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Original Article

Dermatoglyphics and abo blood group

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Abstract

Lines on human hands have fascinated humanity since long. The scientific method of reading these lines is Dermatoglyphics. Dermatoglyphics have been studied in various diseases by a number of workers including studies on genetic diseases. Study of variations in dermatoglyphic pattern in ABO blood groups is done by few workers. The Present study is therefore an attempt to explore the same.
Dermatoglyphic prints of 1150 healthy individuals (782 males and 368 females) are taken for this study, using Kores duplicating ink on white glossy paper. All prints are labeled and analysed for finger tip patterns, interdigital areas, atd angle, abridge count, triradial count and total finger ridge count.
Blood group A Showed higher frequency of arches, ulnar loops, patterns of I3 area, and tri radial count. Blood group B showed higher frequency of ulnar loops and I2 patterns but lower frequency of arches, ab ridge count and triradial count.
Blood group O showed highest frequency of arches, ulnar loops, I2 I3 patterns, triradial count and ab ridge count and Blood group AB showed higher frequency of arches, and ulnar loops but lower frequency of I2 & I3 areas.
A variation in dermatoglyphic patterns in different groups is statistically significant.

Introduction:

The Scientific study of lines on human hands is known as Dermatoglyphi, the Term. 'Dermatoglyphics' was first coined by Herald Cummins in 1926, Since then Dermatoglyphics have been studied in various diseases like Genetics disorders, Diabetes, Schizophreania etc , Study of variations in Dermatoglyphic patterns in different ABO blood group persons have been done by workers like Otto-Boztti (1698). Parmasivam (1970) & Verchouf (1973) Nayak & Patel (1975), etc , Present study has been undertaken to study variation in Dermatoglyphics patterns of ABO blood group in Population of Marathwada region of Maharashtra.

MATERIALS AND METHODS

- Kores duplicating ink
- Ink Roller
- White Glossy Papers
- Magnifying Glass
- Protector
- Dermatoglyphics prints of 1150 individual (782 males and 368 females) were taken

The individuals were normal, healthy and free from any major ailment.

Method :-

Kores duplicating ink was applied on palms & finger tips. Prints were taken on white glossy paper, care was taken that all the parts of the palm are impressed propery. All prints were clearly labeled for age, sex and blood group.
Following points were studied in each print.

I- Qualitative analysis

A- Finger tip Patterns

- Arches
- Loops
- Whorls

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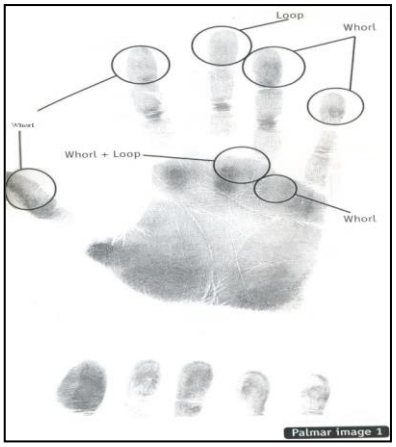
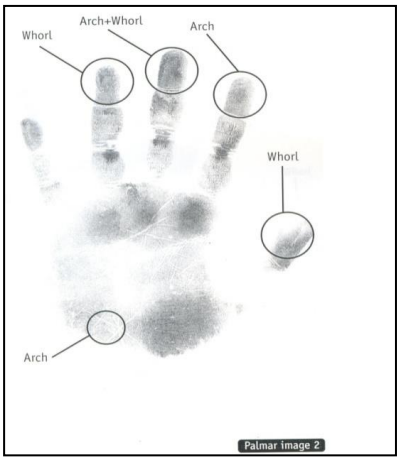
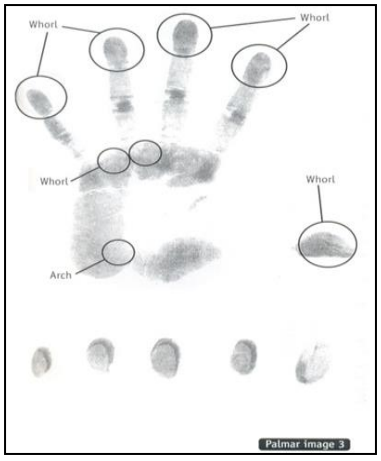
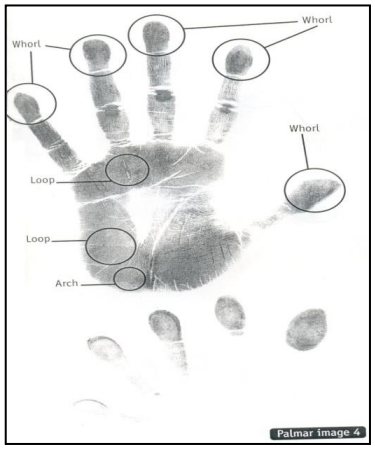
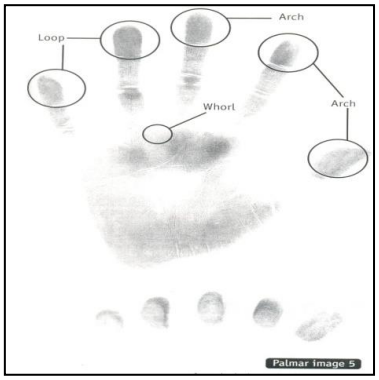
B – Pattern of interdigital areas I1, I2 Thenar & Hypothenar.











