

# 2% minocycline gel

. . .

I. 7).

, ,

. 8), ,

가 9-

13),

5mm

가 , (local drug delivery system)

가 1970

1- 14-17).

3),

가

가 . tetracycline,

가 minocycline, metronidazole, chlorhexidine  
, fibers<sup>18-21</sup>), gel<sup>8, 22-27</sup>), oint-  
ments<sup>28</sup>), films<sup>29-30</sup>)

가 .  
tetracycline

가 minocycline

4-6),

27 ( ,  
<sup>31)</sup>. 가 12 , 15 ) ,  
42.7 (35 - 59 ) .  
가 5mm 8mm 가  
5  
가 2  
<sup>32-33)</sup>.  
minocycline 6  
가  
Bacteroides species, Fusobacterium  
nucleatum, Actinobacillus actinomycetem -  
comitans Capnocytophaga species  
tetracycline , phenytoin, nifedip -  
ine, cyclosporin  
가 1  
tetracycline .  
<sup>29, 34)</sup>. 2  
fibers, gel, 가  
ointments, films , 1  
syringeable gel  
<sup>35-37)</sup>, van Steenberghe  
(1993)<sup>22)</sup> Graca (1997)<sup>27)</sup> 2%  
minocycline gel .  
minocycline gel 2.  
가 , 가  
. 0, 1, 2, 3 1 58  
2% minocycline gel(  
, , ) ,  
2% minocycline gel 가 0, 1, 2, 3  
(n=40)  
, minocycline gel 가 , 0  
가 ,  
. 4  
II. , 4, 8, 12  
1. .

가) William's probe( 0.5mm)

3 : ,  
4 : , ,  
5 : ,

(1) (Plaque Index, PI I - Silness and Loe(1964)<sup>38)</sup>)

0 : 가  
1 : 가  
2 : 가  
3 : 가

(2) (Gingival Index, GI - Loe and Silness(1963)<sup>39)</sup>)

0 : glass slide  
1 : , , 가 cover 400  
2 : , , , , ( 41), , 6 가  
3 : , , , slide 3

(3) (Sulcular Bleeding Index, SBI - Mühlemann and Son(1971)<sup>40)</sup>)

0 : 2 - way ANOVA Test  
1 : , student's t - test  
2 : .

(4) (Pocket Depth) : William's 14W probe( 0.5 mm)

6

(5) (Gingival Recession) : William's 14W probe

6

, 0, 4, 8, 12

Table 1. Plaque index (mean ± S.D.)

group \ week	Initial exam.	0	1	2	3	4	8	12
saline	2.40 ± 0.28	1.30 ± 0.32 <sup>†</sup>		0.89 ± 0.23 <sup>†</sup>	0.78 ± 0.17 <sup>†</sup>	0.75 ± 0.18 <sup>†</sup>	0.75 ± 0.18 <sup>†</sup>	0.73 ± 0.18

† : Statistically significant difference at each group from the initial examination. (p<0.05, two - way analysis of variance)

III.

1.

(1) (PI I)

8

가 5 8mm 1/4 2 가

27 12 ,

58 (p<0.05). 8

2% minocycline gel 1 4 12 가

12 가 .

(Table 1).

(2) (GI)

Table 2. Gingival index(mean±S.D.)

group \ week	Initial exam.	0	1	2	3	4	8	12
saline	2.44 ± 0.28	1.20 ± 0.28 <sup>†</sup>		0.89 ± 0.16 <sup>†</sup>	0.81 ± 0.15 <sup>†</sup>	0.79 ± 0.18 <sup>†</sup>	0.74 ± 0.17 <sup>†</sup>	0.67 ± 0.16

† : Statistically significant difference at each group from the initial examination. (p<0.05, two - way analysis of variance)

Table 3. Sulcular bleeding index(mean±S.D.)

group \ week	Initial exam.	0	1	2	3	4	8	12
saline	2.96 ± 0.24	1.41 ± 0.26 <sup>†</sup>	0.97 ± 0.17 <sup>†</sup>	0.89 ± 0.19 <sup>†</sup>	0.89 ± 0.15 <sup>†</sup>	0.89 ± 0.16 <sup>†</sup>		0.93 ± 0.13

† : Statistically significant difference at each group from the initial examination. (p<0.05, two - way analysis of variance)

