Positive and Negative Symptoms in Schizophrenia

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One hundred schizophrenics were chosen from the psychiatric clinic of Alexandria University Hospital in a period of 6 months (January to June 1991). They were selected according to DSM-III-R criteria (1987). 50 patients have had symptoms between 6:12 months (subchronic) and the other 50 patients have had symptoms more than 2 years (chronic). Clinical and psychometric study showed negative schizophrenic symptoms in 16% of cases, while positive symptoms were found in 36% and mixed cases in 48%. 50 subchronic schizophrenics comprised 9% negative, 16%positive and 25% mixed, while the other 50 chronics were 7% negative, 20% positive and 23% (of the total) were mixed. Positive symptoms of the total sample were; hallucinations in 67%, delusions in 85%, positive thought disorders in 38%, behavioral disorders (aggressive, agitated, ritualistic and stereotyped behavior) in 67%. Negative symptoms included affective flattening in 67% of cases, alogia in 52%, avolition- apathy in 37%, anhedonia in 42% and attention impairment in 62%.

(Egypt. J. Psychiat.,1994,17: 33-40).

Introduction

The distinction between positive and negative symptoms in schizophrenia has been present since dementia precox was initially defined by Kraepelin. Although he did not use the specific terms positive and negative, he did recognize two broad classes of symptoms; those that were more florid and those that were marked by losses or deficits. He considered the latter to be the more devastating symptoms of the illness.

Bleuler described fundamental primary symptoms which he attributed to the direct expression of the disease of the brain and accessory (secondary) symptoms which could be derived from them.

In 1959, Schneider tried to make the diagnosis more reliable by identifying a group of symptoms characteristic of schizophrenia, but rarly found in other disorders. Unlike Bleuler's fundamental symptoms, Schneider's symptoms were not supposed to have any central psychopathological role.

Crow, in 1980 was the first to propose that this distinction could actually be used to create a typology of schizophrenia that would facilitate the study of its pathophysiology. He proposed that schizophrenia could be divided into two major syndromes, which he referred to as type 1 and type 2. Type 1 was characterized by prominent positive symptoms, normal brain structure, relatively good response to treatment and underlying

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neurochemical mechanism that was probably dopaminergic. Type 2 was characterized by prominent negative symptoms, structural brain abnormalities, impaired cognitive function, and poor response to treatment.

Recently, Andreasen (1982) and Liddle (1987) suggested a set of criteria that would facilitate further study of the positive versus negative distinction that was based purely on the clinical phenomenology of the disorder.

The aim of this work was to study the positive and negative symptoms in subchronic and chronic schizophrenic Egyptian patients. Also to detect the relation between the previous treatment and stress factor and the positive and negative symptoms in schizophrenia.

Subjects and Method

The material of this study was comprised of one hundred schizophrenic patients, chosen from the psychiatric outpatient clinic of Alexandria University Hospital in a period from 1/1/91 to 1/7/91. They were selected according to DSM-III-R Criteria.

50 schizophrenic patients have had symptom durations between 6-12 months and the other fifty have had symptoms for more than 2 years.

All patients were subjected to the following:

I- Clinical examination.

a- Demographic data.

b- Psychiatric evaluation.

c- Drug therapy assessment.

II- Psychometric study:

A) Scale for the Assessment of Negative Symptoms (SANS) by Andreasen (1983). Negative symptoms include: affective flattening, alogia, avolition, anhedonia and attentional impairment.

B) Scale for the Assessment of Positive Symptoms (SAPS) (Andreasen, 1984) Positive symptoms include: Hallucinations, Delusions. bizarre behaviour and positive formal thought disorder.

III- Statistical analysis using standard deviation (SD). "t" test. "Z" test, correlation / regression analysis and "F" test.

Results

The mean age of all schizophrenics was 27.4±9.72 years. The difference between the mean age for patients with negative, positive and mixed cases was statistically insignificant (Table 1).

The mean age of onset of schizophrenia was 23.05±7.84 years, while that of negative, positive and mixed schizophrenics were 19.58±23.02±7.49 and 23.43±8.07 years respectively.

