

Objectives

: To determine the occurrence of Porphyromonas gingivalis and

Aggregatibacter actinomycetemcomitans in patients with periodontal disease using polymerase Chain Reaction.

Design

: A descriptive cross-sectional study.

Setting

: The University of Nairobi Dental Hospital.

Subjects

: Patients presenting at the Oral Diagnosis and Periodontology clinics during the period of the study. The patients had periodontal examination done followed by subgingival plaque collection from selected teeth. DNA extraction from the plaque samples was then done followed by PCR based on Taqman probes using commercially available kits.

Results

: A total of 92 participants were recruited in the study. Aggregatibacter actinomycetemcomitans (A.a) was found in 14 (15.20%) while Porphyromonas gingivalis (P.g) was present in 16 (17.40%) of the study participants. Based on independent sample t-test, statistically significant positive associations were found between detection frequency of

Porphyromonas gingivalis

and plaque score ($t= 2.47, p= 0.015$), gingival

index ($t= 3.24, p= 0.022$), but not with clinical attachment loss ($t= 1.90, p= 0.061$). Chi square test revealed a positive association between detection rate of P.g and periodontal disease severity (X^2

$= 6.34, p= 0.042$). Similar association was also found between detection rate of Aggregatibacter actinomycetemcomitans and increasing age ($t=2.19, p= 0.031$), clinical attachment loss ($t= 4.61, p<0.001$) and periodontal disease severity (X^2

$=11.23, p= 0.004$).

Conclusion

: The multiplex polymerase chain reaction technique utilised in this study enabled detection of target bacteria in the same reaction mixture as opposed to other periodontal microbiological techniques that require each bacteria to be investigated individually therefore PCR should be considered as an alternative to other methods of periodontal microbiology investigation. The association between periopathogenic microorganisms, A.a and P.g with occurrence and severity of periodontal disease were also confirmed in this study