DERMATOGLYPHICS IN FEMALE CATATONIC SCHIZOPHRENICS

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SUMMARY

Dermatoglyphic features of 50 ICD-9 diagnosed female catatonic schizophrenic patients in the age range of 15-60 years were compared with those ethnically matched controls of the same sex. Patients were found to differ from controls in qualitative as well as quantitative features. Most of the differences matched well with the previous studies.

Although not much is clear about the etiology of schizophrenia, various family studies (Slater, 1968; Stephens et al., 1975) twin studies (Allen et al., 1972) and adoption studies (Heston, 1966; Rosenthal et al., 1968; Kety et al., 1971; Wender et al., 1974) have left little doubt that genetic factors play a role in predisposing to some forms of schizophrenia. To understand better the role of genetic factors in schizophrenia, various types of studies are being conducted. One of these fields is dermatoglyphics. Balgir and Srinivasa Murthy (1982) have reviewed various dermatoglyphic studies in schizophrenia. They found that inspite of a large number of studies in the field, no consensus has emerged. This can be attributed to the following reasons: (1) sample size of most studies was small, (2) most investigators did not use standard diagnostic criteria, (3) controls were not matched ethnically in many studies, (4) schizophrenia was not recognised as heterogenous illness in most studies and (5) incomplete analysis of dermatoglyphic features in most studies. However, Mellor (1968), Rosner and Steinberg (1968) and Srinivasa Murthy and Wig (1977) have taken into account the sub-categories of schizophrenia. But this data is quite meagre.

So a well controlled study was planned to highlight the significance of dermatoglyphic in female catatonic schizophrenics. Aim of the study was to compare the qualitative as well as quantitative features of finger and palm prints of female catatonic schizophrenics with those of the normal female population.

MATERIAL AND METHODS

Patients were taken from Psychiatry Department of G. B. Pant Hospital, New Delhi. G. B. Pant Hospital is exclusively a referral hospital associated with Maulana Azad Medical College and L. N. J. P. Hospital. It caters to the needs of patients from all parts of Delhi and surrounding states. Outdoor as well as indoor patients were included for the study.

Fifty female patients of catatonic schizophrenia were taken for the present study. Patients who had been diagnosed as catatonic schizophrenia were further evaluated to check whether it fulfilled the 'ICD-9' criteria or not. All cases with a doubtful diagnosis or a family history of psychiatric illness other than schizophrenia were excluded. Only patients in the age group of 15-60 years were included.

Fifty normal females well matched ethnically were taken as controls from the general population of Delhi. These individuals were not related to each other. They had no family history of any mental, hereditary or congenital illness.

‘Ink and pad' method was used for taking
dermatoglyphic prints of the subjects. Rolled prints were taken to avoid complete configuration and erroneous classification.

The finger and palm prints were then analysed for qualitative as well as quantitative features blindly. The following features were studied:

(a) Qualitative—
(i) Patterns in the finger
(ii) Patterns in the interdigit areas (I₂, I₃, I₄)
(iii) Patterns in the thenar/I₁ and hypothenar areas

(b) Quantitative—
(i) Total ridge count
(ii) 'atd' angle, individual hands and together

Cummins and Midlo (1961) were followed in the analysis of the dermatoglyphic features.

The data obtained was subjected to various statistical tests of significance viz. Chi-square test, z-test and t-test to find out differences between the patient and the control group.

RESULTS

Analysis of qualitative dermatoglyphic features shows that female catatonic schizophrenics and the control group differed significantly in finger pattern frequency (Table 1) and hypothenar (Table 2) and I₈ palmar area patterns (Table 3). Patients had fewer arch and whorl patterns and more loops on the fingers. Patients had fewer patterns in hypothenar area (statistically highly significant) and also in I₈ palmar area. However, the differences could not reach the level of significance in other palmar areas. Frequency of patterns in thenar/I₁, palmar area in patients was eight as compared to 13 in controls (X² = 1.33, d.f. = 1, N.S.). In I₈ palmar area patients had a total of nine patterns whereas controls had eight (X² = 0.06; d.f. = 1, N.S.). Number of patterns in I₈ palmar area of patients was 61 as compared to 55 of controls (X² = 0.74; d.f. = 1, N.S.).

Qualitative analysis did not reveal any significant difference between the two groups. ‘Total ridge count’ of patients (Mean = 145.5; S. D. = 33.90) and controls (Mean = 144.06; S. D. = 38.87) did not differ significantly (z = 0.197; N.S.). Similarly ‘atd’ angle in patients (Mean = 84.16; S. D. = 14.79) and controls (Mean = 79.46; S. D. = 14.18) did not differ significantly (z = 1.62; N.S.).

DISCUSSION

The previous investigators (Mellor, 1968 and Srinivasa Murthy, 1975) who have stu-
Table 4. Summary of various studies on female catatonic schizophrenics

| Investigator            | No. of patients | Frequency of fingerprint patterns (Increased/Decreased) | Frequency of palm patterns (Increased/Decreased) | Total Ridge count (Increased/Decreased) | ‘atd’ angle (Increased/Decreased) |
|-------------------------|----------------|--------------------------------------------------------|--------------------------------------------------|----------------------------------------|----------------------------------|
| Mellor (1968)           | 33             | Increased* Increased* Decreased*                        | Increased in I₃                                   | Decreased*                             | Increased*                       |
| Srinivasa Murthy (1975) | 30             | Decreased                                             | Increased                                        | Decreased                              | Increased*                       |
| Present study           | 50             | Decreased                                             | Decreased                                        | Decreased in hypothenar and I₃         | Increased*                       |

* = Not significant.

The sub-categories of female schizophrenics have used different criteria of classification of schizophrenia. Whereas Srinivasa Murthy (1975) used DSM II, Mellor (1968) used Leonhard’s classification of schizophrenia as described by Fish (1958). However, catatonic variety of schizophrenia in DSM II is no different from that of ICD-9 (which has been used in the present study). Leonhard’s classification includes only chronic cases in the category of catatonic schizophrenia; however the symptomatology of the patients is similar to that described in ICD-9. So these studies can be compared with the present study (Table 4).

In the present study, patients had fewer arch and whorl patterns and more loops on the fingers similar to the findings of Srinivasa Murthy (1975). Mellor (1968), too found increased frequency of loops and a lower frequency of whorl patterns in his patients but his findings failed to reach the level of significance probably because of the small sample size. Patients had fewer patterns in I₃ palmar area which is in contrast with the findings of Mellor (1968) who found a higher frequency of patterns in I₃ palmar area in catatonic schizophrenics as compared to the control group but his sample of patients and controls had male as well as female subjects. Patients also had a lower frequency of patterns in hypothenar palmar area (statistically highly significant) in this study, however this was not studied in the previous two studies.

In all the three studies (Mellor, 1968; Srinivasa Murthy, 1975; Present study) ‘atd’ angle has been found to be higher in female catatonic schizophrenics than the control population; however, this increase did not reach the level of significance. Patients and controls did not differ significantly in any of these studies in ‘total ridge count’.

These differences in the results of various studies can be explained by the small sample size of the previous studies and different diagnostic criteria being used in different studies. However, the differences in the fingerprint patterns and ‘atd’ angle in the patients and controls have been quite consistent in all the studies. This suggests that the differentiating dermatoglyphic features might be ‘genetic marker’ for the category of catatonic schizophrenia.

It is recommended for further research that large sample studies (at least 100 patients) with standard diagnostic criteria should be conducted to strengthen or weaken the findings of the present study. Predictive value of dermatoglyphics for the development of catatonic schizophrenia can also be probed.
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