



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 9, Issue, 10(B), pp. 29180-29182, October 2018

**International Journal of
Recent Scientific
Research**

DOI: 10.24327/IJRSR

Research Article

DERMATOGLYPHIC PATTERN EVALUATION IN PATIENTS WITH CHRONIC PERIODONTITIS: AN OBSERVATIONAL STUDY

Kranti K., Ashwini S and Dheeraj B R

Department of Periodontics, Faculty of Dental Science, Ramaiah University of Applied Sciences, Bengaluru-560054

DOI: <http://dx.doi.org/10.24327/ijrsr.2018.0910.2808>

ARTICLE INFO

Article History:

Received 15th July, 2018
Received in revised form 7th
August, 2018
Accepted 13th September, 2018
Published online 28th October, 2018

Key Words:

Dermatoglyphics, periodontal disease,
oral hygiene

ABSTRACT

Aim: The aim of this study is to correlate specific finger print pattern (Dermatoglyphics) and periodontal status of individuals.

Methodology: The study included 60 subjects, aged between 17 to 65years, diagnosed with periodontitis in the study group and 30 periodontally healthy individuals in the control group. Finger print patterns were recorded and analyzed according to the Swedish classification of patterns.

Results: It was observed that Ulnar loops was the commonest finger print pattern across both groups irrespective of their periodontal status, however it was not statistically significant.

Conclusion: Ulnar loops were found to be the commonest finger print type in both periodontally healthy and diseased groups, however it had no statistically significant coherence with either.

Copyright © Kranti K., Ashwini S and Dheeraj B R, 2018, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Dermatoglyphics is a term coined by blending two Greek words "Derma" meaning skin and "Glyphe" meaning carving. It is basically a discipline of science that includes careful study of the fine skin features on a subject's soles of feet, palm and digits. These are patterns that make him or her unique from every other individual. These features are present in friction ridge skin which leaves behind impressions of its shapes when it comes into contact with an object. The impressions from the last finger joints are known as fingerprints¹. Using fingerprints to identify individuals has become commonplace, and that identification role is an invaluable tool worldwide. These patterns are determined genetically, and once they are formed completely, they remain constant throughout life, unaffected by the environment; thus they have a unique role as an ideal marker for individual identification and study of population². Early identification can aid the clinician to anticipate health problems and initiate preventive and protective health measures at a very young age³.

The Initial Swedish method of finger print classification (ERIKSSON 1965/76) forms the base upon which the technique of computer searching is carried out world over. Later Rignell *et al*, 1983 refined the technique which earlier

had 9 main variants with 8 further sub-classes. Which is followed today in the field of forensics and in the present study. Periodontitis is a chronic destructive inflammatory disease of the Periodontium which include the gingivae, periodontal ligament and the alveolar bone surrounding a tooth. Destruction of periodontium, which happens rapidly in young adults who earlier exhibited good general health is Aggressive periodontitis and is distinguishable from the commoner Chronic Generalized Periodontitis. Further there are prevalence of Aggressive Periodontitis in certain racialbackgrounds^{5,6,7} this ethnic and familial clustering suggests a genetic basis for the same. An investigation into dentinogenesis imperfecta in the population of Brandywine, Maryland and found localized form of Periodontitis was also associated with the patients⁸. A well-documented report on genetics of Periodontal Diseases and the new approaches on this subject had been presented and the genetic predisposition to Aggressive periodontitis was mapped to chromosome 4⁹. Various gene markers which include human leukocyte antigens, cytokines and A, B, O blood groups studied in Periodontal diseases were reviewed in the article. In light of the information given above, in the present study we try to determine the correlation between dermatoglyphic pattern and its correlation with periodontal condition of individuals.

*Corresponding author: **Kranti K**

Department of Periodontics, Faculty of Dental Science, Ramaiah University of Applied Sciences, Bengaluru-560054

MATERIALS AND METHODS

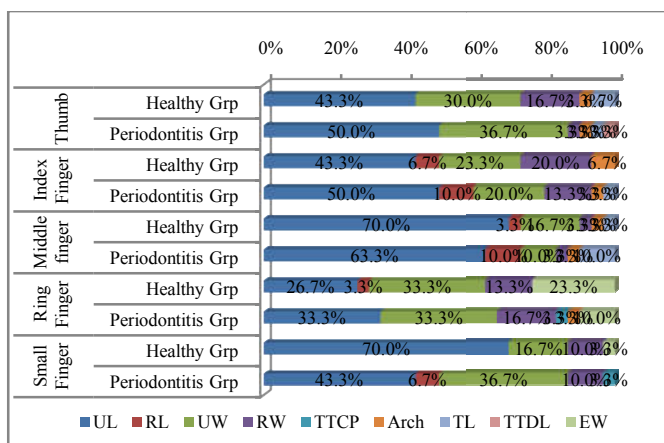
A total of 60 patients were enrolled from the Out Patient, Dept. of Periodontics, Faculty of Dental Sciences, Ramaiah University of Applied Sciences between May- 2017 to July-2017. Patients between the age group of 17 years to 65 years diagnosed with chronic periodontitis with probing pocket depth ≥ 5 mm and Simplified Oral Hygiene Index score of ≥ 1 were selected. Patients with history of any systemic disease, smokers, periodontal treatment in previous 6 months, pregnant or lactating, antibiotic or other drugs that affect periodontal status in the past 6 months were excluded.

