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One-stage Debridement versus Conventional Therapy in Type-2 Diabetic Periodontitis patients

Introduction

- Prevalence and severity of periodontitis is influenced by diabetes, duration and metabolic control

  - *Emrich et al. 1991,*

  - *Tervonen et al. 1991,*

  - *Christgau et al. 1998,*

  - *Oliver & Tervonen 1993*

Introduction

- Full-mouth disinfection: better clinical outcome in terms of PPD reduction, CAL gain and microbiological changes

    Quirynen et al. 1995,

    Vandekerckhove et al.1996,

    Bollen et al. 1996

- One-stage debridement as effective as full-mouth disinfection

    Quirynen et al. 1999, 2000

- DM ⟷ Periodontal therapy?

- One-stage debridement? Better

Objective

To evaluate the effectiveness of one-stage debridement vs conventional periodontal therapy by comparing the following parameters:

- Plaque percentage (PI%)
- Bleeding on probing (BOP%)
- Probing pocket depth (PPD) – Florida Probe
- Clinical attachment levels (CAL) – Florida Probe
- Post-treatment discomfort evaluation by Questionnaire

Over 12 months observation period employing single-blinded randomized controlled clinical trial protocol

Material and methods

Inclusion criteria

- Chinese

- Age 41-70

- Presence of at least 5 teeth in each quadrant. i.e. ($\geq$ 20 teeth)

- Presence of at least 2 sites in each quadrant with probing pocket depth $\geq$ 5mm.

- Radiographic evidence of 2 sites in each quadrant with moderate bone loss ($\geq$ 1/3 of the root length)
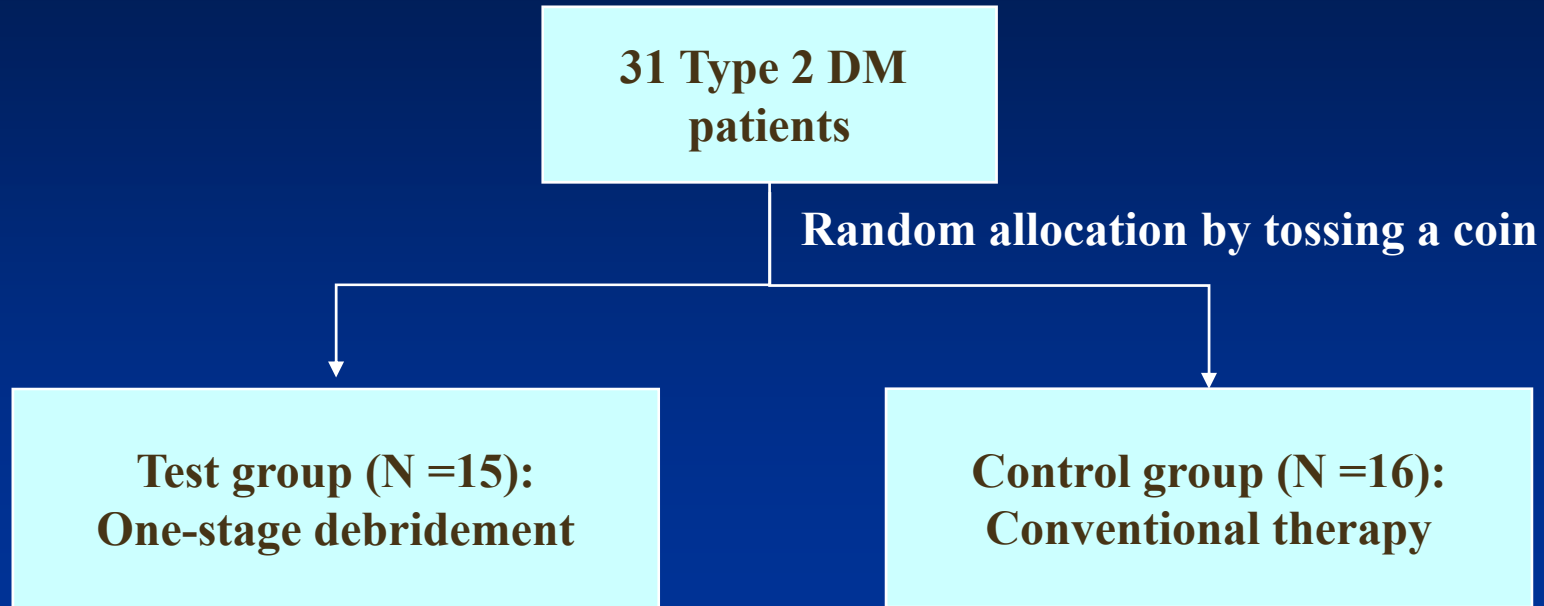
Material and methods

