DERMATOGYPHIC 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

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ABSTRACT

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

Methodology: The study included 60 subjects, aged between 17 to 65 years, 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 fingerprint type in both periodontally healthy and diseased groups, however it had no statistically significant coherence with either.

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 fingerprints. Using fingerprints to identify individuals has become commonplace, and that individual 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 population.

Early identification can aid the clinician to anticipate health problems and initiate preventive and protective health measures at a very young age.

The Initial Swedish method of fingerprint 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 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 patients. 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 4. 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.
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 Classification². 1983. Chi-square test was used to compare distribution of different types of fingerprint 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)

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)

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)

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 fingerprint patterns were analyzed with the help of Automated System, and Ulnar loops were seen more frequently on all fingers of patients with aggressive periodontitis.

In this study two subjects had aggressive periodontitis and displayed Whorl type fingerprint 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 Periodontitis. 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.

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


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