INTRODUCTION

Identity is a set of physical characteristics, functional or psychic, normal or pathological that defines an individual. Human identification based on different features has emerged as a newer technology. The different identification tools are fingerprints, bite marks, DNA fingerprinting etc. Study of fingerprints as a method of identification is known as Dactylography or Dactyloscopy. This article aims at assessing the fingerprint pattern among ABO blood groups in study population.

Materials & Methods: This is a cross sectional study conducted in the department of forensic medicine in collaboration to department of physiology in year 2015. It consisted of 440 subjects which involved 200 males and 240 females. Subjects in the age range 18-26 years were included in the study. Finger print were taken on unglazed paper and analyzed into 4 types whorls, loops, composite and arches classification given by Michel & Kucken. Blood group analysis was done into A+ve, B+ve, O+ve, AB+ve, A-ve, B-ve, O-ve and AB-ve. Results: This study comprised of 440 subjects, males (200) and females (240). The difference was non significant (P-0.2). Loop was seen in 60% (264), whorl in 30% (132), composite in 7% (30) and arch in 3% (14). The difference among different patterns was highly significant (P-0.01). Loops were seen in 55% (110) in males and 50% (120), whorls were seen in 32% (62) in males and 29% (70) in females, composite patterns were seen in 8% (16) in males and 6% (14) in females and arch was seen in 5% (10) in males and 15% (36) in females. The difference was non significant among males and females. Maximum subjects belonged to blood group O+ve (32%) followed by B+ve (30%), A+ve (22%), AB+ve (11%). 2% subjects belonged to B-ve while 1% subjects each belonged to A-ve, AB–ve and O-ve. Blood group A+ve showed maximum of whorl pattern (270), blood group B+ve showed loop (350), blood group AB+ve showed composite (130) and blood group O+ve whorl pattern (270). Blood group A-ve showed maximum of whorl (22), blood group B-ve showed loop (34), blood group AB-ve showed whorl (20) and blood group O-ve showed whorl (16) pattern.

Conclusion: Author concluded that fingerprint analysis is useful forensic tool in human identification. It aids in identification of suspect in case of crimes and mass disaster.

Key Words: DNA fingerprinting, Human identification, Loop


Access this article online

Quick Response Code
Website: www.jamdsr.com
DOI: 10.21276/jamdsr.2016.4.6.50
same finger prints. Even to identical twins can have same finger print patterns. This makes identification of suspect useful especially in crime scenes. This pattern remains uninfected by any disease process. Three main types whorl, loop, arch and composite form. Different fingers of same individual can have any pattern and that is unique for that finger.4
This article aims at assessing the finger print pattern among ABO blood groups in study population.

MATERIALS & METHODS
This is a cross sectional study conducted in the department of forensic medicine in collaboration to department of physiology in year 2015. It consisted of 440 subjects which involved 200 males and 240 females. All subjects were informed regarding the study in his/her language and written consent was taken. Patient information regarding name, age, sex etc was recorded in performa. Subjects in the age range 18-26 years were included in the study. Subjects with deformity of fingers and any birth defect were excluded from the study.
All subjects were asked to wash his hands thoroughly with soap and water. Blue ink was then applied on all fingers of subjects using stamp pad and asked to applied on unglazed paper by applying slight pressure. Finger prints of all ten fingers of both hands were taken on paper. Finger print pattern not possible to identify or distorted one was discarded and same procedure was repeated again. After obtaining all finger print patterns, cellophane tape was applied to prevent distortion of patterns and for keeping it safe. Finger print patterns were examined by using magnifying glass, classified, and analyzed by following classification given by- Michael and Kucken5 into 4 types- Arches, Loops, Whorls and composite.
Blood group of all subjects was identified using “ABO” grouping using – ABD agglutinating antisera kit by arkaray healthcare pvt. Ltd. Blood group was classified into A+ve, B+ve, O+ve, AB+ve, A-ve, B-ve, O-ve and AB-ve.

