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Schneiderian first rank symptoms: Reconfirmation of high specificity for schizophrenia

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ABSTRACT - The prevalence of Schneiderian first-rank symptoms (FRS) in 294 consecutive admissions to a research unit was evaluated with reference to their diagnostic distribution (SADS/RDC). Thirty-five of 58 patients with schizophrenia had FRS, as compared to nine of 190 patients with major depressive disorder. All patients with two or more FRS received a diagnosis of schizophrenia. In the absence of organic or toxic etiology, the specificity of FRS for schizophrenia was 95% and their predictive value was 90%. These findings indicate that FRS should be regarded as strongly suggestive of schizophrenia in the absence of an organic syndrome.

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Kurt Schneider (1) described eleven first-rank symptoms (FRS) which he suggested were pathognomonic of schizophrenia when undeniably present in the absence of an organic or toxic etiology. This assertion generated little interest (2) until the appearance in 1970 of Mellor's extensive review of FRS (3) in which he concluded that "these symptoms offer an operational definition of schizophrenia which might be suitable for research purposes, particularly when a prior and exclusive selection of schizophrenic subjects must be made." Schneiderian FRS have since become increasingly important in the diagnosis of schizophrenia and have been made an integral part of several standard structured interviews, such as the Present State Examination (4) and the Schedule for Affective Disorders and Schizophrenia (5). They have also been introduced into widely used diagnostic systems, including the Research Diagnostic Criteria (RDC) (6) and DSM-III (7). However, even as the use of Schneiderian FRS in the diagnosis of schizophrenia has become more widespread, their specificity for schizophrenia has been diluted. DSM-III and RDC both require that an affective syndrome first be excluded before the presence of FRS can indicate schizophrenia. FRS are thus no longer considered diagnostic of schizophrenia in the absence of an organic etiology.

The question of whether FRS consistently distinguish between schizophrenia and major affective disorder has generated considerable debate and there are major inconsistencies in the literature with regard to this issue. Schneider (1) had claimed that "schizophrenia symptoms of first-rank importance have decisive weight beyond all others in establishing a differential typology between schizophrenia and cyclothymia, and must have undisputed precedence when it comes to the allocation of the individual case." This claim is supported by several studies that suggest that FRS have a high predictive value for schizophrenia. Wing & Nixon (8) noted that Schneiderian first-rank symptoms were associated with "nuclear schizophrenia" or "paranoid syndrome" in 95% of cases. Mellor et al. (9) reported 88% temporal stability of a schizophrenic diagnosis made on the basis of FRS over an average follow-up period of 5 years. Coryell (10) in an extensive family history and outcome study, found that

mood-congruent affective psychoses resembled non-psychotic affective disorders, while mood-incongruent affective psychoses resembled schizophrenia. Whalley et al. (11) reported an association between increased growth hormone response to apomorphine (suggestive of dopaminergic hyperactivity) in schizophrenia only as defined by FRS, but not when other diagnostic schemes were used. Akiskal & Puzantian (12) reported that FRS in affectively ill patients were often secondary to a concurrent drug psychosis and that in the differential diagnosis between schizophrenia versus affective psychosis, the specificity of FRS for schizophrenia was 90% provided that any complicating medical conditions were excluded. On the other hand, FRS have been reported to occur in over 15% of patients with affective psychoses (13–15). Some studies have reported the occurrence of FRS in affective psychoses defined by family history, treatment response, and course (16–19). Other studies have found that FRS have a poor predictive value for the various states that are assumed to be a consequence of schizophrenia (20–23). Pope & Lipinski (24), in an extensive review of the specificity of "schizophrenic symptoms", concluded that no symptoms including Schneiderian FRS had demonstrable specificity in diagnosing schizophrenia.

These discrepant findings prompted Mellor (25) to cautiously conclude that while "Schneider's claims about first-rank symptoms find only limited support from the more recent literature, those who find them of clinical value need not yet abandon them". The present study examined the prevalence and diagnostic specificity of FRS in patients admitted to the Clinical Studies Unit for Affective Disorders between 1977 through 1984, in an effort to help resolve the uncertainty reflected in the literature regarding their utility as primary diagnostic criteria.

Method

All admissions to the 12-bed Clinical Studies Unit for Affective Disorders at the University of Michigan Medical Center between 1977 through 1984 were reviewed for possible inclusion in the study. Patients were retained only if they had undergone a comprehensive SADS interview by a trained clinician in the course of the inpatient stay after having been off all medication for at least 2 weeks. These patients were screened for the presence of first-rank symptoms at the time of the baseline evaluation. Presence or absence of first-rank symptoms was established on the basis of the standardized SADS interview. The RDC diagnoses of all patients were reviewed and their clinical charts were scrutinized to determine the nature of treatment received. The prevalence of Schneiderian first-rank symptoms in the population of patients admitted to the unit and the diagnostic distribution of patients with FRS was evaluated. The relative specificity and predictive value of first-rank symptoms for the diagnosis of schizophrenia was assessed.

Table 1
Prevalence of FRS in various diagnostic categories

Diagnostic group	Number of patients	Number of patients with 1 or more FRS	Percentage of patients with FRS
Major depressive disorder	190	9	5
Primary MDD	171	4	2
Substance abuse with toxic psychosis with secondary MDD	19	5	26
Schizophrenia	58	35	60
Schizo-affective disorder	23	6	26
Manic disorder	5	0	0
Minor depressive disorder	9	0	0
Others	9	0	0
	294	50	18.9

Results

Over the 8-year period, 294 patients who met the criteria for inclusion in the study were admitted to the unit. Fifty of these patients exhibited one or more first-rank symptoms at the time of the baseline, drug-free SADS interview. The distribution of the 294 patients according to the major diagnostic categories and the prevalence of FRS is shown in Table 1.

