

Gender Variation of Dactylography among the patients of Diabetes Mellitus

YASER AMEER¹, ZULFIQAR ALI BUZDAR², MUHAMMAD ANWAR SIBTAIN FAZLI³, MUDASER HUSSAIN ABBASI⁴

ABSTRACT

Aim: To determine the gender variation of finger prints pattern among diabetic patients.

Study design: Observational Descriptive study

Place and duration of study: Study was conducted at Lahore Medical and Dental College, Lahore and duration of the study were two months.

Methods: Finger prints were collected from the subjects after obtaining their informed consent in the month of June 2015- July 2015. A total of 138 diagnosed patients of Diabetes Mellitus were selected from the medical OPD and data were analyzed in the department of Forensic Medicine & Toxicology of Lahore Medical and Dental College, Lahore. Finger prints were collected on a plain white paper with a stamp pad by plain and rolled method and each finger print was assigned by their name, age, sex, and blood groups were recorded on the Proforma.

Results: In males the most common pattern of finger prints in diabetic patients were belonging to whorl pattern of finger prints i.e., 42(30.5%) and in females most common pattern was Whorl 38(27.5%) and in males second most common number of patients belonging to Loop pattern was 32(23.2%) and in females Loop pattern 19(13.8%) was found.

Conclusion: Majority of the patients was belonging to whorl pattern of finger prints followed by patients belonging to Loop pattern.

Keywords: Dactylography, diabetes mellitus, gender

INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterized by elevated blood glucose levels (hyperglycemia) resulting from defects in insulin secretion, insulin action or both¹. The prevalence of diabetes is increasing, notably in developing countries. It's one among the leading causes of morbidity and mortality and ninetyth of its etiology is genetically influenced². In 2030, it's calculable that the whole range of polygenic disorder - affected individuals can reach 366 millions. This concept is additionally supported by the very fact that, annually, 3.2 million persons die of polygenic disorder, 8,700 die a day, vi persons each minute, that explains the anticipations provided by World Health Organization (WHO), International polygenic disorder Federation (IFD), European Association for the Study of polygenic disorder (EASD) and European polygenic disorder Care Predicators (EURO DIAB) in keeping with that, within the future polygenic disorder are on

the highest of the mortality and morbidity causes beside cardio-vascular diseases and cancer^{3,4,5}. Dactylography is additionally called Henry Galton system of identification. It's the study of fingerprints as a way of identification⁶, stratum ridges are shaped between eleventh and twenty fourth week of gestation; when this era stratum ridges don't change⁷. The essential growth of the brain is additionally occurring throughout this era. Since the skin and brain develop from identical ectoblast, dermatoglyphics variations are informative for early organic process brain disturbances⁸. Galton (1895) classified them as arches, loops, whorls and composite⁹. Arch: within the arches, the ridges enter from one aspect and flow to the opposite aspect, creating the background address kind easy and tented arches. These arches have a zero ridge count^{9,10}.

The whorl is that the most advanced form of pattern that is ceaselessly circumscribed by the kind lines. These sort lines are associate in nursing extension from the 2 triradii that is surrounded by these sort lines is termed the pattern area. The subtypes of whorls are easy whorl (simple whorl and symmetrical whorl), double loop whorl, central pocket loop whorl and accidental whorl^{9,10}. Loop: A loop includes a triradius, a minimum of one recurring ridge and a ridge count of a minimum of one across a

¹Associate Prof. Forensic Medicine & Toxicology, Lahore Medical & Dental College, Lahore

²Assistant Prof. Forensic Medicine & Toxicology,

³Senior Lecturer Forensic Medicine & Toxicology, ⁴Associate Prof. Forensic Medicine & Toxicology Avicenna Medical College Lahore.

Correspondence to Dr. Yaser Ameer, Associate Professor
Email: yaser_ameer@hotmail.com

recurving ridge. If anyone of those options is lacking, the pattern is assessed as a tented arch and not a loop. The ridges of a loop enter from one aspect, crook and exit on identical aspect of the finger. Once the ridges leave from the arm bone aspect, they're called associate in nursing arm bone loop and after they leave from the radial aspect, a radial loop is made. A loop possesses just one triradius. (9,10)Composite: within the composite sort, there's a mix of the arch, loop and whorls that are found within the same print and are classified because the central pocket loop, the lateral pocket loop, the matching loop and also the accidental loop^{9,10}.