Table 4. Pocket depth (mean±S.D., mm)

group \ week	Initial exam.	0	4	8	12
saline	5.17 ± 0.42	4.11 ± 0.42†	4.05 ± 0.39†	4.07 ± 0.38†	4.21 ± 0.37†
minocycline	5.55 ± 0.74	4.44 ± 0.64†	4.27 ± 0.60†	4.13 ± 0.57†	4.17 ± 0.54†

† : Statistically significant difference at each group from the initial examination. (p<0.05, two - way analysis of variance)

Table 5. Gingival recession(mean±S.D., mm)

group \ week	Initial exam.	0	1	2	3	4	8	12
saline	0.84 ± 0.60	1.53 ± 0.63†		1.53 ± 0.63†	1.53 ± 0.63†	1.55 ± 0.61†	1.60 ± 0.57†	1.59 ± 0.60

† : Statistically significant difference at each group from the initial examination. (p<0.05, two - way analysis of variance)

(p<0.05),

12 12

(p<0.05),(Table 3).

가 (p<0.05). (4) (Pocket Depth)

(Table 2).

(3) (SBI) 5.55mm 8

4.13mm 1.42mm 12

1.38mm .

5.17mm 4 4.05mm 1.12mm

8 1.10mm, 12

0.96mm 가 .

3.04 ± 0.32 가

0.10 가 (p< 0.05), (p<0.05), 가

12 (Table 4).

2.96 ± 0.24

가 1 0.97 ± 0.17 (5) (Gingival Recession)

(p<0.05), 12 0.84mm,

. 0.67mm

, 1 (0.66 ± 0.20) 1.53mm, 1.43mm

(0.97 ± 0.17) 가 (p<0.05),

Table 6. Percent of distribution of subgingival bacteria(mean % ±S.D)

organisms	week group	Initial exam.	0	4	8	12
		cocci	saline	32.25 ± 4.64	42.07 ± 3.54†	43.76 ± 6.63†
†	minocycline	30.76 ± 3.49	43.17 ± 4.95†	50.72 ± 5.19†	50.90 ± 3.07†	54.14 ± 4.37
rods	saline	23.74 ± 2.94	25.23 ± 3.31	23.15 ± 4.39	17.94 ± 2.06	17.45 ± 1.50
	minocycline	22.14 ± 2.86	26.84 ± 3.06	27.31 ± 4.43	22.18 ± 2.54	21.58 ± 2.39
fusiforms	saline	5.30 ± 2.53	6.21 ± 2.28	7.16 ± 1.85	7.52 ± 1.57	7.66 ± 1.18
	minocycline	6.47 ± 1.77	5.69 ± 1.84	5.94 ± 1.79*	6.82 ± 1.6	7.13 ± 1.97
filaments	saline	4.71 ± 1.63	4.38 ± 2.18	6.30 ± 2.76	6.64 ± 1.86	7.47 ± 1.39
	minocycline	5.02 ± 1.91	3.95 ± 2.44	4.70 ± 2.16*	7.10 ± 1.68	7.30 ± 2.04
spirochetes	saline	21.03 ± 2.25	16.62 ± 3.96	13.08 ± 4.25	14.09 ± 1.89	12.58 ± 1.45
	minocycline	21.39 ± 2.90	14.96 ± 4.96	8.06 ± 3.13†*	8.11 ± 2.93†*	5.27 ± 1.67

† : Statistically significant difference at each group from the initial examination. (p<0.05, two - way analysis of variance)

