Treatment of intrabony defects with Ostim® or Emdogain®

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Aim of the study

Comparison of the clinical outcomes after regenerative periodontal surgery using either an enamel matrix derivative (Emdogain®) or a synthetic bone graft (Ostim®) in wide intrabony defects 12 months after treatment.

Material and Methods

Thirty-eight patients with chronic periodontitis were recruited (Table 1). All patients showed intrabony defects of at least 4 mm depth and 2 mm width (Figure 4). Using a microsurgical technique a modified papilla preservation flap was prepared. After debridement, patients were randomly assigned to Emdogain group (control) or Ostim group (test) as schown in figures 2, 3. Assessments at baseline, after 6 and 12 months included bone sounding, attachment level, probing pocket depth, bleeding on probing, and recession (Figure 1). Early wound healing, adverse effects and patients perceptions were also recorded (Figure 5, 6).

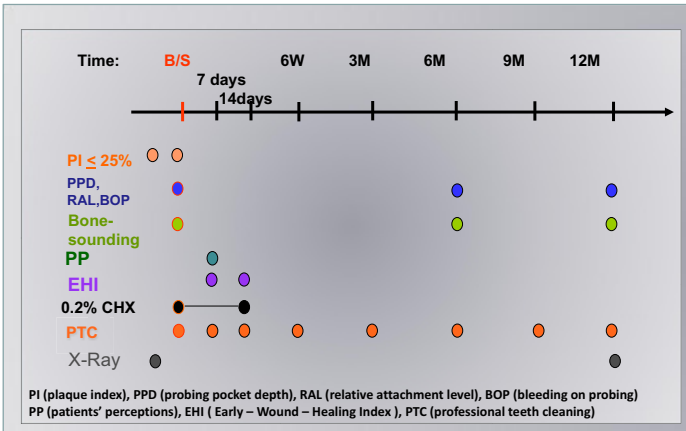

Fig 1. Study Design

Fig 2. Surgical procedure using EMD

Fig 3. Surgical procedure using Ostim

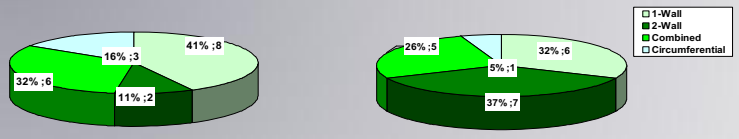

Fig 4. Defect characteristics at baseline

Results

Both treatment modalities led to significant clinical improvements. No significant differences between both groups were recorded. Change in bone fill 12 months after surgery was 1.6 mm (±1.2) in the test group and 1.6 mm (±1.3) in the control group, respectively. A clinical attachment gain of 1.4 mm (±1.8) in the test group and 2.1 mm (±1.6) in the control group was found. A reduction in probing pocket depth of 2.6 mm (±1.8) in the test group and 3.2 mm (±1.8) in the control group was recorded, table 2, 3. Two weeks after surgery primary closure was maintained in 100% of both test and control groups (Figure 5). No differences in patients' perceptions were observed (Figure 6).

Table 1. Patient characteristics at baseline

Variable	Treatment			
Group	EMD		Ostim	
Age (years; mean ± SD)	51.8 ± 11.4		50.9 ± 12,9	
♀ / ♂ (n)	11 / 8		7 / 12	
smoking habits (n / %)	n	%	n	%
no smoker	17	89.5	11	57.9
former smoker	2	10.5	3	15.8
occasional smoker	0	0	5	26.3

Table 2. Intergroup comparison of Clinical outcomes (mm) after 12 months

Variable	EMD Mean ± SD	Ostim Mean ± SD	P-value
PPD Reduction	3.2 ± 1.8	2.6 ± 1.8	0.31
RAL Gain	2.1 ±1.6	1.4 ± 1.8	0.21
Bone Fill	1.6 ± 1.3	1.6 ± 1.2	1.00

Table 3. Intragroup comparison of Clinical outcomes (mm) after 12 months

	EMD		Ostim	
	Baseline	*12 Months*	*Baseline*	*12 Months*
Bone Sounding				
Mean	11.9	10.2	11.8	10.1
Standard deviation	2.0	1.8	1.9	2.0
P-value		<0.001		<0.001
Relative Attachment Level (CAL)				
Mean	9.9	7.7	9.6	8.1
Standard deviation	1.8	1.6	2.0	2.4
P-value		<0.001		0.003
Probing Pocket Depth (PPD)				
Mean	6.6	3.4	6.6	4.1
Standard deviation	1.3	1.1	1.8	1.7
P-value		<0.001		<0.001

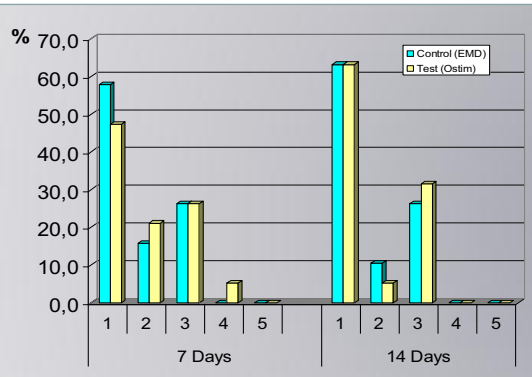

Fig 5. Early – Wound – Healing Index (EHI)

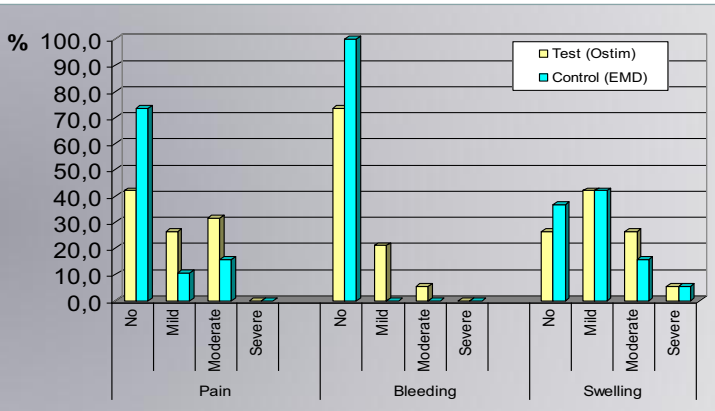

Fig 6. Patients' perceptions

Conclusion

The results show comparable clinical outcomes following both treatment modalities 12 months after treatment. Further investigation is needed to identify factors influencing individual responses.