MATERIALS AND METHODS

Finger prints were collected from the patients once getting their consent within the month of June 2015-July-2015. A complete of 138 diagnosed patients of diabetes were designated from the OPD of medication and knowledge was analyzed at Lahore Medical and Dental College, Lahore. Finger prints were recorded on a comprehensible study with a pad and every finger print was allotted by their Name, age, sex, and blood groups were recorded on the proforma. Moral clearance was obtained from the institutional moral Committee. The study style was descriptive study. Patients of either sex diagnosed as a case of diabetes, happiness to any Aussie people and any ridge pattern of finger prints were enclosed within the study. Patients tormented by any chronic disease of the skin s having scars, no heritable or no heritable anomalies as a result of trauma on fingers were excluded from this study. Impression of all fingers and thumbs of each hand were taken. The impressions were taken by easy plain and rolled methodology. Screening of finger prints were done by mistreatment magnifying lens supported this knowledge, and also the case had been diagnosed by direct oversight of a medical practitioner authority. Finger prints pattern in diabetic patients is a motivating matter and tiny data is offered concerning this relationship the target of this study is to work out gender variation and association of finger prints with diabetes.

RESULTS

Analysis in this study was descriptive .A total of one hundred and thirty eight patients participated in this study which were all known case of Diabetes Mellitus. In our study majority of the patients were of type-2 Diabetes mellitus, 88(63.8%) followed by type-1 Diabetes mellitus 50(36.2%). Table 1 showed that Out of these one hundred and thirty eight patients males were 80 (58%) and females were 58(42%). In

males the most common pattern of finger prints in diabetic patients were belonging to whorl pattern of finger prints i.e., 42(30.5%) where as the second most common number of patients belonging to Loop pattern was 32(23.2%). The third common pattern was composite 5(3.6%), and very least pattern was arch only 1(0.7%). In females most common pattern was Whorl 38(27.5%) and the second most common pattern was Loop 19(13.8%) and third common pattern was arch only 1(0.7%) and no any composite pattern was found. There is have to be compelled to develop a close and large study to explore the association of finger print pattern with Diabetic illness. This study offered smart weight on distribution of finger print pattern among the diabetic illness patients. Limitations of study were it absolutely was solely restricted to medical OPD patients and restricted solely to DM patients.

Table 1

Pattern of Finger prints	Male	Female
Arch	01(7%)	01(0.7%)
Loop	32(23.2%)	19(13.8%)
Whorl	42(30.5%)	38(27.5%)
Composite	05(3.6%)	-
Total	80(58%)	58(42%)

DISCUSSION

For long, the hand has been thought-about as a mirror of health and unwellness. The size, shape, pallor, elasticity, strength, quality of the hand are used as diagnostic factors normally physical examination: a lot of specifically the positions of fingers, their lengths, positions, shapes metacarpal formulas, nail growth rates patterns and rates have usually junction rectifier to clues to explicit affliction or unwellness, be it innate or noninheritable¹¹. Study of the skin of the hand, a lot of significantly on its region side, such flexure lines, creases, finger tip ridge shapes and counts are lined underneath the science of area dermatoglyphics and dactylography¹². Dermatoglyphic choices unit of measurement transmissible by genetic system with individual factor contributing a little additive impact. This has been reflected in kind of diseases and should be used as a diagnostic aid in screening of genetic genetic diseases¹³. Identification including cluster of individual physical characteristics, sensible or psychic, ancient or pathological that defines degree individual line can be a technique for social and forensic sciences and genetic diseases^{14,15}. The perform of dactylography should not be underestimated and thus the patterns of finger prints unit of measurement distinctive to each and each individual as a results of their singularity they're going to be accustomed establish the culprits at crime

scene and blast injuries and in mass disaster injuries and in addition as in terribly massive sample identification¹⁵. Range of studies showed a line correlation during a very sizable quantity of genetic disorders that embrace hereditary condition mellitus¹⁶, Schizophrenia¹⁷, inherent heart disease¹⁸ and down syndrome¹⁹. In our study we've taken 100 and thirty eight patients and the bulk of the patients were happiness to whorl pattern of finger prints i.e., 80(58%) and ordinal most typical was Loop patterns, 51(37%) and third common pattern was composite, 5(3.6%) and extremely least pattern was Arch solely two patients (1.4%). Similar results of Whorl pattern was found in study of diabetes in youngsters diagnosed underneath the age of 5(20). But another studies offers completely different findings that suggests arch pattern is predominant however we tend to cannot realize such results^{21,22}. The reason for such type of result may be as a results of sampling fluctuation, or the sample size is not adequate, sampling error or these two variables unit of measurement freelance and do not impact each other. Thus it's necessary to gauge the finger printing in genetic diseases at the side of familial diseases and it's a requirement of time to build Finger printing bank for scientific research purpose. Similar studies got to be conducted on an even bigger sample at the National level therefore on increase the accuracy of prediction^{23,24,25}.

CONCLUSION

It was ended that either of each sexes the bulk of the diabetic patients pattern was Whorl followed by Loop pattern and every finger print was distinctive and may be used effectively for identification of person.

