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Dermatoglyphics in relation with blood groups among III B.Sc Zoology Students in VHNSN College: A study

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Abstract

This study was carried out to find out the possibility of a unique pattern of palm and finger prints (Dermatoglyphics) among 25 students (8 males and 17 females) of III B.Sc Zoology students in VHNSN College, Virudhunagar, Tamilnadu, India. Finger prints were collected by ink print method. The pattern of finger prints were identified and analyzed. Loops are predominant in blood group B and O. Male have higher incidence of Loop and female lower incidence of Arch. Aim of this study is to correlate the fingerprint patterns with gender and blood group of individuals.

Keywords: Dermatoglyphics, blood groups, finger print

Introduction

The term dermatoglyphics has it's from Greek word 'derma' means skin and 'glyphics' means curved (Cummins H.Palmar and Plantar, 1926). Fingerprint is one of the exciting, reliable and unique trait of human body. Every finger has three basic patterns Arch, Loop and Whorl (US FBI, 1984). Loops are those types of pattern in which in flows in the direction of the little fingers. In Arches, the ridges in the centre from a define angle and one or more ridges at the centre. In plain arches the ridges enter on one side of the impression and flow and other side with

a rise or wave in the centre. A Whorl has two deltas and at least one ridge making a complete circuit, which may be spiral or oval.

Fingerprints are stable and form the most reliable criteria for identification (Pillay, 2009). Fingerprint patterns are genotypically determined and remain unchanged from birth till death (Vij, 2005). Fingerprints collected at a crime scene can be used to identify suspects, victims and other persons who touched the surface, fingerprint scans can be used to validate electronic registration, cashless catering and library access especially in schools and colleges. The secretions in the fingerprints contain residues various chemicals and their metabolites which can be detected and used for the forensic purposes (Pillay, 2009). Recently, it has found a tool of digital India.

ABO blood group system was first explained by Landsteiner (Patil *et al*., 2015). Clinically, only ABO and Rh are of major significance. ABO system is further classified as A, B, AB, O blood groups according to the presence of corresponding antigen. Rh is classified into Rh+ve and Rh-ve according to the presence or absence of D antigen (Bijlani). This study was aimed to further strengthen the association between dermatoglyphic pattern and type of blood group.

Materials and Methods

A total of 25 students who are pursuing III B.Sc Zoology in VHNSN College (Autonomous), Virudhunagar, Tamilnadu, India. Basic details such as name, age, sex were noted. For obtain finger print patterns of students, ink print method had been adopted. The traditional means of fingerprinting was developed by Dr.Henry Faulds in the late 1800. The ink is applied to the finger and is rolled across a piece of paper. The ink and paper method of finger printing is effective.

Step 1:- Both hands of the student were cleaned with alcohol

Step 2:- 2:1 Mixture of glycerin and ink was applied to the tips of left hand

Step 3:- Excess of ink was removed

Step 4:- The impressions were collected by rolling the fingers in 450 from one side to other side on writing paper.

Data analysis:- The prints were analyzed using a hand lens, ruler, pencil and protractor. Frequencies were expressed in table. Data collection was over a period of one month, at November, 2017.

Result

This study was carried out in 25 III B.Sc Zoology students of age group 18-20 years of which 8 were males and 17 were females. Table 1 shows distribution of blood group and Rh factor of gender. Blood group B had the highest frequency in females and O in males. Among 17 females, 16 were Rh positive and 1 were Rh negative. Table 2 shows distribution of primary fingerprint patterns among the subjects. Among the fingerprint patterns studied in left hand, loops had the highest frequency of 67 followed by whorl with 40 and arches showed the least number with 18. Table 3 shows distribution of fingerprint patterns according to gender. Frequency of loops were found to be higher in males (35) compared to that females (32). Table 4 shows the distribution of fingerprint patterns among blood group.

Discussion

In our study, mainly familiar blood group is B+ and O+ followed by B- and AB- were absent. Loops are most frequently obtained followed by whorls and arch. This study supported by Patel *et al*., 2015, Bhardwaja, 2015. The findings of the study can be concluded as the high frequency of loops, moderate of whorls and low of arches. The same result were observed by Kshirsagar, *et al*., 2003, Bharadwaja *et al.*, 2004 observed higher frequency of arches in B blood group.

Conclusion

25 young male and female students from an III B.Sc Zoology were selected from VHNSNC. Their finger prints were obtained by ink printing method. Loops are predominant in blood group B and O. Male have higher incidence of Loop and female lower incidence of Arch.

Acknowledgement

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Table 1: Distribution of III B.Sc Zoology students, ABO blood group and Rh factor (n=25)

Sex	A		B		AB		O		Total
	A+	A-	B+	B-	AB+	AB-	O+	O-	
Female	1	1	10	0	1	0	4	0	17
Male	2	0	2	0	0	0	3	1	8
Total	3	1	12	0	1	0	7	1	25

Table 2: General distribution of primary patterns of fingerprints in all digits of left hand of III B.Sc Zoology students (n=125)

Finger Print Patterns	Total Number
Loop	67
Arch	18
Whorl	40
Total	125

Table 3: Distribution of fingerprint patterns according to gender

Fingerprint Patterns	Male	Female
Loop	35	32
Arch	3	15
Whorl	7	33

Table 4: Distribution of different fingerprint patterns in different blood groups

Finger Print Pattern	Blood Group				Total
	A	B	AB	O	
Loop	11	32	2	22	67
Arch	3	11	3	1	18
Whorls	6	17	0	17	40