

Donna Lavoie¹, Cathy Hamm¹, Linda Dakin¹, Amanda B. Longo¹, Peter C. Fritz^{1, 2}, and Wendy E. Ward^{1, 2}

¹ Dr. Peter C. Fritz Periodontal Wellness & Implant Surgery, Fonthill, Canada ² Centre for Bone and Muscle Health, Brock University, Canada

Background & Aim

- Studies have identified no difference in the effectiveness of mechanical SRP compared to the use of ultrasonics on periodontal outcomes.
- However, no study has examined the effectiveness of either modality in relation to the area of the mouth treated, as areas of the mouth have differing accessibility.

Therefore, the aim of this study was to investigate the site-specific effect of ultrasonics alone versus ultrasonics and hand instrumentation on periodontal outcomes in the treatment of generalized advanced periodontitis.

Results

At Baseline

- No difference in any periodontal outcomes at any site (Table 1) or when all sites were combined.

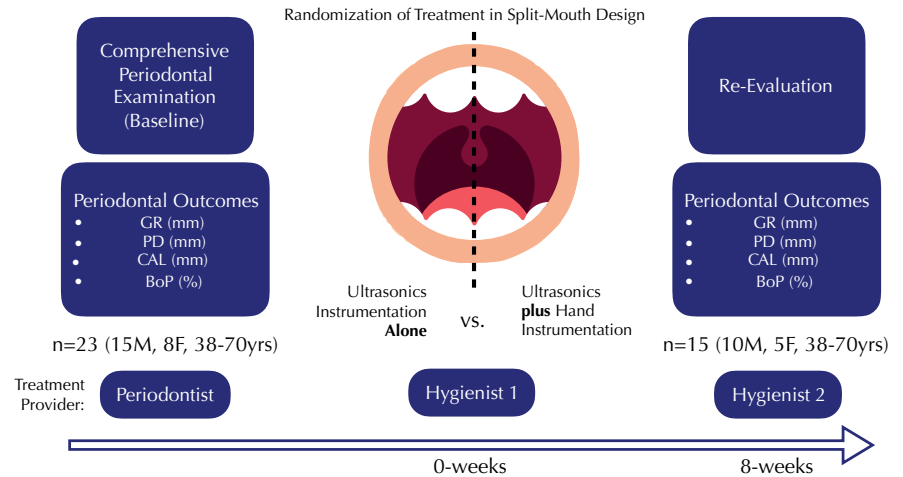
At 8-week Re-Evaluation

- Significantly greater BoP (%) at the mandibular lingual sites treated with ultrasonics alone compared to the combination of ultrasonics plus hand instrumentation ($p < 0.05$, Table 1).
- No other differences observed in any other periodontal outcome at any site or when all sites were combined.

Change from Baseline to Re-Evaluation

- No differences in any periodontal outcomes at any site (data not shown) or when all sites were combined.

Methods



¹ BoP; bleeding on probing, CAL; clinical attachment loss, GR; gingival recession, PD; probing depth

Discussion

- GR, PD, CAL are improved equally by SRP with either ultrasonics alone or in combination with hand instrumentation, supporting the efficacy of either modality in the non-surgical treatment of these outcomes in generalized advanced periodontitis.
- While there were differences in BoP (%), this finding requires further investigation as it was the only clinical measure that differed between ultrasonics alone or in combination with hand instrumentation.
- Large variation was observed in all outcomes. The deviation may be due to the demographics of patients, which included both males and females, a wide age range, and differing smoking status. With the inclusion of more participants, the variation in the outcomes will likely be reduced.

Table 1. Periodontal Outcomes at Baseline and 8-weeks following SRP by either Ultrasonics Alone or Ultrasonics and Hand Instrumentation¹

Outcome/ Treatment	Baseline (n=23)					8 Week Re-Evaluation (n=15)					Re-Evaluation — Baseline (All Sites, n=15)	
	Maxillary Facial	Maxillary Lingual	Mandibular Facial	Mandibular Lingual	All Sites	Maxillary Facial	Maxillary Lingual	Mandibular Facial	Mandibular Lingual	All Sites		
GR (mm)												
US	0.8(0.6)	0.6(0.5)	1.0(0.8)	0.5(0.6)	2.8(2.2)	0.8(0.6)	0.6(0.5)	0.7(0.7)	0.7(0.8)	1.8(1.2)	-1.0(1.5)	
US +	0.9(0.7)	0.8(1.0)	1.1(1.0)	0.5(0.5)	2.8(2.2)	0.9(0.7)	0.7(0.7)	0.6(0.6)	0.5(0.4)	1.7(1.1)	-0.9(1.6)	
p-value	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
PD (mm)												
US	4.6(0.8)	4.8(0.7)	4.8(0.8)	4.9(0.7)	2.8(2.1)	2.7(0.4)	2.9(0.5)	2.6(0.5)	2.6(0.5)	1.7(1.2)	-1.2(1.4)	
US +	4.4(0.6)	4.9(0.7)	4.8(0.9)	5.0(0.8)	2.7(2.1)	2.6(0.4)	2.7(0.4)	2.5(0.5)	2.7(0.7)	1.7(1.2)	-1.3(1.5)	
p-value	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
CAL (mm)												
US	5.4(1.1)	5.3(1.0)	5.7(1.0)	5.6(1.1)	8.4(6.4)	3.4(0.9)	3.5(1.1)	3.3(0.9)	3.4(0.9)	2.7(1.8)	-4.2(6.5)	
US +	5.2(0.8)	5.4(1.0)	5.6(0.9)	5.6(1.1)	8.4(6.8)	3.4(0.7)	3.4(0.8)	3.1(0.8)	3.2(0.9)	2.7(1.8)	-4.2(6.2)	
p-value	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
BOP (%)												
US	50.3(40.3)	66.5(36.8)	49.1(41.6)	57.5(37.2)	55.9(39.0)	5.6(5.3)	10.2(9.4)	6.8(5.0)	11.0(6.9)	8.6(8.4)	-36.0(41.0)	
US +	46.9(42.6)	54.7(43.4)	51.1(40.2)	54.3(38.1)	51.7(40.5)	5.2(6.1)	12.2(10.7)	5.5(7.2)	4.9(5.7)	7.6(9.2)	-33.7(38.7)	
p-value	NS	NS	NS	NS	NS	NS	NS	NS	p<0.05	NS	NS	

¹ All data are presented as mean(SD). The difference between treatment modalities and the change from baseline to re-evaluation were analyzed by paired t-test ($p < 0.05$).

Instrumentation was generously provided by Hu-Friedy and Dentsply Sirona Inc. No restrictions have been applied to data interpretation or dissemination.

Conclusion

- There were no differences between the two treatment modalities with respect to PD, GR and CAL at any site. However, use of ultrasonics alone resulted in a greater BoP compared to the combination treatment at the mandibular lingual surfaces. This finding requires further investigation.