Exclusion criteria

- Smokers

- Pregnancy

- Patient who had received anti-microbial therapy within the preceding 4 months

- Patient who had received any periodontal treatment within the past one year

- Having no other systemic diseases except hypertension

- Patients who refused removal of unsavable / hopeless teeth at or before the commencement of therapy

Material and methods

31 Type 2 DM patients

Random allocation by tossing a coin

Test group (N =15):
One-stage debridement

Control group (N =16):
Conventional therapy

- Blind examiner (CN) collected data without knowing the patient group
- Treatment performed by a team of hygienists

Results – Baseline Data

	One Stage	Conventional	*p-value*
Subject N	15	16	-
Gender M / F	11 / 4	12 / 4	1.000
Mean age	52.5 (8.4)*	55.2 (7.8)	0.641
Mean HbA$_{1c}$	8.3 (0.8)	7.8 (1.1)	0.488
Mean no. of teeth	25.6 (2.6)	24.9 (1.9)	0.507
PI%	75.2 (20.7)	65.9 (20.4)	0.202
BOP%	68.2 (17.6)	56.2 (19.8)	0.119
Mean PPD (mm)	2.7 (0.3)	2.6 (0.6)	0.119
Mean CAL (mm)	10.8 (0.9)	10.5 (1.4)	0.175

* SD in parenthesis

Table 1.Demographic data and baseline clinical data

Results – Baseline Data

	One Stage		Conventional		p-value
Site of PPD ≥ 4.0 mm					
Prevalence (%)	13.1	(6.4)*	12.8	(15.0)	0.202
Mean PPD	4.9	(0.4)	5.1	(0.4)	0.216
Site of PPD ≥ 7.0 mm					
Prevalence (%)	1.1	(1.5)	1.5	(3.9)	0.730
Mean PPD	8.0	(1.1)	8.2	(1.0)	0.666

* SD in parenthesis

Table 2. Prevalence and mean PPD of sites ≥ 4.0 mm and ≥ 7.0 mm

Results

	One Stage		Conventional		p-value
PI%					
Baseline	75.2	(20.7)*	65.9	(20.4)	0.202
3 Months	56.1	(22.8)	40.2	(19.6)	0.300
6 Months	49.6	(24.8)	43.1	(23.6)	0.495
12 Months	44.9	(33.1)	38.5	(24.1)	0.861
BOP%					
Baseline	68.2	(17.6)	56.2	(19.8)	0.119
3 Months	45.7	(13.2)	40.7	(15.0)	0.264
6 Months	47.7	(18.1)	32.9	(11.8)	0.057
12 Months	39.4	(20.5)	32.1	(12.1)	0.446

