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Original Article

Early diagnosis of schizophrenia using androgyny score: an anthropometric study

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ABSTRACT

Aim: To evaluate the importance of androgyny score in early diagnosis of schizophrenia. **Method:** we studied 60 schizophrenic patients diagnosed on basis of DSM-IV-TR criteria by consultant psychiatrist of M.Y. Hospital, M.G.M. medical college, Indore. Biacromial and bi-iliac diameter were measured by Martin's sliding anthropometer and androgyny score was calculated. **Result:** significant lower androgyny score (more femininity) was found in schizophrenic males with and without family history of schizophrenia whereas in schizophrenic females, reduction in androgyny score was insignificant in both groups. **Conclusion:** androgyny score can be used as an effective tool in early diagnosis of schizophrenia especially in males where there is positive family history of schizophrenia.

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1. Introduction

Anthropometric measurements can be very helpful in study of genetic disorders, particularly as a diagnostic aid for the clinical geneticists. However anthropometry is quite underutilized because of several reasons like unavailability of appropriate measurements and concerned data. Anthropometry can be applied as a means of identifying, classifying and documenting many polygenic and heterogeneous disorders. The cooperation among physicians, geneticists and anthropologists for assessment of patients and collection of data is essential for early diagnosis of heterogeneous disorders like schizophrenia.

Schizophrenia is characterized by disturbances in thought and verbal behavior, perception, affect, motor behavior and relationship to the external world. [1] Syndrome begins in late adolescence, has insidious onset, progressive in nature and present in low socio-economic families and is increasing worldwide problem. [2]

Schizophrenics differ from normal subjects with regard to androgyny score and biacromial diameter whereas bi-iliac diameter shows no significant variation as indicated by previous studies. The androgyny score is a measure of relative maleness and femaleness of a body build. [3] The androgyny score enables the most effective differentiation to be made between the sexes. Heterogeneous nature of schizophrenia has also been responsible

for often conflicting findings of different investigations, shown by genetic linkage studies in schizophrenia. [4]

Previous studies done by Rey JH et al [4] and Cowie V et al [5] showed significantly lower androgyny score in both male and female schizophrenics whereas Kelsey FD[6] found lower androgyny score only in female schizophrenics and Vivek M et al [7] observed significantly lower androgyny score only in male patients.

Material and methods

60 schizophrenic patients(37 males and 23 females), well diagnosed on basis of DSM-IV-TR criteria by consultant psychiatrist of M.Y. Hospital, M.G.M. Medical College, Indore and 60 controls(32 males and 28 females) were taken for this study and data was analyzed using student t-test.

Selection of cases: Cases were both males and females, from 20 to 70 years of age of central India region, having no physical illness or psychiatric illness other than schizophrenia and having no congenital or hereditary disorders.

Selection of controls: They were taken on same criteria as cases; in addition it was specifically observed that they were not blood relatives of schizophrenic patients.

Anthropometric measurements were taken using sliding anthropometer.

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Biacromial diameter- a cms.

Bi-iliac diameter- b cms.

Androgyny score is calculated by formula,

$$\text{Androgyny score} = (3 \times a) - (1 \times b)$$

After selections of cases and controls, following groups were made further;

SM = schizophrenic male patients, SMF=schizophrenic male patients with positive family history of schizophrenia, SF=schizophrenic female patients, SFF=schizophrenic female patients with positive family history of schizophrenia, CM=control males, CF=control females

Result

This study has shown that lower androgyny score (more femininity) was found in schizophrenic males with positive family history of schizophrenia as compare to schizophrenic males without positive family and this was highly significant finding in both groups when compared to controls. Thus reduced androgyny score or more femininity is a significant finding in schizophrenic male patients.

Table no. 1 Showing mean and standard deviation (SD) of biacromial diameter and bi-iliac diameter of schizophrenic cases and controls

Group	Biacromial Diameter (cm)		Bi-iliac Diameter (cm)	
	Mean	SD	Mean	SD
SM	30.41	1.41	0.84	1.50
SMF	26.25	3.18	25.00	0.35
SF	26.62	0.76	24.12	1.23
SFF	26.50	0.71	24.00	0.70
CM	32.41	1.12	25.70	0.98
CF	26.79	0.84	24.54	0.77

Table no. 2 Showing mean and standard deviation (SD) of androgyny score of schizophrenic cases and controls

Group	Androgyny Score	
	Mean	SD
SM	65.67	3.65
SMF	59.75	1.77
SF	53.43	1.36
SFF	57.00	2.12
CM	70.53	2.93
CF	55.61	1.56

Table no. 3 showing Significance't' value of Androgyny Score in Schizophrenic cases and controls

Group	Comparison group	't' value	'p' value	Significance
SM	SMF	2.25	< 0.05	Significant
SM	CM	5.97	< 0.001	Highly Significant
SMF	CM	2.25	< 0.001	Highly Significant
SF	SFF	0.65	> 0.05	Insignificant
SF	CF	2.25	> 0.05	Insignificant
SFF	CF	1.19	> 0.05	Insignificant

Discussion

In present study two groups were made, with and without family history of schizophrenia to elaborate the prevalence of genetic descendents and both the groups of schizophrenic males were found to have lower androgyny score i.e. more feminine characters as compared to controls whereas the difference between androgyny score in schizophrenic females in both groups is insignificant. Tanner JM[3], Rey JH and Coppen AJ[4], Cowie et al[5] also found significantly lower androgyny score in schizophrenic male patients but they did not mention whether patients were having positive family history or not. Kelsey FD[6] found reduced androgyny score only in female schizophrenics. The results of study carried out by Vivek M et al[7] were in accordance with that of present study. Martha Sajatovic et al[8] also observed lower masculine characters in schizophrenic males and females.

Conclusion

The present study has shown that reduced androgyny score or more femininity is a significant anthropometric finding in schizophrenic males. Hence androgyny score can be used as an effective tool in early diagnosis of schizophrenia especially in male patients where there is positive family history of schizophrenia.

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