

Identification of Multiple Strains of *Porphyromonas gingivalis* using Heteroduplex Polymerase Chain Reaction in Varying Severity of Chronic Periodontitis

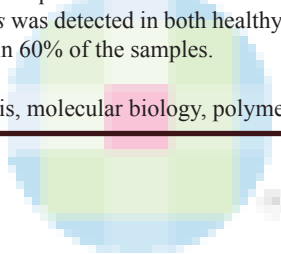
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Abstract

Aim: Research has demonstrated that there are multiple strains of *Porphyromonas gingivalis* with varying potency to cause periodontal disease. The current study aims at using heteroduplex polymerase chain reaction (PCR) to detect the strain diversity of *P. gingivalis* in periodontitis lesions of varying severity in a sample of the Indian population. **Materials and Methods:** Subgingival plaque samples were collected from 60 individuals with varying severity of chronic periodontitis and 30 individuals with a clinically healthy periodontium. The samples were subjected to PCR analysis to identify *P. gingivalis*, followed by heteroduplex analysis to identify the strain diversity in a given sample. Bacterial culture was carried out as a comparative standard. **Results:** Of the 56 samples that were positive for *P. gingivalis* by PCR, 54 samples yielded eight different heteroduplex patterns. Analysis of these patterns indicated that two strains of *P. gingivalis* were present in 41 individuals (45.6%) and three strains were present in 13 individuals (14.4%). Detection of *P. gingivalis* by PCR was significantly more in the periodontitis group as compared to the healthy group. **Conclusions:** Species-specific PCR and heteroduplex analysis provide a simple and accurate method to analyse the strain diversity of *P. gingivalis*. *P. gingivalis* was detected in both healthy periodontal sites as well as sites with periodontitis. The presence of two or three *P. gingivalis* strains was seen in 60% of the samples.

Keywords: Chronic periodontitis, heteroduplex analysis, molecular biology, polymerase chain reaction, *Porphyromonas gingivalis*



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