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Healing Response after Non-surgical Therapy in Smokers with Chronic Periodontitis

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Background
- Smokers have increased risk of periodontal disease compared to non-smokers (Grossi et al 1994; Tomar & Asma 2000).
- It has also been shown that smokers display less favorable treatment response after non-surgical periodontal therapy (Preber & Bergstrom 1986).
- However, limited studies have been performed on the effect of smoking on healing response after non-surgical periodontal therapy in Chinese subjects.

Aim
This longitudinal study aimed to compare the 6-month healing response after non-surgical periodontal therapy in male Chinese smoking periodontitis patients with that in non-smoking periodontitis patients.

Material and Methods
Selection of subjects
- 34 systemic healthy male subjects
- Presenting with untreated moderate-to-severe periodontitis
- 17 were smokers (≥10 cigarettes/day), mean age 45.8–5.8 years; and 17 were non-smokers, mean age 44.9–9.4 years.

Selection of test teeth for GCF sampling
- 4 sites from each patient
- Presence of PPD 5mm or above
- No un-restorable carious lesions
- No obvious cracks involving the roots or crowns
- Responsive to electric pulp testing

Clinical parameters
- O. Plaque (PI%)
- O. Bleeding on probing (BOP%)
- O. Probing pocket depth (PPD)
- O. Probing attachment level (PAL)
- PPD and PAL were taken using a Florida Probe® and custom-made acrylic stent for reference guide

GCF sampling
- GCF samples were collected with standard filter GCF strip (Periopaper® GCF strips, IDE Interstate, Amityville, NY) inserted into the pockets until mild resistance felt and left for 30 seconds
- GCF volume was measured immediately by using a GCF meter (Periotron 8000, IDE Interstate, Amityville, NY)

Periodontal therapy
Non-surgical periodontal treatment
- Oral hygiene instruction (OHI), scaling and root planning using ultrasonic and hand instruments under local anesthesia
- Provided by a group of experienced dental hygienists over 3-to-4 weeks

Recall appointments
- OHI reinforcement, debridement and prophylaxis was provided as required at 2 and 4 months.

Study design (Fig. 1)

Data collection:
- Clinical parameters
- GCF samples

Results
- All subjects completed the study. Cigarette smoking history is summarized in Table 1

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<th>Smoking status of smokers</th>
<th>Mean (Standard Deviation)</th>
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<tr>
<td>Smokers</td>
<td>Baseline</td>
</tr>
<tr>
<td>No of cigarettes/day</td>
<td>9.4 (5.7)</td>
</tr>
<tr>
<td>Years of smoking</td>
<td>15.6 (10.5)</td>
</tr>
<tr>
<td>PPD (mm)</td>
<td>3.3 (1.8)</td>
</tr>
<tr>
<td>% of PPD &gt; 5mm</td>
<td>71.0 (21.3)</td>
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| Non-smokers               | Baseline                 | 6 months               |
| No of cigarettes/day      | 17.6 (5.3)               | 16.4 (4.5)             |
| Years of smoking          | 3.3 (1.1)                | 2.8 (0.7)              |
| PPD (mm)                  | 5.4 (3.1)                | 4.0 (1.6)*             |
| % of PPD > 5mm            | 56.0 (21.3)              | 61.5 (13.6)            |

- For sites with initial PPD ≥ 5mm, non-smokers showed greater PPD reduction compared to smokers (5.6mm to 2.5mm in non-smokers, p<0.008) (Fig. 2)

Conclusions
- In response to non-surgical treatment, smokers exhibit more pockets ≥5mm and significantly less PPD reduction compared to non-smokers.
- The present study indicates that the 6-month healing response after non-surgical periodontal therapy was generally less favorable in male Chinese smoking periodontitis patients.

References

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