

Dactylogical Association with ABO Blood Groups in Diabetes Mellitus Patients

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ABSTRACT

Aim: To deduce the ABO blood group variation and ABO blood group association with dactylograms in diabetic patients which helps to support the evidence in court of law regarding identification of persons.

Study design: Observational Descriptive Study

Place and duration of study: Study was conducted at Poonch Medical College, Rawlakot.

Methods: Dactylograms were collected from the subjects after obtaining their informed consent in the month of June 2016-October, 2016. A total of 100 diagnosed patients were selected from the personal medical OPD clinic and data were analyzed at Poonch Medical College, Rawlakot. Dactylograms were recorded on a plain white paper with a stamp pad by plain and rolled technique and each finger print was allocated with their Name, Age, and Sex.

Results: In association with one hundred diabetic patients the bulk of the patients were belonging to Whorl pattern and the most common blood group was B+ve, 37(37%), followed by AB+ve 21, (21%) and A+ve 14, (14).

Conclusion: Patients with blood group "B" are at high level of risk of diabetes Mellitus along with Blood group A and AB positive.

Keywords: Fingerprints, coronary heart disease, blood group

INTRODUCTION

Diabetes is a group of metabolic ailment which is categorized by hyperglycemia resulting from flaws in insulin secretion, insulin action, or both. The chronic hyperglycemia is related with long-term damage, dysfunction, and catastrophe of different organs, specifically in the eyes, renal, nerves, heart, and blood vessels¹. It is one such type of disease which has a strong genetic source². It is an alarming situation which shows that the total number of diabetes mellitus affected people will reach up to 366 million in 2030. This impression is also reinforced the fact that, annually, 3.2 million persons died due to the diabetes, 8,700 died every day, and six persons in every minute, which enlightens the anticipations provided by World Health Organization (WHO), International Diabetes Federation (IFD), European Association for the Study of Diabetes (EASD) and European Diabetes Care Predicators (EURO DIAB)

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that the diabetes in future will be on the topmost cause of the mortality and morbidity along with cardiac diseases and cancer^{3,4,5}. Dactylogram is an impression taken from a finger [6] The type of fingerprint is unique based on the genetically characteristics of each individual². Embryological the epidermal ridges are formed between 11th and 24th week of development; after that period epidermal ridges do not change⁷. The critical development of the brain is also happening during this period and the skin and brain development from the same ectoderm occurred. Dermatoglyphics variations are informative for early developmental brain disturbances⁸. There are three basic patterns of finger prints Named Arch, Loop, and Whorl⁹. The significance of dactylographic studies in clinical medicine is well known during development, ridge formation which is affected mainly due to maternal environment, gene deviants, and chromosomal aberrations. Once it is formed, they are age and environment stable and it will lead to becoming a consistent indicator of genetically impairment.

MATERIALS AND METHODS

Dactylograms were collected from the patients after getting their informed consent in the month of June 2016-October, 2016. A total of 100 diagnosed

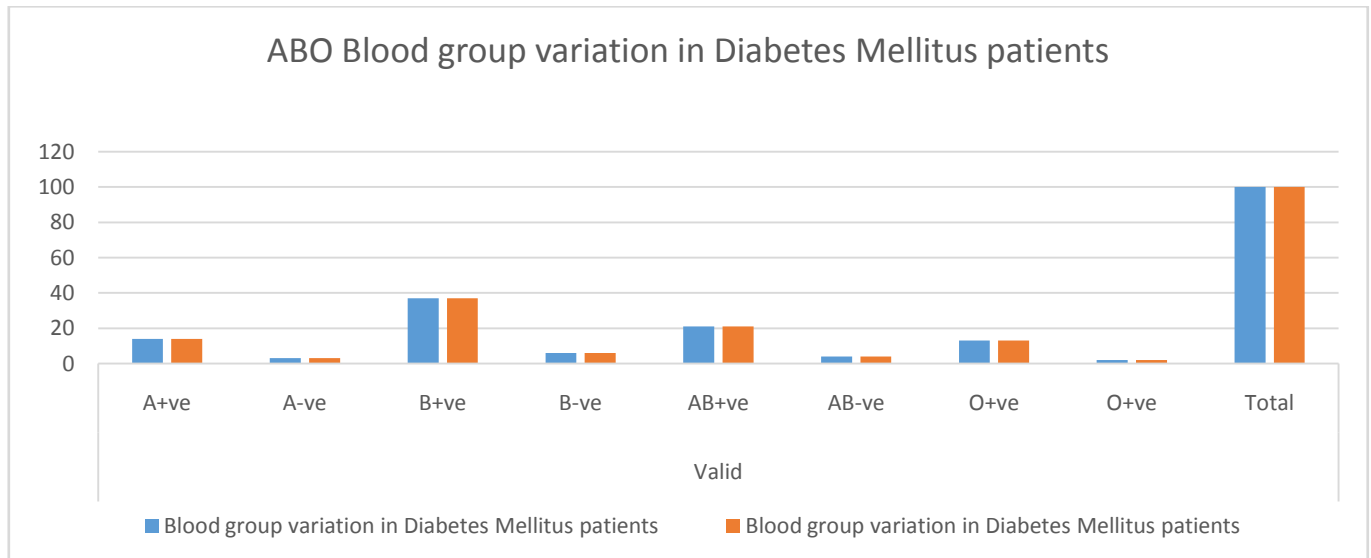
patients of diabetes mellitus were selected from the OPD of Medicine and data was analyzed at Poonch Medical College, Rawlakot. Finger prints were documented on a plain white paper with a stamp pad by plain and rolled method and each dactylogram was allocated with their Name, Age, Sex, and Blood groups. Ethical clearance was obtained from the institutional Ethical Committee. The study design was Observational descriptive study. Patients of either gender diagnosed as a case of Diabetes mellitus, associated to any ABO blood group with any ridge form of dactylograms were included in the study. Those Patients who have any form chronic skin diseases like scars, congenital or acquired anomalies due to any injury on the fingers were excluded from this study.