RESULTS
This study comprised of 440 subjects, males (200) and females (240). The difference was non significant (P-0.2). We evaluated different finger print patterns among subjects. Loop was seen in 60% (264), whorl in 30% (132), composite in 7% (30) and arch in 3% (14). The difference among different patterns was highly significant (P-0.01) (Graph I). Graph II shows distribution of finger print patterns in males and females. Loops were seen in 55% (110) in males and 50% (120), whorls were seen in 32% (62) in males and 29% (70) in females, composite patterns were seen in 8% (16) in males and 6% (14) in females and arch was seen in 5% (10) in males and 15% (36) in females. The difference was non significant among males and females. We classified subjects on the basis of blood groups. Maximum subjects belonged to blood group O+ve (32%) followed by B +ve (30%), A +ve (22%), AB +ve (11%). 2% subjects belonged to B-ve while 1% subjects each belonged to A-ve, AB –ve and O-ve. The difference was significant and depicted in table II). Table III shows distribution of finger print pattern in subjects with different blood groups. Blood group A+ve showed maximum of whorl pattern (270), blood group B+ve showed loop (350), blood group AB+ve showed composite (130) and blood group O+ve whorl pattern (270). Blood group A-ve showed maximum of whorl (22), blood group B-ve showed loop (34), blood group AB-ve showed whorl (20) and blood group O-ve showed whorl (16) pattern.

TABLE I: Distribution of subjects

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>200</td>
<td>220</td>
</tr>
</tbody>
</table>

Data obtained was tabulated and analyzed using chi- square test. P value <0.05 was considered significant.
**Discussion**

Each human being is annotated by specific identity determinants, which makes them unique. Determining an accurate and positive identification has been the foundation for the development of forensic sciences. Though the use of dental tissues has been well documented, the role of forensic dentistry as a field to contend with has come to fore more in the past few decades. Human identification is of paramount importance. Notification of family to allow emotional closure, settlement of estates and insurance claims. Completion of official records (e.g. death certification, closure of police records). Medicolegal investigation to allow questioning of potential witnesses and known associates of the deceased, criminal and civil legal proceedings. This study aims at assessing the fingerprint pattern among ABO blood groups in study population.

This study comprised of 440 subjects, males (200) and females (240). We evaluated different fingerprint patterns among subjects. Loop was seen in 60% (264), whorl in 30% (132), composite in 7% (30) and arch in 3% (14). Similar results were obtained in study done by L.Harsha et al. However Mehta et al found composite in maximum number.

Loops were seen in 55% (110) in males and 50% (120), whorls were seen in 32% (62) in males and 29% (70) in females, composite patterns were seen in 8% (16) in males and 6% (14) in females and arch was seen in 5% (10) in males and 15% (36) in females. A study by Bansal et al found that males showed predominance of loop pattern in
all the fingers except ring finger which showed whorl pattern in both the hands. Females showed prevalence of loop pattern in all the fingers respectively. We classified subjects on the basis of blood groups. Maximum subjects belonged to blood group O+ve (32%) followed by B +ve (30%), A +ve (22%), AB +ve (11%). 2% subjects belonged to B-ve while 1% subjects each belonged to A-ve, AB –ve and O-ve.

We analyzed finger print pattern in subjects with different blood groups. Blood group A+ve showed maximum of whorl pattern (270), blood group B+ve showed loop (350), blood group AB+ve showed composite (130) and blood group O+ve showed whorl pattern. Blood group A-ve showed maximum of whorl (22), blood group B-ve showed loop (34), blood group AB-ve showed whorl (20) and blood group O-ve showed whorl (16) pattern.

Hunasgi S et al (2014)10 in their study, found blood Group O as predominant blood group among all the subjects. N. Srelekha et al (2014)11 in their study concluded that loop finger print pattern were predominant among individual with O +ve blood groups. B +ve blood group showed loop finger print pattern.

CONCLUSION
Author concluded that finger print analysis is useful forensic tool in human identification. It aids in identification of suspect in case of crimes and mass disaster.

REFERENCES

Source of support: Nil
Conflict of interest: None declared

This work is licensed under CC BY: Creative Commons Attribution 3.0 License.