Sample Size was determined by Software SPSS (SPSS, IBM Corp, Newyork) Effect size to be measured (d) at 80%, power of the study at 85% and the margin of the error at 5%. The level of significance set at $P < 0.05$. The Study Population 30 systemically and periodontally Healthy subjects and the other group 30 Systemically Healthy subjects with Periodontitis which 60 Subjects (34M, 26F). Finger Print Classification was done based on Swedish Method of Classification⁴- 1983. Chi-square test was used to compare distribution of different types of finger print patterns between the periodontitis and healthy group.

RESULTS

While observing the descriptive data of the patients within the study it was found that the age group of subjects in the healthy group fell within a range of 17 to 49 years where 18 were male subjects and 12 were female. In the periodontitis group the age range was between 19- 65 years and 16 were male subjects and 14 were female.

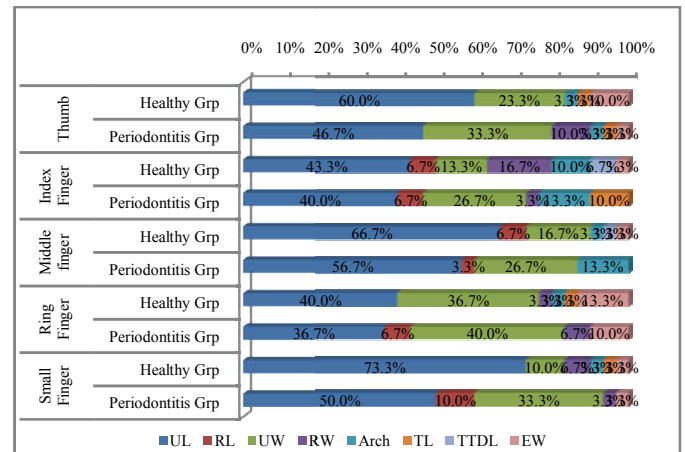
Comparison of Dermatoglyphic pattern in the right hand with both periodontally healthy and periodontitis group showed no statistically significant correlation between any one dermatoglyphic pattern with periodontal health or periodontal disease. However, Ulnar loops were found to be the commonest fingerprint pattern irrespective of the periodontal status. (Graph-1)



Graph 1 Comparison of distribution of finger print patterns of Right hand between 02 study groups

Comparison of Dermatoglyphic pattern in the left hand with both periodontally healthy and periodontitis group showed no statistically significant correlation between any one dermatoglyphic pattern with periodontal health or periodontal disease. Patients with Aggressive periodontitis showed higher

association with ulnar whorls across all fingers, however it was not statistically significant. Also, ulnar loops were found to be the commonest fingerprint pattern irrespective of the periodontal status. (Graph-2)

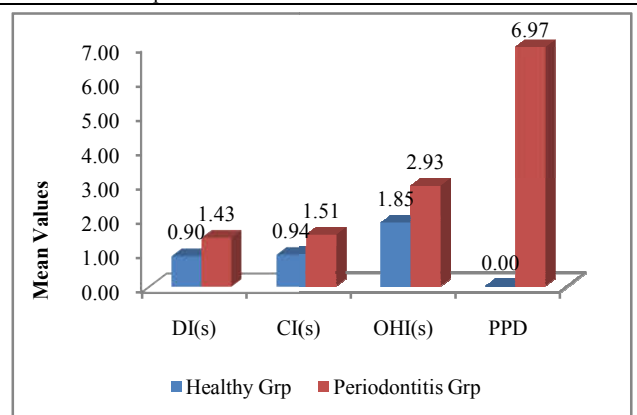


Graph 2 Comparison of distribution of finger print patterns of Left hand between 02 study groups

The clinical parameters were documented and their comparison was done by Student t Test. Mean scores of Debris Index, Calculus Index, OHI(s) and Probing Pocket depth were all lower in the gingivitis group as compared to the periodontitis group and the differences in all these parameters were statistically significant. (Table-1, Graph-3)

Table 1 Comparison of mean values of clinical parameters between 02 study groups using Independent Student t Test

Variables	Group	N	Mean	SD	S.E.M	Mean Diff	T	P-Value
DI(s)	Healthy Grp	30	0.90	0.42	0.08	-0.53	-5.230	<0.001*
CI(s)	Periodontitis Grp	30	1.43	0.37	0.07	-0.57	-4.983	<0.001*
CI(s)	Healthy Grp	30	0.94	0.40	0.07			
OHI(s)	Periodontitis Grp	30	1.51	0.48	0.09	-1.08	-5.586	<0.001*
OHI(s)	Healthy Grp	30	1.85	0.76	0.14			
PPD	Periodontitis Grp	30	2.93	0.74	0.13	-6.97	-36.926	<0.001*
PPD	Healthy Grp	30	0.00	0.00	0.00			
PPD	Periodontitis Grp	30	6.97	1.03	0.189			



Graph 3 Comparison of mean values of clinical parameters between the study groups

DISCUSSION

In the present study, Ulnar loops were found to be the commonest finger print type in periodontitis and healthy groups, these findings were similar to the findings of a study conducted by Devishree *et al* in 2015 on a sample of 30 test

subjects, where fifteen test subjects had aggressive Periodontitis and fifteen were systemically and periodontally healthy. The finger print patterns were analyzed with the help of Automated System, and Ulnar loops were seen more frequently on all fingers of patients with aggressive periodontitis¹⁰.