Male schizophrenics comprised 60% while females were 40% of the total cases.

The mean duration of schizophrenia was 4.35±6.17 years, while that of negative cases was 11.42±14.56 and that for positive and mixed cases were 4.03±4.83 and 3.81±5.25 respectively. There was no significant difference (F= 0.4937).

General evidence of stress at onset was found in 49% of cases. 47% were psychological and 2% were physical (fever at onset and cardiac operation).

99% of total cases received major tranquilizers. 48% of them were mixed, 36% were positive and 15% were negative schizophrenics. The mean duration of using neuroleptics was 18.67 months for 96 schizophrenics.

38% received combinations of high and low potency neuroleptics. 44% received 2 types and 7% received 3 types of major tranquilizers.

26 pateints of total subjects received electroconvulsive therapy (26% of 100 patients), 3 of them (11.5%) were negative, 14 patients (35.84% of 26) were positive and 9 patients (34.61% of 26) were mixed schizophrenics. The mean

Table 1

Age, Sex, Age of Onset, Stress, Duration of Illness, Educational Level and Occupation in Relation to Positive, Negative and Mixed Schizophrenia

	Negative		Positive		Mixed		Total		F-test
Age in years	27.19±10.34		27.06±9.63		27.73±9.79		27.4±9.72		0.0529
Sex: Male	11		20		29		60		
Female	5		16		19		40		
Total	16%		36%		48%		100%		
Age of onset:									
Male	21.39±4.08		24.65±8.20		22.76±7.43		23.14±7.22		0.7975
Female	21.9±5.41		20.98±7.36		28.05±10.7		22.92±8.80		0.8585
Total	21.55±4.35		23.02±7.94		23.57±8.69		23.05±7.84		0.3929
Stress:									
Absence	11		19		21		51		
Psychogenic	4		17		26		47		
Physical	1		-		1		2		
Duration in years:									
Male	5.88±11.07		4.2±5.89		4.76±6.19		4.78±7.11		0.1938
Female	5.1±7.44		3.83±3.22		3.24±4.52		3.71±4.41		0.3493
Total	5.64±9.83		4.03±4.83		4.10±5.59		4.35±6.17		0.4135
Occupation	No.	%	No	%	No	%	No	%	
Professional	0		1	100	0		1	100	
Semiprofessional	0		1	20	4	80	5	100	
Manual	0		3	37.5	5	62.5	5	100	
Semiskilled	0		3	60	2	40	5	100	
Unskilled	1	9.1	5	45.455	5	45.45	11	100	
Student	1	4.52	7	30.38	15	65.1	23	100	
Housewife	1	7.69	5	38.46	7	53.84	13	100	
Not working	13	38.24	11	32.35	10	29.41	34	100	
Education:									
Illiterate	1	10	4	40	5	50	10	100	
Read and write	0	0	0	0	1	100	1	100	
Primary school	7	21.21	10	30.31	16	48.48	33	100	
Preparatory	2	11.21	7	38.88	9	50	18	100	
Secondary	5	17.25	10	34.48	14	48.27	29	100	
University	1	11.21	5	55.5	3	33.3	9	100	
Total	16	36	48	100					

Table 2
Number and % of Schizophrenic Patients, Positive, Negative, Mixed and Total in Relation to Treatment

	Negative		Positive		Mixed		Total		F-test
	No	%	No	%	No	%	No	%	
Major Tranquilizers:									
Received	15	15.6	36	36.36	48	48.48	99	100	
Not received	1	100					1	100	
ECT:									
Received	3	11.55	14	53.84	9	34.61	26	100	
Not received	13	17.56	22	29.73	39	52.71	74	100	
Antiparkinsonian:									
Received	10	13.15	23	30.27	43	56.58	76	100	
Not received	6	25	13	54.17	5	20.83	24	100	
Antidepressant:									
Received	3	33.3	4	44.45	2	22.22	9	100	
Not received	13	14.30	32	35.16	46	50.54	91	100	

number of ECT sessions was 6.31±2.88.