OBSERVATIONS

Table I: Showing frequency of different patterns in fingers of different Blood group phenotypes.

Blood Group	Arches		Ulnar loops		Whorls	
	M	F	M	F	M	**F**
A	2 %	3 %	52.6 %	68 %	41. 3 %	**27.3 %**
B	1.3 %	1.5 %	63.6 %	71.5 %	32.1 %	**25.9 %**
O	2.4 %	3 %	55.2 %	56.3 %	41.4 %	**30. 9 %**
AB	2.3 %	3 %	65 %	67. 5 %	59 %	**26.7 %**
Statistical Significance	P<0.01		P<1.01		P<0.5	

Table II : Showing frequency of Thenar and Hypothenar inter digital areas.

Blood Group	Th/I_1		Th/II_2	
	M	F	M	**F**
A	9.5 %	5 %	6 %	**0.6 %**
B	11 %	4.2 %	7 %	**2.5 %**
O	10.1 %	12.3 %	7.3 %	**3.8 %**
AB	11.1 %	8 %	6.6 %	**3.3 %**
Statistical Significance	P<0.05		P<0.001	

Table III : Showing atd angle Triradial count and ab ridge count in different Blood group phenotypes.

Blood Group	Atd Angle		Triradial Count		Ab ridge Count	
	M	F	M	F	M	**F**
A	73.8	78.5	24.1	25.3	80.5	**79.7**
B	76.2	77.5	14.3	11.7	45.3	**39.3**
O	73.7	78.9	25.6	20.3	79.4	**77.8**
AB	72.9	76.5	25.9	22.9.	83.1	**76.4**
Statistical Significance	P<0.05				P<1.001	

Table IV: Showing comparison of finger tip aptterns

Blood Group	**Loops**		**Whorls**		**Arches**	
	M	F	M	F	M	**F**
O	56.7 %	57.9 %	41.4 %	38.9 %	2.4 %	**3 %**
A+ B,AB	**63.6 %**	**70.7 %**	**36.1 %**	**26.4 %**	**1.5 %**	**2.5 %**

in blood group O phenotypes with A,B, &AB phenotypes taken together.

B – atd angle

C- ab ridge count

D – Triradial count

E- Total finger ridge count

All the readings were tabulated and statistically analyzed.

DISCUSSION

Parmasivam & Barthwal (1986) and Nayak & Patel (1973) found lower number of arches in blood group O (1.84).

While in present study arches were less in blood group B (1.3%) Comparison of arches in finger tips in blood group O & other blood group taken together.

Otto & Bozothi (1986), Chorltan (1970), & Parmasivam (1986) found higher arches in blood group O

Nayak & Patel (1973) found lower number of arches in O

Ulnar loops were found significantly more in females & in blood group B (63.6%) and 73.5 % in male and female respectively. Moreover ulnar loops were found to be more in females in all blood group phenotypes.

Similar findings were reported by Verchuf (1973), Blanka (1976) & Sant (1976).

Findings of the whorl patterns corroborated with the findings of previous Workers.

Observations of triradial count, ab ridge count and atd angle were Corroborative with study of earlier workers.

Poliukhov AM (1977) found increased TFRC in phenotype B as compared to other phenotypes and lesser in phenotype O TFRC has not been studied in the present work.

CONCLUSION

Arches significantly less in blood group ‘B’.

More ulnar loops in AB & B as compared to ‘O’ & ‘A’

Arches & ulnar loops significantly more in females as compared to males in all blood groups.

Patterns in I2 area showed higher frequency in ‘O’ then in others.

Triradial count is more in males of phenotype AB, as compared to the other phenotypes.

REFERENCES

1.Cummins H (1926):-Epidermal Ridge Configuration in Development Defects Impart Reference to on to Genetic Factors Which Condition the Ridge Direction. Arm J. of Anatomy 28:89.

2.Otto & Bazoti (1968):- Digital Dermatoglyphics and Blood Groups : Lancent 1968 Dec. 7:2 (7580 : 1250-1)

3.Cnolten S H (1970):- Digital Dermatoglyphics and ABO Blood Group and Cancer : Lancent 1: 627.

4. Nayak S.K. & Patel S (1973) :-Genetics Correlation in Finger Ball Patterns and Blood Groups : J Indian Medical Association 1973 Aug. 1 :16 (3) : 119-21.

5.Blanka (1976):- Dermatoglyphics in Medical Disorders Springers. Verlage New York.

6.Parmasivam and Barthwal E C (1986): Digital Dermatoglyphics and Blook Groups J of Anatonical Science 8 : 42-45.

7.C.V Diwan & A.A.Mahajan 1997: Dermatoglyphic study in bronchial asthma patients (thesis for M.D).

8.Chhaya Sawant , Gaikwad & S.H.Talib(2005) : Dermatoglyphic Pattern in bronchial asthma patients (thesis for M.D).