

A Study of Finger Prints in Relation to ABO Blood Group and Gender

Gunti Damodar*, Nishat Ahmed Sheikh**

Abstract

Background: Finger print (Dactylography / Dermatoglyphic) is considered as the best tool of identification. A reliable personal identification is critical in the subject of forensics as is faced with many situations like civil, criminal, commercial and latest in financial transaction frauds, where the question of identification becomes a matter of paramount importance. In this study we have made an effort to “study a relationship between pattern of fingerprint, gender and blood group”. **Study Type:** Cross sectional Study. **Place of Study:** Data was being collected from school going children’s of Narketpally. KIMS Narketpally. **Materials and methods:** 170 school going children participated in the study voluntarily and their finger prints were collected, of which 82 were males and 88 were females, who were aged between 11 – 16 years. Blood group of each individual was documented, if the blood group wasn’t known then the blood group was identified using antiserum A, B and D. The finger-prints were taken of all ten fingers using printer’s ink. Pattern of fingerprints were observed by powerful hand lens and recorded. Note was made of the sex, age, ABO blood groups. **Results:** O Rh + ve are the most common blood type, followed by B Rh + ve. High frequency of loops (61.88%), moderate whorls (27.76%), and low frequency of arches (9.88%) with composite (0.47%). Loops are predominant in blood group O and whorls are predominant in blood group B. There is an association between fingerprint patterns, blood group and gender. **Conclusion:** We may conclude that there is an association between distribution of fingerprint patterns, blood group and gender and thus prediction of gender and blood group of a person is possible based on his/her fingerprint patterns but influence regional variations, gender and genetic factors should not be overlooked.

Keywords: Fingerprints; Gender; ABO Blood Groups; RH Factors; Association.

Introduction

Cummins [1] coined the term dermatoglyphic (derma=skin + glyphs=curves) to the dermal ridge configurations on the digits, palm and sole. The dermal carvings or finger prints appear for the first time on the human fingers, palm, soles and toes from 12th to 16th week of embryonic development and their formation gets completed by the 14th week i.e. about the 6th foetal month. The ridges thus, formed during the foetal period do not change their course or alignment throughout the life of an individual, until destroyed

by decomposition of the skin after death [2]. In dermatoglyphics, the impressions made by the minute ridge patterns have exactly the same arrangement and the pattern of any individual remain unchanged throughout life. These features statistically differ among sexes, ethnic groups and age categories [3].

The ABO blood groups were discovered by Karl Landsteiner in 1901. Further studies on the ABO blood group system, by the other workers, suggested that the blood groups were inherited. But, the exact manner of inheritance of the ABO blood group was revealed by Bernstein (1924) [4]. So, for 19 major groups have been identified which vary in their frequency of distribution amongst various races of mankind. Clinically, only ‘ABO’ and ‘Rhesus’ groups are of

major importance. ‘ABO’ system is further classified as A, B, AB, O blood group types according to presence of corresponding antigen in plasma. ‘Rhesus’ system is classified into ‘Rh +ve’ and ‘Rh -ve’ according to the presence or absence of ‘D’ antigen [5].

As the inheritance of dermatoglyphic patterns is

Authors affiliation: *Assistant Professor of Forensic Medicine, **Professor of Forensic Medicine, Kamineni Institute of Medical Sciences, Narketpally District Nalgonda. State Andhra Pradesh 508254.

Reprints requests: Nishat Ahmed Sheikh MBBS, MD, CTM, DFME., Professor of Forensic Medicine, Doctor’s quarter: D/4/12 Kamineni Institute of Medical Sciences, Narketpally, District Nalgonda- 508254 State Telangana.

E-mail: drnshatsheikh@gmail.com