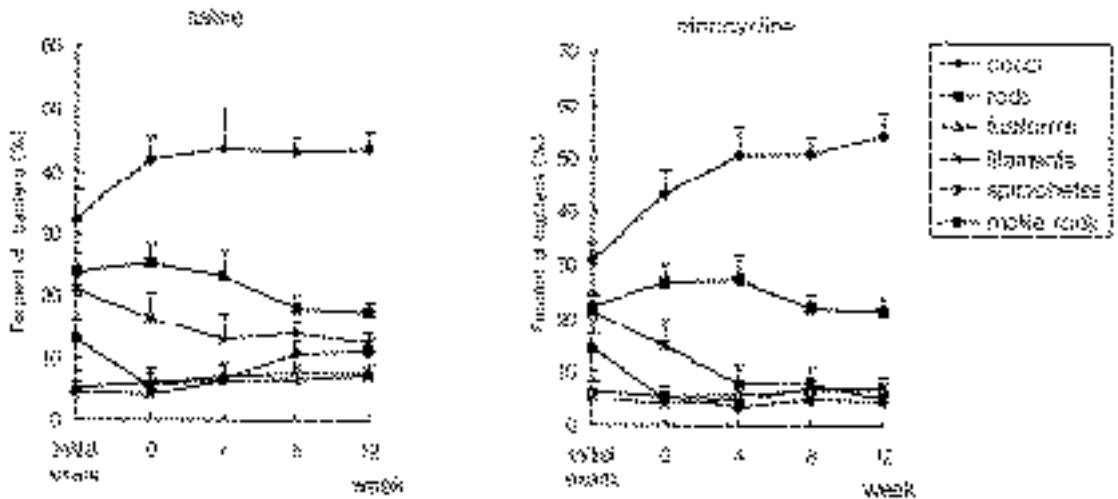


Fig. 1. Schematic illustration of % variation of cocci, rods, fusiforms, filaments, spirochetes and motile rods between each group at the time interval.

가 12

(Table 5).

0, 4, 8, 12

가

2.

54.14%

12

가  
12

2% minocycline gel 4  
(8.06%) 12 5.27%

(p<0.05).

12  
cline gel , 2% minocy -  
0 (5.39%) (14.22%)  
(4.59%) 12  
4  
(p<0.05)(Table 6, Fig. 1).

45). Lavancy (1987)<sup>46)</sup>

IV.

가

28).

가

Listgarten Hellden(1978)<sup>41)</sup>  
가

가

Tanner (1979)<sup>42)</sup> Porphyromonas gin -  
givalis가

가

. Armitage (1982)<sup>43)</sup>

Slots (1982)<sup>44)</sup> Actinobacillus actino -  
mycetemcomitans가

가

가

가

47).





(p<0.05),

2. 2% minocycline gel

2% minocycline gel

minocycline  
(1µg/Ml)가

가

3.

2% minocycline gel 4  
12

(p<0.05).

4.

가 12

V.

2% minocycline gel

27  
2% minocycline gel 가  
가

12

5

gel

, 2% minocycline

2% minocycline gel ,

0, 1,

가 가

2, 3

, 0, 1,

2, 3, 4, 8, 12 ,

, 0, 4, 8 12

VI.

1. , 2%

minocycline gel

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- Abstract -

## Effects of 2% minocycline gel as an adjunct to scaling and root planing on the treatment of adult periodontitis

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The objective of the present study was to evaluate the clinical and microbiological effects of scaling and root planing combined with local application of 2% minocycline gel to patients with moderate to advanced chronic adult periodontitis. 27 healthy patients with moderate to advanced chronic adult periodontitis were enrolled in the study. The quadrants that had 2 or more teeth with 5 - 8mm probing pocket depth and radiographic evidence of alveolar bone loss were selected and divided into test side and control side according to the split - mouth design.

All patients received standardized oral hygiene instructions at the beginning of the study. Subsequently scaling and root planing was performed on all remaining teeth until 0 week. The 2% minocycline gel was applied to periodontal pocket at 0, 1, 2, 3week in the test side. The normal saline was irrigated subgingivally for about 30 seconds in the control side. The clinical and microbiological analysis was carried out at

0, 4, 8, and 12 weeks.

The results of this study were as follows;

1. 2% minocycline gel delivered subgingivally as an adjunct to scaling and root planing provided benefit in reducing sulcular bleeding index and pocket depth than the use of normal saline.
2. The relative proportion of cocci and non-motile bacteria was increased in the test and control groups with time, and there was no statistically significant difference between two groups.
3. The proportion of spirochetes was slowly reduced in the control group, but, in the test group, they were remarkably reduced from the 4th week, and there was a statistically significant difference between two groups.
4. In both groups, the relative proportion of motile rods was notably decreased at the beginning of the study, and remained until 12th week in the test group, but, in the control group, they were slowly increased from the 4th week and finally similar to that of the initial examination.

In conclusion, local application of 2% minocycline gel may be effective in the clinical and microbiological aspects as an adjunct to scaling and root planing in periodontal disease sites.