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## Correlation between immune response and periodontopathic biofilm in Down syndrome children

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**Introduction:** Periodontal disease seems to be a polymicrobial infection involving several organisms, either in combination or sequentially. Most forms of periodontal disease are specific, albeit chronic, infections. Down syndrome individuals (DS) have many immunological alternations which have been suggested to contribute their susceptibility to various microbial infections. There has been a paradigm shift towards an ecological and microbial community-based approach to understanding oral diseases. The host defense system, including innate and adaptive immunity, is responsible for combating the pathologic bacteria invading the oral cavity tissue. There are significant implications for approaches to therapy raised on developing novel strategies through manipulation of the resident oral microbiota and modulation of host immune responses. In this study contributing the relation between immunological alternations with colonized putative periodontopathic microorganisms associated with biofilms related to gingivitis and implicated in periodontopathic biofilm was done in order to provide a more integrated view of microbial pathogenesis and host-pathogen interactions among DS population.

**Methods:** 58 DS individuals which compared with HC individuals subjected for clinical examination and clinical status measurements for gingiva using Gingival index, Debris index, Calculus index also Simplified Oral Hygiene index was calculated. Examination of large numbers of species in plaque samples was done using PCR based technique. Evaluation of salivary IgA and serum IgG and IgG subclasses antibody were determined.

**Results:** We found no significant differences in the microbial burden between the DS and HC individuals. In contrast, the DS children showed significant elevation in salivary IgA and serum IgG and IgG subclasses antibody to a range of oral bacteria commonly associated with periodontitis. We also verified a positive correlation between serum IgG and IgG subclasses antibody levels to a range of the oral bacteria and age. The results showed that the salivary IgA levels were not correlated with any clinical parameter in the DS patients, while in the HC group, salivary IgA antibody levels were negatively correlated with an overall index of oral health.

**Conclusion:** The underlying pattern for the early onset of periodontitis in DS subjects may not be a reflection of the qualitative characteristics of the oral microbiota in these subjects, but reflects differences in how the host response armamentarium interfaces with the oral microbial burden.

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