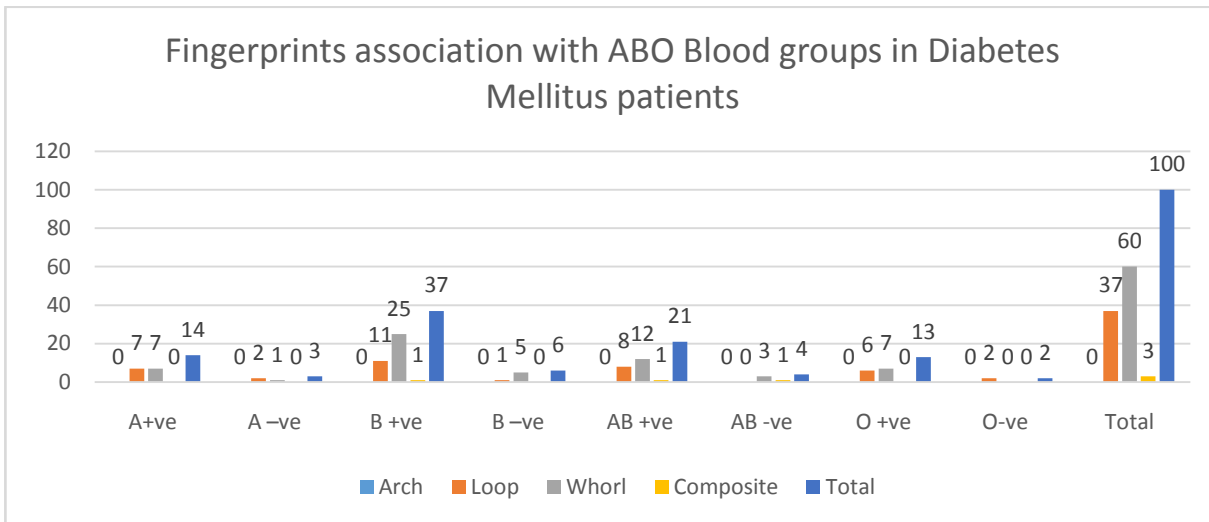
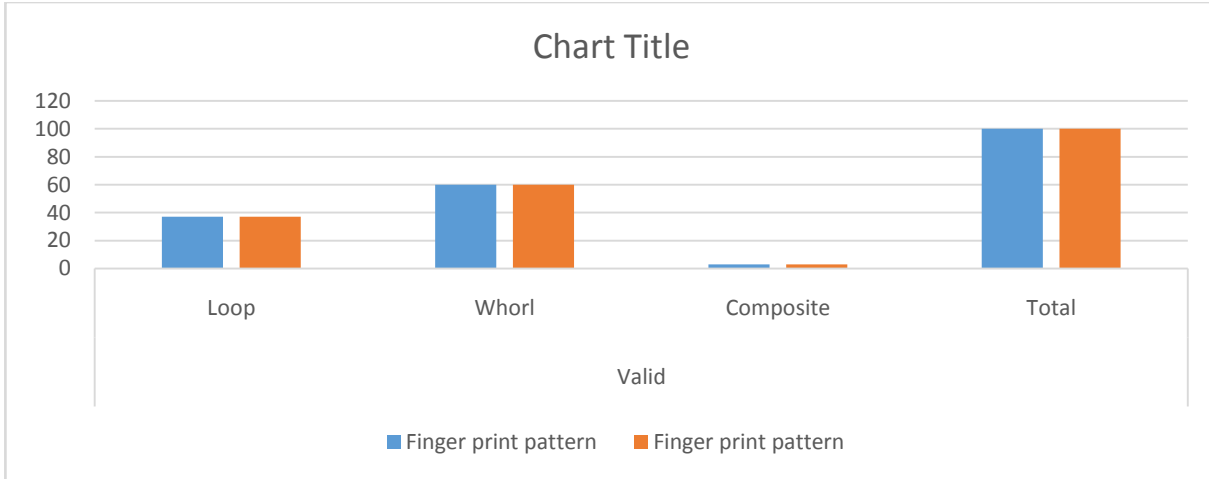
A proforma was planned in which facts like name, age, and ABO blood groups were entered. Imprint of all fingers including thumbs of both hands were taken. The imprints were taken by simple plain and rolled method. Thorough examination of finger prints were done by using magnifying lens. Based on this data, the patients selected for study after the diagnosis under the direct supervision of a physician consultant. Dactylogram pattern variation in diabetic patients is a very interesting stuff and very little information is available about this relationship. The objective of this study is to explore ABO blood group discrepancy and ABO blood group association with dactylogram in diabetic patients and which helps to