* SD in parenthesis

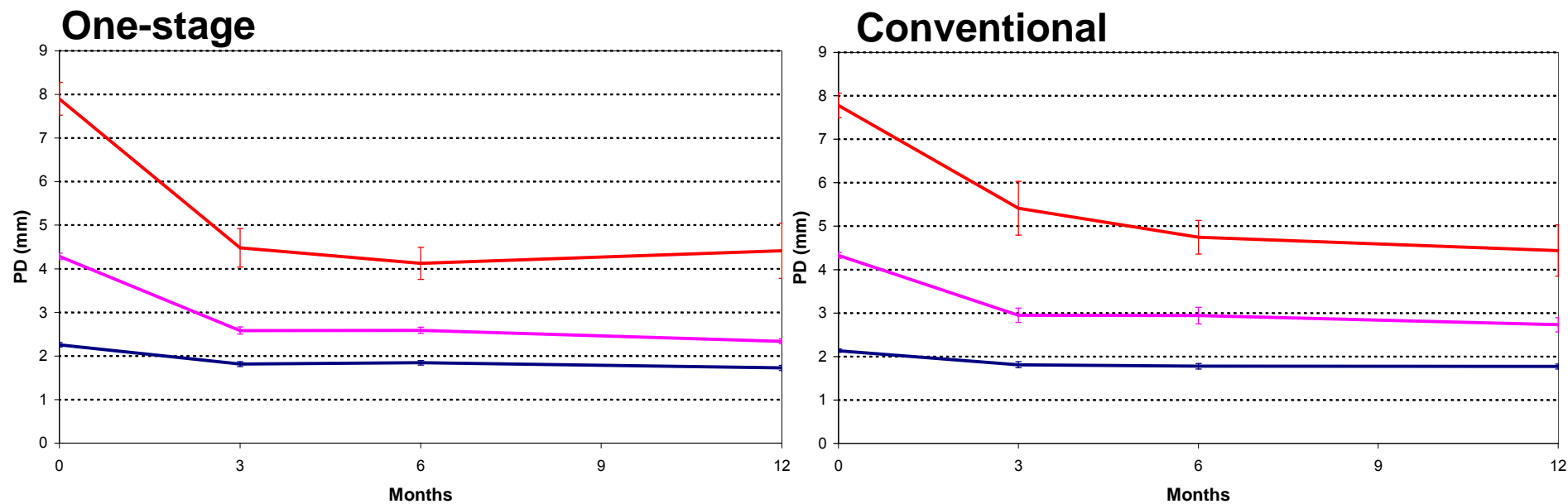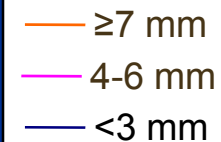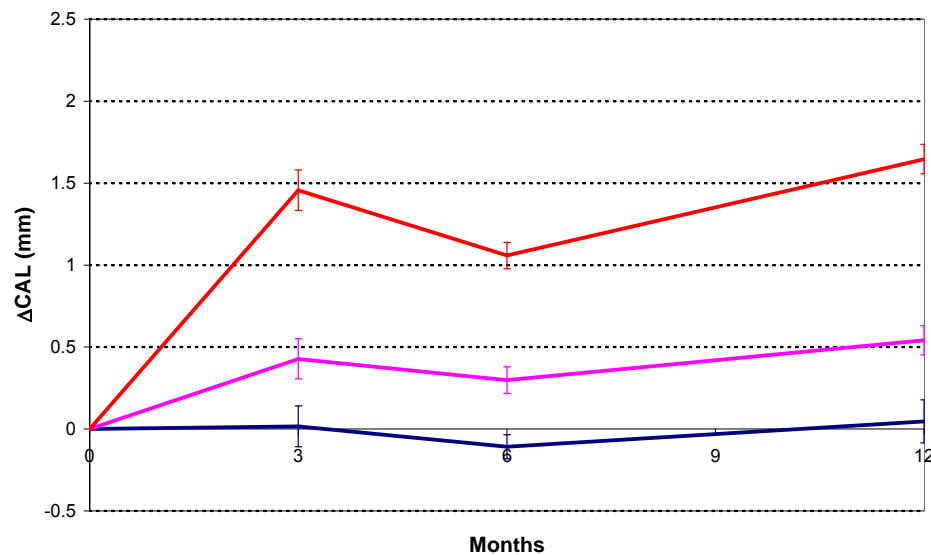Table 3. Full mouth PI % and BOP %

Results

Fig. 1. PD Change in different PPD categories in one-stage and conventional treatment groups

Results

One-stage

Conventional

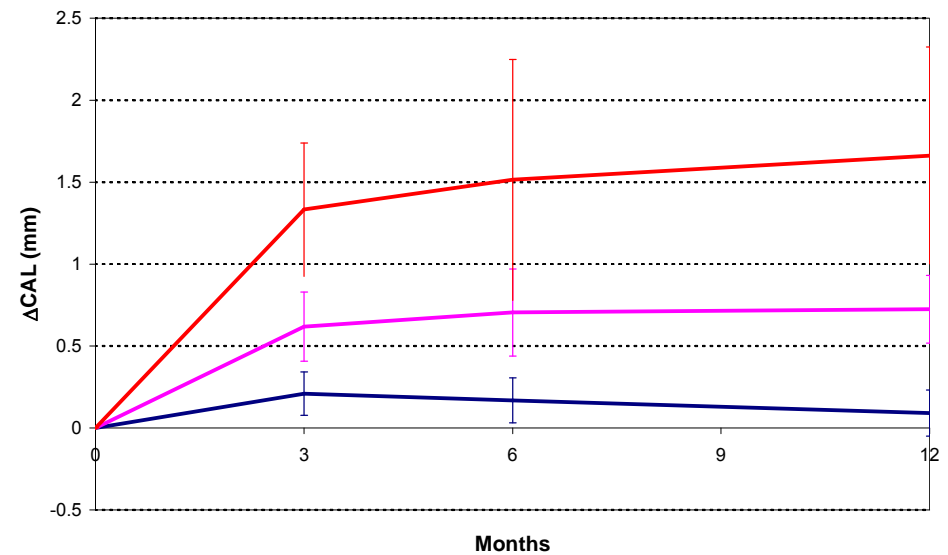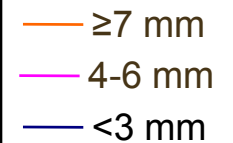Fig. 2. CAL Gain in different PPD categories in one-stage and conventional treatment groups

≥7 mm
4-6 mm
<3 mm

Results

	One Stage	Conventional	*p-value*
Mean % of sites with PPD ≥ 4.0 mm			
No. of Site	301	305	/
Baseline	13.1 (6.4)*	12.8 (15.0)	0.202
3 Months	2.9 (2.5)	4.8 (4.9)	0.338
6 Months	3.0 (2.8)	4.6 (4.4)	0.338
12 Months	2.1 (2.1)	3.9 (3.2)	0.045

* SD in parenthesis   (MannWhitney U Test)

Table 4. Mean % of sites with PPD ≥ 4.0 mm in One Stage and Conventional Treatment groups

Results

	One Stage		Conventional		p-value
PPD ≥ 4.0 mm					
Baseline	4.9	(0.4)*	5.1	(0.4)	0.216
3 Months	2.8	(0.4)	3.4	(0.8)	0.030
6 Months	2.9	(0.4)	3.3	(0.9)	0.093
12 Months	2.6	(0.4)	3.0	(0.8)	0.078

* SD in parenthesis (Mann-Whitney U Test)

Table 5. Mean PPD ≥ 4.0 mm in One Stage and Conventional Treatment groups

Results

	One Stage		Conventional		*p-value*
CAL gain					
Baseline – 3 Months	0.5	(0.6)*	0.6	(0.9)	0.379
Baseline – 6 Months	0.4	(0.5)	0.8	(1.1)	0.202
Baseline – 12 Months	0.6	(0.5)	0.8	(1.0)	0.495

* SD in parenthesis   (Mann-Whitney U Test)

Table 6. CAL gain (PPD ≥ 4.0 mm) in One Stage and Conventional Treatment groups

Results

	One Stage	Conventional
Total N	15	16
No. subject ≥ 37.5 ºC	1	0
No. of subject felt painful & received pain-killer	7	1

Table 7. Post-treatment discomfort

Conclusion

- Similar healing responses after one-stage debridement vs conventional therapy in terms of PPD reduction, CAL gain in Type 2 middle age diabetic patients with mild to moderate chronic periodontitis

Acknowledgement

- The staff of the Diabetic Centre, Tung Wah Eastern Hospital,