.2       | 8.1          | 8.2             | 1.04  | 0.10  | 1.18 |
|                                    | S.D 4.0         | 5.9          | 4.4             |       |       |      |
| Duration of illness (months)        | Mean 10.2       | 27.4         | 47.8            | 1.48  | 1.31  | 2.93*|
|                                    | S.D 18.8        | 38.3         | 38.5            |       |       |      |
| Premorbid adjustment               | Mean 2.9        | 5.0          | 6.6             | 3.78* | 2.16* | 4.88*|

*p < 0.05
Discussion

The study demonstrates that a group of patients satisfying rigorous Research Diagnostic Criteria of Spitzer et al (1978) can be subtyped into positive, negative and mixed subtypes. The proportion of cases categorised as positive, negative and mixed in this study is similar to that reported by Andreasen & Olsen (1982), Lindenmayer et al (1984) and Opler et al (1984).

Our sample contains a mixture of paranoid and non-paranoid and acute and chronic patients. It mostly has ambulatory patients and those who were hospitalized, were in hospital for a shortwhile only. Though positive group had more acute patients than the negative group, this difference was not statistically significant. There were significantly more paranoid patients in the positive and mixed groups. This, however, could be an artifact of the diagnostic criteria used as it is a common observation that Spitzer’s (1978) RDC tap paranoid schizophrenia better than any other variety of schizophrenia. In this study, 77 per cent of positive schizophrenics were paranoid which is comparable to the number of paranoid patients in a study by Lindenmayer et al (1984).

On certain variables like current age of the patient, mean age of onset, duration of illness and premorbid adjustment significant differences between positive and negative subtypes were observed. Negative schizophrenic as a group had a mean age less that positive group. This finding is consistent with the observations of some of the earlier workers (Lindenmayer et al 1984; Opler et al 1984; Kolakowska et al 1985) but not in agreement with Andreasen and Olsen (1982) who reported negative schizophrenics to be older than positive schizophrenics. Similarly, our observation that negative schizophrenics had onset of illness at an earlier age is also not in agreement with Andreasen and Olsen (1982) who found positive schizophrenics to have an earlier age of onset. There is no easy explanation for this disparity but one reason could be the selection criteria which are different in these two studies.

Negative schizophrenics were noted to have significantly longer duration of illness as compared to the positive group. In this regard our finding supports the findings reported in the literature (Andreasen & Olsen 1982; Lindenmayer et al 1984). Our findings also lend support to the view that at least on the basis of age of onset and duration of illness positive and negative groups are different.

These findings also indicate that negative symptoms can occur early in the course of the disorder thereby suggesting that negative schizophrenia is perhaps a more insidious and fundamental process. This speculation is further strengthened by our observation that negative schizophrenics have poor premorbid adjustment. Some workers have also noted negative schizophrenics to display poor premorbid social, sexual and work adjustment (Andreasen & Olsen 1982; Lindenmayer et al 1984; Opler et al 1984).

Our data indicate that distinction between the two groups on the basis of sex, level of education, marital status, type of onset and past and family history of schizophrenia cannot be made. Negative group appears to have received treatment with neuroleptics and ECT more frequently than the positive group though these differences do not reach statistical significance. This may reflect that negative symptoms are either resistant to treatment or are treated more vigorously albeit
unsuccessfully. It is, however, acknowledged that due to various reasons details of treatment sought and undergone by patients were not fully evaluated.

In this study, no evidence of cognitive function impairment has been found despite using tests which are applicable to our patient population and which have either been standardized in our country or adapted for indigenous use. Kolakowska et al (1985) and Lindenmayer et al (1984) have shown that negative schizophrenics have impairment of cognitive functioning. Our results in this respect though different from other studies, are not exactly comparable because of differences in the tests to measure intelligence and memory. Due to lack of resources and facilities, other indicators of organic brain dysfunctions like soft neurological signs, EEG and CT Scan have not been employed which would have given more reliable results.

In summary, our study demonstrates that using a cross-sectional phenomenological approach, positive and negative subtypes of schizophrenia can be distinguished. Although this approach delineates these groups, a large percentage of schizophrenics remains as a mixed group. These two subtypes as well as the mixed group which can be viewed as an intermediate group or a group in transition, surely warrant much additional studies in future to determine the role played by various genetic, familial and biological factors in the genesis of the subtypes.

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