REFERENCES

- American Diabetes Association. Economic consequences of diabetes mellitus in the U.S. in 1997. *Diabetes Care* 1998;21(2):296-309.
- Whiting, D. R., Guariguata, L., Weil, C., and Shaw, J. (2011). IDF diabetes atlas: global estimates of the prevalence of diabetes for 2011 and 2030. *Diabetes research and clinical practice*, 94(3), 311-321.
- Wild Sarah, Green A, King H: Global Prevalence of Diabetes Estimates for the Year 2000 and Projections for 2030. *Diabetes Care*, 2004, 27(5): 1047-1053
- Xxx World Health Organization (WHO). Report of a WHO Consultation, Definition, Diagnosis and Classification of Diabetes Mellitus and Its Complications. 1999, www.who.int.2004
- PC Dikshit Text book of Forensic Medicine & Toxicology. Chapter Identification Page 118.
- Andrew PS, Eugene B. Ischemic Heart Disease. In: Kasper. Harrison's Principles of Internal Medicine, Volume 2. 16th ed. New York: McGraw-Hill; 2005. p. 1434-1462.
- Robert R, Doing M. Pathophysiology: Recognition and treatment of acute MI in: schlond RC and Wagene Alexander R(Eds). Hurst's the Heart 8th ed 19994; pp: 1107-1108.
- Galton F. Finger print directories, London, Macmillan (cited by Cumins and Midlow, 1961) vide supra 1985.
- Manoj K S, Hemlata S: Dermatoglyphics: A Diagnostic Tool to Predict Diabetes *Journal of Clinical and Diagnostic Research*. 2012 May (Suppl-1), 6(3):327.
- Kumar A & Manou SJ, 2003, Palmar dermatoglyphics as diagnostic tool: Mayer-Rokinstansky-Kuster-Hauser syndrome, *Indian J Dermat Venereol Leprol*, 69, 95-96
- Bidarikothmath, Avadhani A, Viveka S & Kumar A, 2011, Reverse sexual dimorphism in digit ratios detected in Down syndrome, *International Journal of Forensic Practice & Research*, 1:1.
- Verbov JL. Dermatoglyphics in early onset diabetes mellitus. *Hum Hered* 1973; 23: 535-42.
- Ziegler A-G, Mathies R, Ziegelmayer G, Baumgart H-J, Rodewold A, Chopra V. Dermatoglyphics in type 1 dia- Pushpa Burute, S.N. Kazi, Vatsalawamy. Vasanti Arole, Role of Dermatoglyphic Fingertip Patterns in the prediction of Maturity Onset Diabetes Mellitus (Type II) *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 8, Issue 1 (May.- Jun. 2013), PP 01-05
- Rastogi P, Pillai KR, A study of finger prints in relation to gender and blood group. *J Indian Acad Forensic Medi* 2010;32:11-13.
- Qudsia Hassan, Ghulam Mustafa Yousufani, Muhammad Ishaq, Mudaser Hussain Abbasi, Comparative study of Dermatoglyphic among the students of Ziauddin University. *Med. Forum* 2011, 22(12): 2011.
- Shied JP Wadworth FJH, (1995). Dermatoglyphics Fetal growth and Diabetes in Children. *Arch. Dis. Childhood* 72: 159-160.
- Jim Van-Os J, Woodruff PW, Fananas L, Ahmad F, Shurique N, Howard R, Murrar RM (2000). Association between cerebral structural abnormalities and dermatoglyphic ridge count in schizophrenia. *Compr.Psychiatry*.41(5):380-4
- Martin NG, Eaves U, Loesch DZ. A genetical analysis of co variation between finger ridge count. *Am Hum Biol* 1982;9:539-52.
- Bank Sd, Pa DIP, Muker Jee DP. Finger Dermatoglyphic variations in Rengma Nagas of Nagaland India. *Coll. Antropol* 2009;33:31-5
- Godfrey KM, Barker DJP, Peace J, Cloke J, Osmond C. Relationship of fingerprints and shape of the palm to fetal growth and adult blood pressure. *BMJ* 1993; 307: 405-9.
- David JJ (1981). Dermatoglyphics in congenital heart diseases. *J.Med.Genet*.18:344-349.
- Mudaser Hussain Abbasi, M. Amin Mengal et al. Comparative study of dactylography among the students of Avicenna Medical College Lahore. *PJMHS*; 2012; 6(2): 362-365.
- Yaser Ameer, Rizwan Zafar Ansari, Mudaser Hussain Abbasi. Finger Prints Pattern Variation in Diabetic Patients Pakistan *Journal of Medical and Health Sciences* Vol. 8, Issue 1, JAN – MAR 2014 , *Website: www.pjmhsonline.com page 162*.