Among the 50 patients with FRS, 28 had one FRS, nine had two, five had three, four had four

Table 2
Frequency distribution of individual FRS in 50 patients with first-rank symptoms

First-rank symptom	Number of patients	Percentage
Audible thoughts	14	28
Voices arguing or discussing patient	9	18
Voices commenting on patient's activity	10	20
Thought insertion	16	32
Thought withdrawal	14	28
Thought broadcast	13	26
Made feelings-made impulses	8	16
Made volition	10	20
Somatic passivity	5	10
Delusional perception	Not documented	-

FRS, two had five and two had six FRS respectively. No patient had more than six FRS. All 22 patients with two or more FRS received a diagnosis of schizophrenia.

The relative frequency of each FRS in the 50 patients with FRS is shown in Table 2. The prevalence of individual FRS in the 50 patients ranged from somatic passivity (five patients) to thought insertion (16 patients). The frequency of delusional perception could not be documented as it is not recorded as a specific symtom in the SADS. None of the FRS, analyzed individually, was found to be of significant value in discriminating among the various diagnostic categories.

While 35 of 58 patients (60.3%) with schizophrenia had FRS (see Table 1), only nine of 190 patients (4.7%) with major depressive disorder (MDD) had one or more FRS ($X^2 = 129.32$, df $= 1$, $P < 0.001$). When patients with secondary MDD with concurrent substance abuse and drug psychosis were excluded, only four of 171 patients (2.3%) with primary MDD were found to have FRS. Analysis of age, sex, and other demographic variables revealed that none of these factors was related to the presence or absence of FRS in the various diagnostic categories.

Six of the 23 patients with schizo-affective disorder had FRS. The status of this category is unclear. (According to DSM-III this category was retained in the manual without diagnostic criteria only for those instances in which the clincian was unable to make a differential diagnosis with any degree of certainty between affective disorder and either schizophreni-form disorder or schizophrenia.) In view of the nebulous character of this category and the uncertainty of its nosologic status and relationship to schizophrenia and affective disorders, it has been excluded from further analysis.

Thus, in the absence of an organic syndrome, the predictive value of FRS for schizophrenia was 90% (35 of 39). The specificity of FRS for schizophrenia as opposed to major affective disorders, was 97%. (Only four of the 176 primary affective disorder patients had FRS.) The sensitivity of FRS for schizophrenia was 60% (35 of 58).

All of the 35 schizophrenic patients with FRS were treated with neuroleptics; three of them additionally received a course of ECT. Of the four primary MDD patients with FRS, two were treated with a neuroleptic-antidepressant combination while the other two were treated with a course of ECT followed by a neuroleptic-antidepressant combination. Three of the six schizo-affective patients with FRS were treated with neuroleptics alone; two were treated with ECT and then maintained on neuroleptics, and one was treated with a neuroleptic-antidepressant combination. All five patients who had drug psychosis with secondary MDD and who showed FRS were briefly treated with a neuroleptic-antidepressant combination.

Discussion

The high specificity and predictive value of first-rank symptoms for schizophrenia found in this study support Schneider's belief that FRS, when present in the absence of an organic syndrome, almost invariably distinguish schizophrenia from affective disorders. Contrary to the work of various authors (13-15), FRS appeared in only 2% of patients with primary affective disorders. Our findings are in agreement with Akiskal & Puzantian (12) who concluded that Schneiderian symptoms in affectively ill patients were often (five of nine in our study) secondary to a concurrent organic or toxic state and that when the differential diagnosis was made between schizophrenia

and affective psychosis, the specificity of FRS for schizophrenia exceeded 90% provided that concurrent medical conditions were excluded. The work of Mellor (3, 9) and Wing & Nixon (8) are also in accord with these findings. It should be noted that in our study the presence or absence of FRS was reliably established on the basis of a SADS interview administered by an experienced clinician. Some previous studies on FRS have been faulted on phenomenologic grounds (2, 26), which may account for discrepancies between the present findings and those reported by other investigators.

The sensitivity of FRS for schizophrenia in our sample was 60%, a figure comparable to the 57% obtained by Carpenter & Strauss (27) and intermediate between the 72% reported by Mellor (3) and the 51% reported by Carpenter et al. (13).

In a review of the specificity of Schneiderian symptoms, Andreason & Akiskal (28) stated that the primacy of FRS for schizophrenia needed to be questioned because "the risk of tardive dyskinesia is no longer acceptable in potentially lithium-responsive disorders." None of the 50 patients with FRS in our sample was treated with lithium, in contrast to 35 of the 244 patients without them. All the 50 patients with FRS received neuroleptics, while only ten received antidepressants additionally. This observation provides a somewhat crude treatment selection validation of the specificity of FRS for schizophrenia.

Conclusion

The 97% specificity and 90% predictive value of FRS for schizophrenia in our population, which contains over three times as many patients with primary affective disorders as patients with schizophrenia, suggests that the decision to deny the specificity of FRS for the diagnosis of schizophrenia in the absence of an organic etiology may have been premature. We believe that an affective syndrome need not to be ruled out if FRS are present, and that FRS should be regarded as strongly indicative of schizophrenia in the absence of an organic syndrome.

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