support the evidence in court of law regarding identification of persons.

Exploration in this study was observational descriptive. A total of one hundred patients participated in this study which were all known case of Diabetes Mellitus. Out of these one hundred patients the majority of the patients were belonging to whorl pattern of finger prints i.e., Sixty 60% which is followed by Loop pattern was thirty seven 37%, and very least pattern was composite i.e. three 3%, and no any number of arch pattern was found.

The most common blood group found in diabetic patients was B+ve, 37(37%), second common blood group was AB+ve 21,(21%) and the third common blood group was A+ve 14,(14%) which was followed by O+ve 13(13%). Least common blood group was B-ve 6(6%), which was followed by AB-ve 4,(4%) and third common least pattern was A-ve containing 3(3%) followed by blood group O-ve, 2(2%) only. There is need to develop a detailed and vast study to explore the association of finger print pattern with ABO blood groups in diabetes mellitus patients. This study offered sensible weighting on distribution of finger print pattern among the diabetes mellitus patients. Limitations of study was it was only limited to general practitioner OPD patients and limited only to diabetes mellitus disease patients. The study was considered on small and selected area, if it will be conducted on Countrywide on larger scale findings might be different.





DISCUSSION

The development of dermal ridges takes place during the third month of the intra-uterine life as a result of the bodily and the topography of growth forces¹⁰. The epidermal ridges and its outline once formed are not stirred by age, growth and environmental changes during the life and it has the potential to predict various genetic and acquired disorders with a genetic influence¹¹. Dactylography is a scientific technique for genomic ,anthropological, and medico legal studies¹². Many studies have indicated fingerprinting correlation in a large number of genetic disorders, which include diabetes mellitus¹³, Schizophrenia^{14,15}, Congenital heart disease¹⁶ and down syndrome¹⁵. In recent medicine studies shows the association of blood groups with the disease has becoming a fascinating area of investigation because of a known genetic association of particular blood groups with certain diseases, in certain population. Present study shows that majority of the Whorl pattern of finger print in diabetic patients have most common blood group

found was B+ve and second common blood group was AB+ve and the third common blood group was A+ve found which was followed by O+ve, B-ve and AB-ve .and third common least pattern group was A-ve followed by blood group O-ve only. In another study showed the blood group "B" was associated with high incidence of type 2 diabetes and blood group "O" has a minimum association with type 2 diabetes¹⁷. They also told that blood group "A" and "AB" were almost equally distributed in both diabetic and non-diabetic population¹⁷. In another study which showed that there was a negative association between ABO blood groups A and O with DM type 2, with A and O group having less chances of diabetes¹⁸. Thus far, several reports have suggested important associations found between ABO blood groups with diabetes Mellitus. The reason for such type of result might be due to sampling variation, or the sample size which is not adequate, sampling error or where these two variables are independent and do not influenced each other. Similar studies should be conducted on a

larger sample size and should be done at the District, Provisional and at the National level so which will help to increase the accuracy of prediction¹⁹.

CONCLUSION

- Patients with blood group "B" are at high level of risk along with Blood group A and AB positive in Diabetes Mellitus. Physician should be closely monitored the subjects which having an increased risk of diabetes.
- Each fingerprint is unique hence it can be very effectively used as an evidence for identification in the court of law.

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