

## 불임남성에서 Acetylcarnitine이 정액지표에 미치는 영향

성균관대학교 의과대학 비뇨기과교실<sup>1</sup>, 분당제생병원 비뇨기과<sup>2</sup>

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### Nonspecific Empirical Medical Therapy with Acetylcarnitine Effective in Oligoasthenospermic Men?

Jong Woo Kim<sup>1</sup>, Jae Seok Lee<sup>1</sup>, Jeong Su Park<sup>2</sup>, Won Tae Kim<sup>1</sup>, Ju Tae Seo<sup>1</sup>

<sup>1</sup>Department of Urology Sungkyunkwan University School of Medicine, Seoul, Korea,

<sup>2</sup>Department of Urology, Bundang Jesaeng Hospital, Seongnam, Korea

**Purpose:** To determine the efficacy of Carnitil<sup>®</sup> (acetylcarnitine, Hanmi, Korea) therapy in idiopathic oligoasthenospermic men.

**Materials and Methods:** Forty-four subfertile men with abnormal semen parameters were treated between March, 2003 and March, 2004 with 3 g of Carnitil<sup>®</sup> daily for 3 months. Changes in semen parameters were evaluated 3 months after this therapy.

**Results:** The mean age was 34.2 years and the mean follow-up duration was 3.7 months. In asthenospermic patients (n=28), semen analysis before and after Carnitil<sup>®</sup> treatment showed an increase in volume ( $2.64 \pm 1.65$  ml vs.  $3.10 \pm 1.60$  ml), motility ( $35.1 \pm 17.7\%$  vs.  $45.9 \pm 20.4\%$ ) and viability ( $51.4 \pm 20.3\%$  vs.  $59.3 \pm 13.6\%$ ) respectively. In oligoasthenospermic patients (n=16), semen analysis before and after Carnitil<sup>®</sup> treatment showed an increase in sperm count ( $10.7 \pm 54.4$  million/ml vs.  $38.4 \pm 32.5$  million/ml) respectively.

**Conclusions:** These results suggested that in idiopathic oligoasthenospermic men the empirical medical therapy with acetylcarnitine may be considered as primary treatment.

**Key Words:** Carnitine, Acetylcarnitine, Male infertility

가 , , L-carnitine  
1-3  
가 , L-carnitine  
.4 L-carnitine butyric acid  
가 , L-carnitine  
.5,6  
가 , L-carnitine  
carnitine acetyl acetylcarnitine  
acetylcarnitine free carnitine  
acetyl 가

7.8  
 67  
 23  
 가 (spermatogenesis)  
 2.  
 Carnitil<sup>®</sup> 1 3 3 g 3  
 3~ 5  
 (volume, ml), (count, 10<sup>6</sup>/ml), (motility, %),  
 (morphology, %) (viability, %) 5가  
 May Grüwald  
 Giemsa staining 가  
 3.  
 25% SPSS (version 11.1) paired t-test  
 30% 10 p-value가  
 0.05 가

Carnitil<sup>®</sup> (acetylcarnitine, Hanmi, Korea) 34.2 (28~42)  
 3.7 (2~9)  
 3.8 , 31.2  
 가  
 1 , 1 가 1  
 44 28  
 1. , 16  
 2003 3 2004 3  
 1 (J.T.S)  
 (oligospermia) (asthenozoospermia)  
 , ( , ,  
 , ) (antisperm antibody), (transrectal ultrasonography)  
 , ,  
 (pyospermia) (gonadotoxin), (3.28±1.51 ml vs. 3.54±1.49 ml), (10.7±54.5 million/ml vs. 38.4±32.5 million/ml), (19.0±  
 (2.64±1.65 ml vs. 3.10±1.60 ml), (61.9 ±40.9 million/ml vs. 73.5±43.4 million/ml), (35.1 ±17.7% vs. 45.9±20.4%), (64.8±12.9% vs. 63.3 ±16.8%) (51.4±20.3% vs. 59.3±13.6%)  
 가 (Table 1),

**Table 1.** Comparison of semen parameters in asthenospermic patients (n=28)

|                    | Pre-treatment | Post-treatment | p-value |
|--------------------|---------------|----------------|---------|
| Volume (ml)        | 2.64±1.65     | 3.10±1.60      | 0.033*  |
| Count (million/ml) | 61.9±40.9     | 73.5±43.4      | 0.269   |
| Mortality (%)      | 35.1±17.7     | 45.9±20.4      | 0.001*  |
| Morphology (%)     | 64.8±12.9     | 63.3±16.8      | 0.580   |
| Viability (%)      | 51.4±20.3     | 59.3±13.6      | 0.035*  |

\*: statistically significant (p<0.05)

**Table 2.** Comparison of semen parameters in oligoasthenospermic patients (n=16)

|                    | Pre-treatment | Post-treatment | p-value |
|--------------------|---------------|----------------|---------|
| Volume (ml)        | 3.28±1.51     | 3.54±1.49      | 0.330   |
| Count (million/ml) | 10.7±54.5     | 38.4±32.5      | 0.003*  |
| Mortality (%)      | 19.0±14.6     | 27.1±23.9      | 0.115   |
| Morphology (%)     | 34.3±33.9     | 40.8±24.5      | 0.398   |
| Viability (%)      | 24.7±27.4     | 39.7±26.3      | 0.065   |

\*: statistically significant (p<0.05)

14.6% vs. 27.1±23.9%), (34.3±33.9 % vs. 40.8±24.5%), (24.7±27.4% vs. 39.7±26.3%)

가

(Table 2). 3 Carnitil®

(specific medical therapy)

(adjuvant therapy) (nonspecific empirical medical therapy)

(WHO)

가

1

15%

가 50%, 30%

20%

80%

1

가

11

Carnitine

acyl

(sertoli cell)

(Leydig cell)

carnitine

12-14

L-carnitine, acetylcarnitine acyl-L-carnitine , L-carnitine acetylcarnitine  
, L-carnitine 4가 amine 가 .  
가 3-hydroxyaminobutyrate carnitine  
, acetylcarnitine carnitine  
. L-carnitine long chain acyl  
, acetylcarnitine short chain acyl  
acetyl Moncada 25  
, (str- 20 acetylcarnitine 1 4 gm 60  
uctural lipid) 가 가 4  
가 .  
mitine 가 14-16 Acetylc- 2 가 .  
, 가  
spectrin actin 17,18 Moncada 25  
carnitine acetylcarnitine  
DNA 가 19,20 , 가 가  
carnitine 가 가  
L-carnitine, acetylcarnitine propionyl-L-carni- . 가 가  
tine . L-carnitine acetylcarnitine 가,  
(oligoasthenospermic) , 가 가  
, propionyl-L-carnitine 가 .  
21-23  
Carnitine . Caviglia  
acetylcarnitine 가  
, .  
가 carnitine  
가 (male fertility)  
24  
Moncada 25 acetylcarnitine  
, 13  
acetylcarnitine 가 , , Carnitol® 가  
. 26  
L-carnitine  
1 Carnitol®  
, acetylcarnitine  
가 ,

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