Antiparkinsonian treatment was received by 76%. Age of onset was directly proportional to the score of delusions (r= 0.2017). The positive symptoms tend to be positively correlated with the negative symptoms (r= 0.2404).

Affective flattening was directly proportional to alogia (r= 0.431), anhedonia (r= 0.199) and attentional impairment (r=0.320).

Alogia was directly proportional to avolition-apathy (r= 0.307) and t anhedonia - asociality (r=0.351). Avolition - apathy was directly proportional to anhedonia (r=0.270).

Delusions were directly proportional to positive formal thought disorder (r=0.202). On the other hand affective flattening was inversely proportional to delusion (r=0.252) and positive formal thought disorder (r=0.241). Also alogia was inversely proportional to hallucinations (r=0.331), to delusions (r=0351) and to the positive formal thought disorder (r=0.168).

The use of major tranquilizers was inversely proportional to the score of affective flattening (r=0.2286), to alogia (r=0.1888), to avolition (r=0.1764) and to anhedonia - asociality (r=0.1752); and was directly proportional to the score of delusions (r=0.214).

Table 3
The Correlation Between Age of Onset and Years of Education in Relation to the Scoring of Negative and Positive Symptoms

	Affective Flattening	Alogia	Avolition	Anhedonia-asociality	Attention Impairment	Hallucinations	Delusions	Positive formal thought disorder	Behavior disorder
Age	0.1068	-0.0691	0.0691	-0.07474	0.0183	-0.02 61	0.1308	0.0298	-0.1208
Age of Onset	-0.0276	-0.0276	-0.1222	0.0066	0.0353	0.0482	0.20171	0.1459	0.0079
Years of Education	-0.1415	0.0429	0.0695	0.1131	-0.0994	-0.001	-0.0642	0.0599	-0.0854

Table 4
Correlation Between Positive and Negative Schizophrenic Symptoms

	Affective Flattening	Alogia	AVolition	Anhedonia-asociality	Attention Impairment	Hallucinations	Delusions	Positive formal thought disorder	Bizzare behavior
Affective flattening	1.000								
Alogia	0.431*	1.000							
Avolition	0.121	0.307*	1.000						
Anhedonia	0.199*	0.351*	0.270*	1.000					
Attention impairment	0.320*	0.0872	0.0875	0.0947	1.000				
Hallucinations	0.180*	-0.331*	-0.243*	-0.148	-0.053	1.00			
Delusions	-0.252*	-0.351*	-0.248*	-0.038	-0.074	0.163	1.000		
Positive formal thought disorder	-0.241*	-0.168*	-0.069	-0.217*	0.011	-0.012	0.202*	1.00	
Behavioral disorder	-0.118	0.045	-0.152	-0.161	-0.059	-0.123	-0.064	0.110	1.000

Discussion

The present study was carried on 100 schizophrenics, showed that 16% were negative type, 36% positive type and 48% were mixed schizophrenics. Andreason and Olsen (1982) in U.S. evaluated 52 schizophrenics and found that 30.76% were negative type, 34.62% were positive type and 34.62% were mixed. Also, Kulhara (1986) in India, assessed 98 schizophrenics and found 25% to be negative, 30% positive and 45% mixed type. Also, Moscarelli et al. (1987) in Italy evaluated 59 schizophrenics and found that 8% were negative, 17% positive and 75% were mixed. All of these studies together with the present study showed that the mixed type is the highest frequency met with. This might be explained by the akinetic effects of neuroleptics which may produce a clinical picture that mimics negative symptoms, thus turning some patients with potentially "pure positive" symptoms into mixed type.

Studies of antipsychotic drugs have shown that they play the most important role in treatment of chronic schizophrenia, complete control of positive symptoms may take 6-12 weeks and sometimes only partial control is advised.

In the present study, nearly all patients (99%) received major tranquilizers, the most frequently used is trifluoperazine and the least was haloperidel. The Egyptian study of Mahfouz 1990, found that the majority of schizophrenics were treated by chlorpromazine.

