THE IMPACT OF ENAMEL MATRIX DERIVATIVE ON MARKERS OF SYSTEMIC INFLAMMATION AFTER PERIODONTAL SURGERY: A RANDOMIZED CONTROLLED CLINICAL TRIAL

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## INTRODUCTION

Enamel matrix derivative (EMD) showed higher clinical outcome of periodontal surgical treatment of intrabony defects. It has been hypothesized that EMD contributes to the early resolution of inflammation in periodontal lesions.

## OBJECTIVE

To evaluate the systemic effect of periodontal surgery with and without the adjunct of EMD in sites with intrabony defects of $\geq 4 \mathrm{~mm}$ in vertical depth.

## PRIMARY OUTCOME

The change of high-sensitive C Reactive Protein (CRP) 24 hours after the surgery.

## METHODS

$\checkmark$ RCT, double blind, 6 months follow-up $\checkmark$ ClinicalTrials.gov: NCT03590093
$\checkmark$ Sample size calculation -> $3.5 \mathrm{mg} / \mathrm{l}$ difference in CRP between groups; $90 \%$ power, $\alpha=0.05, S D=3+10 \%$ drop-out rate: for a total of 19 patients per group

## Inclusion criteria

$\checkmark$ Intrabony defects $\geq 4 \mathrm{~mm}$ deep
$\checkmark$ No previous periodontal
surgical treatment
$\checkmark$ Systemically healthy

Systemic parameters: CRP, lipid profile, fibrinogen, D-dimer, cystatin, glucose levels,

Clinical parameters: periodontal pocket depth (PPD), clinical attachment level (CAL), recession


## RESULTS

| Variable Baseline | Test group | Control group |
| :--- | :---: | :---: |
| Mean (St. Dev.) |  |  |
| Age, years | $53.47 \pm 8.24$ | $60.36 \pm 9.26^{*}$ |
| Gender, female (\%) | 47 | 58 |
| Smoke, current smokers (\%) | 2 | 0 |
| BMI, Kg/m | $24.87 \pm 3.23$ | $24.07 \pm 2.76$ |
| Number of missing teeth | $2.26 \pm 0.56$ | $2.26 \pm 0.81$ |
| CRP (mg/L) | $2.10 \pm 4.02$ | $1.84 \pm 2.88$ |
| Fibrinogen (mg/L) | $29.63 \pm 79.22$ | $257.47 \pm 91.30$ |
| Cystatin C | $0.65 \pm 0.13$ | $0.72 \pm 0.14$ |
| D-Dimer (mg/L) | $0.32 \pm 0.14$ | $0.30 \pm 0.13$ |
| Glucose (mg/L) | $78.95 \pm 11.62$ | $85.95 \pm 12.53$ |
| Total Cholesterol | $202.68 \pm 25.15$ | $217.16 \pm 29.37$ |
| HDL | $68.89 \pm 13.25$ | $62.95 \pm 15.60$ |
| LDL | $118.54 \pm 26.38$ | $135.76 \pm 26.77$ |
| Triglycerides | $85.16 \pm 26.95$ | $92.26 \pm 30.09$ |

C- REACTIVE PROTEIN

* Significant intra-group increase at 24H (p<0.05) § Significant inter-group difference at 24 H ( $p<0.01$ )



## Study flow-chart



CONTROL GROUP


NO PREFGEL/EMD APPLICATION


## CONCLUSIONS

$\checkmark$ EMD adjunction is associated with lower acute phase response, if compared to conventional surgical debridement, in the immediate post-operative period.
$\checkmark$ Regeneration with biologically active molecules may take place through an anti-inflammatory action.
$\checkmark$ Further studies are needed to elucidate the biological rationale behind these findings.

