INTRODUCTION:
Dermatoglyphics is a scientific method of reading lines and ridges of finger, palm and sole. The term Dermatoglyphics was first introduced in 1926 by Cummin and Midlo. The skin on the palmar and plantar surface is grooved by curious ridges, which form a variety of configurations. Each individual’s ridge configurations are unique. The dermal ridge differentiations are genetically determined and influenced by environmental factors. It provides a simple, useful and inexpensive means for diagnostic value in several medical disorders for the last several decades.

Abnormal dermatoglyphic patterns have been observed in several non-chromosomal genetic disorders and other diseases whose etiology may be influenced directly or indirectly, by genetic inheritance. Type-I Diabetes is currently thought to occur in genetically predisposed individuals who are exposed to a series of environmental influences that precipitates the onset of disease. A significant link has been found between dermatoglyphic pattern and the disease. Dermatoglyphics may be effectively employed as a screening procedure in future and may help in the early detection of cases of diabetes mellitus.

MATERIALS AND METHODS:
The material for study consisted of finger and palm prints of patients selected. Consent of the patients and the controls was taken before the study. Dermatoglyphics patterns were studied in eighty cases (48 females and 32 males) of diagnosed type-1 Diabetes Mellitus and they were compared with 63 cases of healthy individuals who were taken as controls. All are between the age groups of 10 and 20 years. Each group was divided into male and female group to avoid any variations. Controls were carefully selected to be free from any disease as disease could influence the dermatoglyphic pattern. Observations: Observations were tabulated to find out distribution of finger-tip patterns, TFRC (Total finger ridge count) and AFRC (Absolute finger ridge count) values, Various angles in palm i.e. atd angle, adt angle and a-b ridge count. RESULTS AND CONCLUSIONS: Whorls are chiefly confined to digit 1 of both females and male IDDM patients. Ulnar loops show dominance in all digits except in digit-I in male IDDM patients. Radial loops were present only in digit-I of both male and female IDDM patients. The number of axial tri radius is present both in female and male IDDM patients which is increased when compared to controls. The mean atd and adt angles shows approximately similar readings in both sexes. TFRC and a-b ridge count are decreased both in male and female patients. Arches were present in I, II and V digits in both female and male IDDM patients.

The qualitative and quantitative parameters observed are:
1. The types and frequency of digital patterns - loop, arch, whorls.
2. TFRC - Total finger ridge count Total Finger Ridge Count (TFRC).
3. atd - angle
4. adt angle
5. a-b ridge count

Observations: Observations were compared between controls and diabetics.

1. Ulnar loops show maximum percentage frequency in both right and left hands of female patients and controls.
2. TFRC is high in normal females and decreased in patients.
3. a-b ridge count is also decreased in patients when compared to normal controls.
4. Presence of axial triradius is increased in patients when compared to normal controls.
5. Ulnar loops show increased percentage frequency in first and fifth finger of normal controls whereas whorls show increased percentage frequency in 1st digit of both right and left hands of patients.

Ulnar loops show maximum percentage frequency in both right and left hands of male normal controls, whereas whorls show a maximum percentage of frequency in right and left hands of male patients. TFRC is high in controls and decreased in IDDM male patients. A-b ridge count is decreased in IDDM male patients when compared to controls. Presence of axial triradius is high in patients when compared to controls. Ulnar loops shows increased percentage frequency in 1st and 5th digit of controls whereas whorls show increased percentage frequency in 1st and 5th digit of IDDM patients.

DISCUSSION AND CONCLUSION:
The salient features are derived from statistical analysis by SPSS-PC package showing the comparative digit pattern distribution between controls and patients of the same sex.

1. In female controls, first digit shows three patterns, arches, ulnar loops and whorls. Out of these 70% are ulnar loops, arches 5%, whorls 25%. In IDDM female patients three patterns are seen out of these, whorls are 70.8%, arches 22.9%, ulnar loops 6.3%.
2. In normals second digit shows ulnar loops 45%, arches 17.5%, radial loops 2.5% and whorls 35%. All four patterns are seen in both controls and patients in female patients. In females ulnar loops 43.8%, whorls 39.6%, arches 8.3%, radial loops 8.3%.
3. TFRC mean in normals 130.80 and in patients 67.33. S.D in controls 17.47, in patients 6.14. In controls a-b ridge count mean is 77.45, in patient 55.77. S.D in normals 10.08 and in patients 7.32.
4. In male controls first digit shows 43.5% ulnar loops, 39.1% whorls, 17.4% arches. In male IDDM patients whorls 84.4% ulnar loops 9.4%, arches 6.3%.
5. In male controls second digit shows all four patterns, whorls 47.8%, ulnar loops 26.1%, radial loops 17.4%, arches 28.1%, radial loops 3.1%.
6. TFRC mean in controls 138.69 and S.D. is 16.54 and in IDDM patients, the TFRC mean is 75.62 and S.D. is 7.20. In controls mean of a-b ridge count is 85.91, S.D. is 8.67. In IDDM mean is 56.18 and S.D. is 4.00. Both TFRC and a-d ridge counts are decreased in IDDM patients. Ravindranath and Thomas (1995) however have reported a decrease in TFRC in diabetic group. Rajanigandha Pai et al (2006) have observed no statistical difference in TFRC of controls and cases.
REFERENCES:


