

Tetracycline fiber

1-6).
가
가
Newman
7).
9).
10),

Vehicle
11-14).
7, 15-17).
1979 Goodson¹⁸⁾ tetracycline cellulose acetate hollow fiber, 1982 Addy¹⁹⁾ dialysis tubing acrylic strip system, 1982 Dunn²⁰⁾ Monolithic system ethylene vinyl acetate, polycaprolactone, polyurethane, 1983 Goodson²¹⁾ Monolithic system ethylene vinyl acetate 가 가 . 1990 Newman²²⁾ collagen plaster, 1997²³⁾ tetracycline surgicel, collacote, tissell system 24-26).
27).
tetracycline

metronidazol^{28, 29)}, chlorhexidine^{12, 30 - 33)}

, 1
 , 가 6mm , 가
 4
 tetracycline
 ethylene vinyl (가 4 quadrants) 가
 acetate elastic fiber tetracycline
 hydrochloride tetracycline
 fiber(actisite) 4

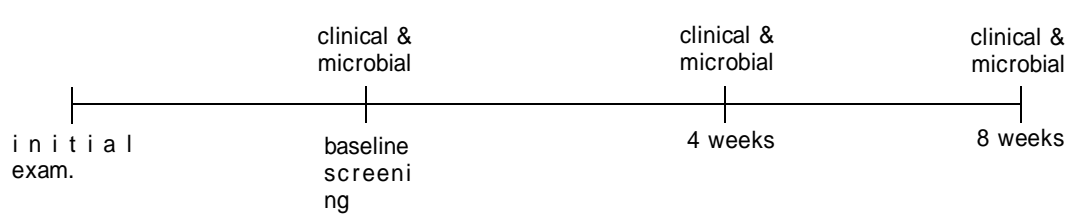
, (C), 1
 34, 35) (RP), 2
 actisite (A), 3
 actisite
 (RP + A). actisite 가

II. cyanoacrylate . 10
 actisite , 4 , 8
 . 2

1. Y , 8 0.2% chlorhexidine
 6 - 7mm 4 (1).
 가 21
 가 13 , 가 9 3.
 , 32 56 (

39.3) ,
 , 6
 가
 (PI: Plaque index),
 (BOP: Bleeding on Probing),
 (PD: Pocket Depth), (CAL: Clinical
 Attachment Level),

2. (1)
 disclosing solution



1. Study design

* actisite : ALZA Co., CA, USA

0 1 .

(2) 4.

10

0, 1

Gracey curette

1%

(3) Gelatin 10ml
slide glass

Marquis Color coded Probe
cover glass
(× 400).

1mm

5.

(4)

4 , 8 3

(5) Kruskal - Wallis test Multiple comparison - duncan method

Abscess

1. Plaque index(%)

	Baseline	4 weeks	8weeks
C	90.48	85.71	76.19
Exp.1	95.24	90.48	80.00
Exp.2	95.24	80.95	61.90
Exp.3	90.48	85.71	71.43

2. Bleeding index(%)

	Baseline	4 weeks	8weeks
C	100	71.43	66.67
Exp.1	100	61.90	60.00
Exp.2	100	61.90	71.43
Exp.3	100	52.38	57.14

III.

, 4 93% 86%, 8
93% 72% , 2

1. 8 61.90 % 가 (1).

3. Probing pocket depth(mm)

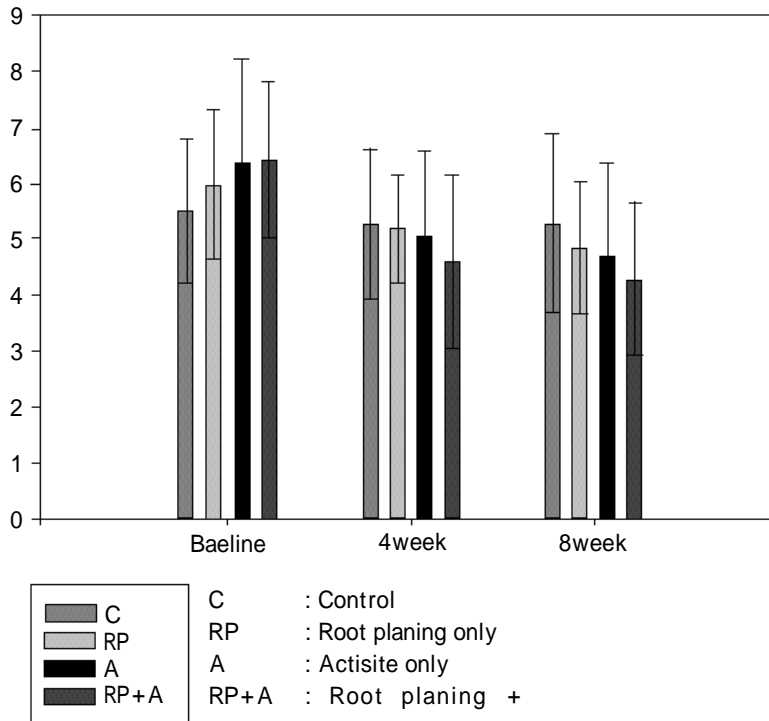
		Baseline	4weeks	Difference	8week	Difference
C	Median	6(3 - 9)	5(3 - 9)	0(- 2 - 2)	6(3 - 9)	0(- 3 - 2)
	Mean	5.52 ± 1.29	5.29 ± 1.35	0.24 ± 1.14	5.29 ± 1.59	0.24 ± 1.18
Exp.1	Median	6(3 - 9)	5(3 - 7)	1(- 1 - 4)	5(3 - 7)	1(- 1 - 4)
	Mean	6.00 ± 1.34	5.19 ± 0.98*	0.81 ± 1.17	4.86 ± 1.20*	1.14 ± 1.39+
Exp.2	Median	6(3 - 11)	5(3 - 8)	1(0 - 4)	4(3 - 9)	2(0 - 5)
	Mean	6.38 ± 1.86	5.05 ± 1.56*	1.33 ± 1.20#	4.71 ± 1.68*	1.67 ± 1.53+
Exp.3	Median	6(4 - 10)	5(2 - 8)	1(0 - 6)	4(2 - 7)	2(0 - 6)
	Mean	6.45 ± 1.40	4.62 ± 1.56*	1.83 ± 1.58#	4.29 ± 1.38*	2.17 ± 1.65+@

* : significant from baseline : p<0.05

: significant between control and exp. 2, 3 : p<0.05

+ : significant between control and exp. 1, 2, 3 : p<0.05

@ : significant between exp. 1 and exp. 3 : p<0.05



2. Change of probing pocket depth

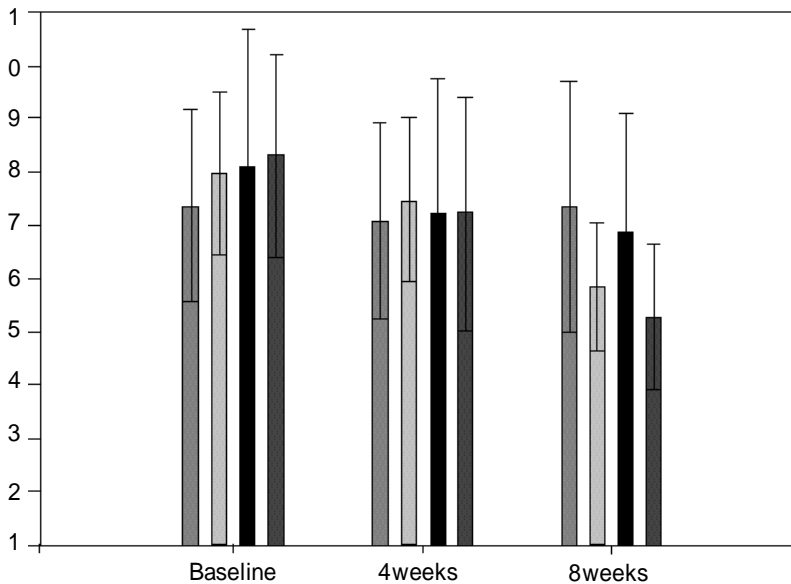
2. 8 100% 64% ,
 3 4 52.38% 가
 (2).
 , 4 100% 62%,

4. Clinical Attachment Level(mm)

		Baseline	4weeks	Difference	8week	Difference
C	Median	6(3 - 10)	6(3 - 10.5)	0(- 2 - 3)	6(3 - 13)	0(- 3 - 3)
	Mean	6.38 ± 1.80	6.10 ± 1.85	0.26 ± 1.11	6.38 ± 2.33	- 0.02 ± 1.29
Exp.1	Median	7(4 - 10)	6(4 - 10)	0.5(- 1 - 5)	± (4 - 9)	0(- 2 - 4)
	Mean	7.00 ± 1.52	6.50 ± 1.53*	0.50 ± 0.81	4.86 ± 1.20	0.57 ± 1.21
Exp.2	Median	6(3 - 13)	6(3 - 13)	1(- 3 - 4)	6(3 - 11)	1(- 3 - 5)
	Mean	7.10 ± 2.57	6.21 ± 2.55*	0.88 ± 1.52	5.90 ± 2.23*	1.19 ± 1.83#
Exp.3	Median	7(4 - 11)	6(3 - 11)	0(- 1 - 4)	4(3 - 11)	2(- 3 - 4)
	Mean	7.33 ± 1.91	6.24 ± 2.19*	1.10 ± 1.51	4.29 ± 1.38*	1.52 ± 1.91#

* : significant from baseline : p<0.05

: significant between control and exp. 2, 3 : p<0.05



C : Control
 RP : Root planing only
 A : Actisite only
 RP+A : Root planing + Actisite

3. Change of clinical attachment level

3.

RP+A (1.33 ± 1.20), C (0.24 ± 1.14), RP+A (1.83 ± 1.58), RP+A (2.17 ± 1.65), A (1.67 ± 1.53), C (0.24 ± 1.18), RP+A (1.19 ± 1.83), C (-0.02 ± 1.29), RP+A (1.52 ± 1.91), C (0.24 ± 1.18). (p<0.05).

4. RP+A (1.14 ± 1.39), A (1.67 ± 1.53), RP+A (2.17 ± 1.65), C (0.24 ± 1.18), RP+A (1.83 ± 1.58), RP+A (1.19 ± 1.83), C (-0.02 ± 1.29), RP+A (1.52 ± 1.91), C (0.24 ± 1.18). (p<0.05).

5. Total bacteria number

		Baseline	4weeks	Difference	8week	Difference
C	Median	66(30 - 270)	67(23 - 190)	3(- 38 - 80)	61(19 - 134)	5(- 55 - 136)
	Mean	82.24 ± 57.72	74.38 ± 42.88	7.86 ± 27.33	66.10 ± 34.68	16.14 ± 40.05
Exp.1	Median	64(21 - 345)	55(18 - 248)	14(- 66 - 97)	44(7 - 132)	20(- 72 - 243)
	Mean	78.05 ± 65.60	62.19 ± 49.44*	15.86 ± 31.49	51.48 ± 28.44*	26.57 ± 56.02
Exp.2	Median	67(37 - 220)	55(12 - 142)	15(- 23 - 91)	45(20 - 128)	18(- 88 - 95)
	Mean	77.90 ± 43.48	54.48 ± 27.83*	23.43 ± 28.84	52.14 ± 28.46*	25.76 ± 37.50
Exp.3	Median	67(21 - 297)	51(11 - 156)	26(- 13 - 141)	37(9 - 95)	32(2 - 202)
	Mean	78.05 ± 56.70	47.62 ± 31.66*	30.43 ± 32.07*	38.24 ± 20.89*	39.81 ± 41.12

* : significant from baseline : p<0.05
 # : significant between control and exp. 3 : p<0.05

6. Motile/total bacteria ratio

		Baseline	4weeks	Difference	8week	Difference
C	Median	0.29(0.02 - 0.67)	0.28(0 - 0.61)	0.01(- 0.23 - 0.56)	0.33(0.1 - 0.74)	0.04(- 0.25 - 0.48)
	Mean	0.32 ± 0.20	0.27 ± 0.19	0.05 ± 0.18	0.34 ± 0.16	- 0.02 ± 0.18
Exp.1	Median	0.33(0.07 - 0.73)	0.30(0 - 0.57)	0.03(- 0.52 - 0.49)	0.24(0.05 - 0.55)	0.07(- 0.48 - 0.39)
	Mean	0.34 ± 0.18	0.28 ± 0.16*	0.06 ± 0.20	0.27 ± 0.16*	0.07 ± 0.20*
Exp.2	Median	0.33(0.07 - 0.61)	0.22(0 - 0.62)	0.05(- 0.34 - 0.57)	0.27(0.02 - 0.56)	0.02(- 0.34 - 0.39)
	Mean	0.34 ± 0.18	0.28 ± 0.16*	0.06 ± 0.20	0.27 ± 0.16*	0.07 ± 0.20*

* : significant from baseline : p<0.05
 # : significant between control and exp. 1, 3 : p<0.05

3). 가 (p<0.05)(4, penicillin cefa
가 . tetra -
cycline

5.

8 RP, A RP+A , 4 36).
(p<0.05), oral streptococci, E. corrodens,
4 RP+A (30.43±32.07) C P. oralis Black pigmented
(7.86±27.33) Bacteroides
(p<0.05), 8
(5).

, 4 RP, A RP+A (local delivery
system)가 . Goodson 18, 37)
, 8 RP tetracycline fiber 500µg/mL
RP+A , 10 50µg/mL
(p<0.05). 8 Goodson
RP(0.07±0.20) RP+A(0.09 16, 17)
±0.19) C (-0.02±0.18) 4µg/mL tetracycline fiber
(p<0.05)(6). 가

6.

15 Lindhe(1979) 36) tetracy -
, 5 가 cline 가
, 1 . , Eckles(1990) 20)
, 1 가 Lindhe 8
7 가 가 ,

IV.

tetracycline fiber

가

P. gin -
givalis, F. nucleatum, A. actinomycetem -
comitans Capnocytophaga 가 Lindhe
minocycline, doxycycline, tetracycline 38, 39) tetracycline
tetracycline clindamycin, erythromycin,

, tetracycline fiber

가 . Goodson 37)

tetracycline fiber tetracycline fiber

가 , Heijl 40)

tetracycline fiber tetracycline fiber

가 Newman , 4 tetra -

41) tetracycline fiber cycline fiber ,

가 , 8 ,

, Drisko 42)

가 8

tetracycline fiber , ,

가 .

tetracycline fiber Amitage 43) 43.4% ,

가 , tetracy - Listgarten Hellen⁴⁴⁾, Lindhe 38) ,

cline fiber ,

tetracycline fiber 가 .

31.2% 11.7% , Addy 30) , Lindhe 45)

56.7% 13.9% .

가 , 32% 24% .

Goodson (1985) 34) Lindhe 28)

Newman 41) 6 tetracycline fiber , ,

tetracycline fiber

Drisko 42) 12 가

가 , 1 가

tetracycline fiber , 1991

Goodson fiber

tetracycline fiber

tetracycline fiber

5. Tetracycline fiber

가

tetracycline fiber

V.

VI.

21

가 6mm

tetracycline fiber

(A)

(RP),

(RP+A)

가

(C)

4 , 8

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1.

2.

tetracycline fiber

tetracycline fiber

3.

tetracycline fiber

가

4.

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- Abstract -

The Clinical Effect of Tetracycline Fiber used in conjunction with Root Planing

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Research Institute for Periodontal Regeneration

In this study, 21 patients diagnosed as adult periodontitis were divided into 4 groups. One quadrant with an average of 6mm deep pocket depth was chosen from each individual - Group A inserted tetracycline fiber after removing supragingival calculus while group RP had calculus removal and root planing alone. Group RP+A received combination of these treatments while group C received none. Plaque index, bleeding on probing, pocket depth, attachment level, and distribution of subgingival plaque were compared and evaluated among these groups at periods of first visit, 4th week and 8th week.

The results were as follows ;

1. Plaque index and bleeding on probing improved after treatment and no significant difference was found between the groups.
2. When comparing the change in pocket depth between the groups, the use of tetracycline fiber showed significant reduction in pocket depth comparable to

root planing. Combined therapy of tetracycline fiber and root planing showed synergistic effect in pocket depth reduction.

3. When comparing the change in attachment level between the groups, the use of tetracycline fiber showed significant increase in clinical attachment level comparable to root planing, but no synergistic effect was found in the combined therapy.
4. When comparing the change in the motile bacteria ratio between the groups, group RP and group RP+A showed significant decrease compared with control group.
5. There were no severe adverse effects from using tetracycline fiber, except for a few patient who experienced mild discomfort.

In summary, the use of local administration of tetracycline fiber in adjunction to mechanical treatment can be effective for adult periodontitis.

Key words : root planing, tetracycline fiber, subgingival bacteria, motile bacteria