EXTENDED ABSTRACT

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The prevalence of Fusobacterium nucleatum before and after periodontal treatment of periodontitis patients in Taiwanese

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Abstract

The Fusobacterium nucleatum is the pathogens not only in periodontitis but also in cardiac infection ((Socransky and Haffajee, 2002.) F. nucleatum may serves as an enabler to other microorganisms to spread systemically (Yann Fardinin et al 2011) The purpose of this study is to find the prevalence of the F.nucleatun in periodontitis before and after scaling and root planning and to find the efficacy of periodontal treatment to eradicate the pathogens . Nineteen severe adult periodontitis patients were inclueded . The bacteria were sampling from saliva and pocket via paper point respectively before and 4-6 weeks after scaling and root planning. The collected samples were processed by RT-PCR to quantify the microbes. The result indicated high percentage of periodontitis patients (>98%) having F.nucleatun in high amount not only in saliva (220,167) but also in periodontal pocket area (721,058). The total amount of F. nucleatun decreased dramatically not only in saliva (50 %) but also in pocket (79%) after periodontal treatment . In conclusion, delicate periodontal treatment can eradicate effectively the possible pathogens which could be harmful to cardiovascular system.

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After whole mouth rinse with water for three minutes, the patients was asked to collect the 3 ml whole saliva and stored in sterile tube. Then the patient was asked to be sit on the dental chair and we put the two sterile paper point one by one into the pocket and stayed for 10 seconds. After retrieving the paper points, we put the paper points into the Eppendorf which contained medium for 1 minute and then using the anaerobic transwab to preserve the anaerobic specimen for real time PCR analysis.

These procedures were repeated 4-6 weeks after deliberated periodontal treatment, i.e. scaling and root planning. Two patients dropped out due to mis-appointment and were excluded.

* approved by IRB,TMU

Results and discussion

The result indicated high percentage of periodontitis patients (>98%) having F.nucleatun in high amount not only in saliva (220,167 counts) but also in periodontal pocket area (721,058 counts). The total amount of F. nucleatun decreased dramatically not only in saliva (50 % reduction) but also in pocket (79 % reduction) after periodontal treatment . Fig.1.2.

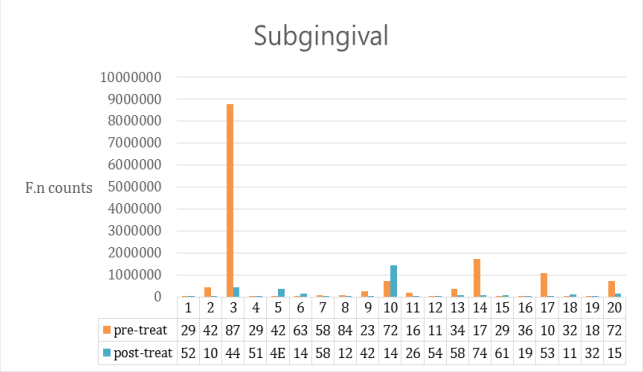

Fig 1. F.nucleatum counts subgingivally before and after periodontal treatment

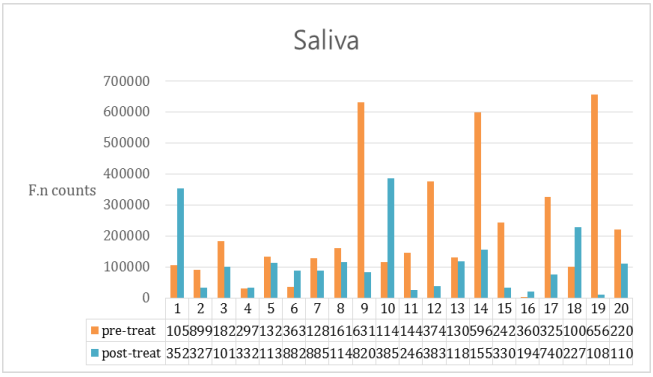

Fig 2. F.nucleatum counts in saliva before and after periodontal treatment

F.nuclatum is a co-aggregates and thought to aide in development of the oral biofilm.

It may help for the attachment of late colonizers such as P.gingivilis, T.denticola and T.forsythia. P.gingivilis and T.denticola are rarely found in periodontal pockets without F.n, highlighting a potential critical role of F.nucleatum in diseases progression.(Kolenbrander PE et. al, 2002)

In order to minimize the sampling error, more pocket sites are to be selected for sampling, for a represent site is hard to find. Another point we need to point out is the treatment sequences (3 to 4 times visits) might have some influence for the F.nucleatum to repopulate not only in pocket but also in oral cavity. (Quirynen M, 1995)

In conclusion, deliberated periodontal treatment procedures , i.e. scaling and root planning, can eradicate effectively the possible pathogens which could be harmful not only to periodontal tissues but also in other systemic infections. If we can monitor the microbiota in easy and convenient microbiological screen kit at chair-site , it will provide us the status of pathogenic microbiota and give us the guideline for antibiotic prescription if indicated.

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