In this study two subjects had aggressive periodontitis and displayed Whorl type finger print pattern in 8 and 9 out of 10 fingers, these findings were collinear to an Observational study conducted by Shyamala K *et al* in 2015, which included 60 subjects, the authors observed that there was a strong coherence with Whorl type of fingerprint pattern across six or more fingers in the subjects with Aggressive Periodontitis¹¹. However, by virtue of having lesser number of enrollment of subjects with Aggressive Periodontitis, the association in the present study was not statistically significant.

In the current study, Ulnar loops and Whorl type of fingerprint pattern was found to have a significant fingerprint type in Patients with Aggressive and Chronic Periodontitis subjects combined. These observations were similar to the findings of another study by Atasu *et al* 2005 wherein the finger-tip patterns of Periodontitis patients were compared with those of periodontally healthy individuals. They reported an increased frequency of concentric whorls and ulnar loops on all fingers of the patients with Chronic periodontitis.^{12,13}

CONCLUSION

Within the limitations of this study, Ulnar loops were found to be the commonest finger print type in both periodontally healthy and periodontally diseased groups, however it had no statistically significant coherence with either of the groups. Poor oral hygiene practices and lack of motivation were found to have a strong association with periodontal disease.

References

1. Rignell, A. and SJÖQVIST, K.E., 1983. A Swedish method of fingerprint classification. *Hereditas*, 98(1), pp.115-125.
2. Herschel, W.J., 1880. Skin furrows of the hand. *Nature*, 23(578), p.76.
3. Prabhu, N., Issrani, R., Mathur, S., Mishra, G. and Sinha, S., 2014. Dermatoglyphics in health and oral diseases-A review. *JSM Dent*, 2(4), p.1044.
4. Rignell, A. and SJÖQVIST, K.E., 1983. A Swedish method of fingerprint classification. *Hereditas*, 98(1), pp.115-125.
5. Russell, A.L., 1967. Epidemiology of periodontal disease. *International dental journal*, 17(2), pp.282-296.
6. Chung, C.S., Kau, M.C., Chung, S.S. and Rao, D.C., 1977. A genetic and epidemiologic study of periodontal disease in Hawaii. II. Genetic and environmental influence. *American journal of human genetics*, 29(1), p.76-79
7. Cutress, T.W., Powell, R.N. and Ball, M.E., 1982. Differing profiles of periodontal disease in two similar South Pacific island populations. *Community dentistry and oral epidemiology*, 10(4), pp.193-203.
8. Roulston, D., Schwartz, S., Cohen, M.M., Suzuki, J.B., Weitkamp, L.R. and Boughman, J.A., 1985. Linkage analysis of dentinogenesis imperfecta and juvenile periodontitis: creating a 5 point map of 4q. *Am J Hum Genet*, 37, p.A206-209
9. Sofaer, J.A., 1990. Genetic approaches in the study of periodontal diseases. *Journal of clinical periodontology*, 17(7), pp.401-408.
10. Devishree, G. and Gujjari, S.K., 2015. Dermatoglyphic patterns and aggressive periodontal diseases-A possible link. *IOSR Journal of Dental and Medical Sciences-Apr*, 14(4), pp.69-72.
11. Shyamala, K., Hemavathy, S., Girish, H.C. and Murgod, S., 2015. Dermatoglyphis in Aggressive Periodontitis: A Genetic Analysis. *Indian Journal of Dental Sciences*, 7(5).112-116
12. Atasu, M., Kuru, B., Firatli, E. and Meriç, H., 2005. Dermatoglyphic findings in periodontal diseases. *International journal of anthropology*, 20(1-2), pp.63-75.
13. Oliveira Costa, F., Miranda Cota, L.O., Pereira Lages, E.J., Medeiros Lorentz, T.C., Oliveira, S.D., Maria, A., Oliveira, D., Antônio, P. and Costa, J.E., 2011. Progression of Periodontitis in a Sample of Regular and Irregular Compliers under Maintenance Therapy: A 3-Year Follow-Up Study. *Journal of periodontology*, 82 (9), pp.1279-1287.

How to cite this article:

Kranti K., Ashwini S and Dheeraj B R., 2018 Dermatoglyphic Pattern Evaluation In Patients With Chronic Periodontitis: An Observational Study. *Int J Recent Sci Res*. 9(10), pp.29180-29182. DOI: <http://dx.doi.org/10.24327/ijrsr.2018.0910.2808>