The present study showed that there was a significant negative correlation between the use of major tranquilizers and the negative symptoms. Most authors have found that the response of negative schizophrenia to neuroleptics is worse than that of positive and mixed type.

ECT is most useful in those schizophrenics who have had recent and sudden onset of psychosis, or who have suffered from affective symptoms such as mood disorder, suicidal ideas or feeling of hopelessness or guilt (positive symptoms).

In this study 26% of patients received ECT. The mean ECT sessions was 6.31 ± 2.88 sessions, Andreasen and Olsen, Gurejo 1989 in Nigeria and Arndt et al., 1991 in Iowa found that 1/4-1/3 of studied groups of schizophrenia received ECT.

In the present study, positive symptoms tended to be positively correlated with one another; as did the negative symptoms together. Many studies found significant correlation between negative symptoms together; as well as between positive symptoms together.

Andreasen suggested that the positive symptoms tend to be at the "good premorbid or prognosis" end of a continuum, while those with negative symptoms are at the poor premorbid or prognosis end, while mixed symptom in the middle.

We can conclude finally that subtyping of schizophrenia into positive, negative and mixed categories is good. Although it does not address underlying empirically it clearly suggests that the positive and negative dimension explains some of the variance in the classification of schizophrenia. On the basis of clinical experience, it is clear that some patients may begin with positive symptoms but eventually develop a defect state. On the other hand patients who begin with prominent negative symptom probably tend to remain negative.

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Les Symptômes Positifs Et Négatifs Dans La Schizophrenie.

100 schizophreniques ont été choisis de la clinique psychiatrique de l'hopital de l'université d'Alexandrie durant une période de 6 mois (janvier a juin (1991). Ils ont été choisis selon le crietevia du DSM III R (1987). 50 patients avaient eu des symptômes entre 6 : 12 mois (Subchroniques) et les autres 50 patients avaient eu des symptômes pour plus que 2 ans (Chroniques). Les études clinicales et psychométriques ont démontré des symptômes schizophreniques négatifs dans 16% des cas, tandis que les symptômes positifs ont été trouvé dans 36% et des cas mixtes dans 48%.

50 schizophreniques subchroniques comprenaient 9% négatifs 16% positifs et 25% mixtes tandis que les autres 50 chroniques étaient 7% négatifs, 20% positifs et 23% (du total) étaient mixtes.

Les sgmptômes positifs de l'échantillant totale étaient: hallucinations dans 67%, délires dans 85%, désordres positifs de pensés dans 38%, désordres conductorales (agressifs, agités, ritualistiques et conduite stereotypée) dans 67%.

Les symptômes négatifs ont incliné des flattements affectifs dans 67% des cas, de l'alagie dans 52%, de l'avolition - apathie dans 37%, de l'anhedonie dans 42% et de l'impairement d'attention dans 62%.

الأعراض الايجابية والسلبية فى الفصام

تم اجراء هذا البحث على عينة تتكون من مائة مريضاً فصامياً من مستشفيات جامعة الاسكندرية حيث تم تشخيصهم حسب الدليل الاحصائى والتشخيصى الأمريكى الثالث المعدل – وقد تم تقسيمهم إلى مجموعتين تتكون من خمسين مريضاً، الأولى تعانى من شهر (تحت المزمنة) والثانية أكثر من عامين (مزمنة)، وقد١٢ – ١٦الأعراض لحوالى من ١٦٪، والأعراض السلبية فى ٣٦أظهرت النتائج أن الأعراض الايجابية كانت موجودة فى ٪ من٦٧٪ من الحالات: وتكونت الأعراض الايجابية من الهلاوس فى ٤٨وكلا الأعراض فى ٪ من الحالات٦٧٪ والضلالات السلوكية فى ٣٨٪، اضطراب التفكير فى ٨٥الضلالات فى ٪، اختلال٥٢٪، اضطراب المظهر فى ٦٧وتميزت الأعراض السلبية بتبلد الوجدان فى ٪ وتناقش الدراسة٦٢٪ واختلال الانتباه فى ٤٢٪، عدم الاستماع فى ٣٧الارادة فى الأهمية الاكلينيكية لهذه النتائج.