

**Leukocytospermia**

**IVF ICSI**

**Comparison of Conventional IVF and ICSI for  
Leukocytospermia**

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**= Abstract =**

White blood cells (WBCs) are present in most human ejaculates, but abnormally high concentration of seminal leukocytes may reflect an underlying pathological condition. The World Health Organization (WHO) has defined leukocytospermia as status of more than  $10^6$  WBC/mL of semen. The purpose of this study was firstly, to compare the outcomes between conventional IVF and ICSI in leukocytospermia, and secondly, to investigate whether ICSI may be an alternative treatment for patients with leukocytospermia.

Total 121 cycles of conventional IVF and ICSI candidates underwent IVF cycles at PL Infertility Clinic. Semen Parameters including concentration, motility, morphology of spermatozoa and concentration of leukocytes were assessed from the raw ejaculates.

There was no difference in sperm concentration, motility and morphology. The rates of fertilization and good embryo development from ICSI were significantly higher than those from conventional IVF in leukocytospermia (63.9% & 48.6%, respectively for ICSI group and 33.4% & 24.1%, respectively for IVF group,  $p < 0.001$ ). The pregnancy rate after ICSI was also higher than that from conventional IVF (34.3% vs 21.6%,  $p < 0.05$ ).

These results indicate that the presence of seminal leukocytes ( $> 1 \times 10^6$  WBC/mL of semen) is adversely related with fertilization, embryo development and pregnancy rate. Therefore the measurement of seminal leukocytes in routine semen

analysis appears to be of prognostic value with regard to male fertilizing potential. In conclusion, it is suggested that ICSI is an alternative choice of treatment for patients with leukocytospermia.

WHO  
Leukocytospermia

1  $10^6$ /mL WBC가  
(WHO.,1993). Leukocytospermia

spermatogenesis  
(varicocele) (Close et al.,1990).

Leukocytospermia 10~20%  
Wolff. H. (1995) WBC가  
cytokines , WBC interferon- , TNF-  
(reactive oxygen species: ROS)

가 (Buch et al.,1994).  
Berger (1982) (granulocyte)가  
penetration test  
가 (hyperactivation)

Leukocytospermia 가  
가 , WBC 가  $10^6$ WBC/mL  
WBC  
(Sukcharoen et al.,1995),  
parameter WBC (Wolff H,  
1995).

WBC  
Leukocytospermia  
ICSI

1.

1996 4 1997 5 가  
121 , IVF 65 ICSI 56 ,  
가 가 3

2.

30 Markler counting  
chamber (Sefi-Medical Instruments, Israel) ,  
Diff-Quick (Kruger et al., 1988)  
가  $20 \times 10^6/mL$  , 30% WBC가  
IVF ICSI , ,

3. WBC

WBC가 Wright  
WBC ,  
, Wright 3  
7 , 1000  
WBC .

4.

student t-test <sup>2</sup>-test , p 0.05

IVF ICSI , , ,  
 (Table 1).

IVF WBC  $\geq 1 \times 10^6$ /mL  
 leukocytospermia  $\geq 1 \times 10^6$ /mL  
 leukocytospermia 33.4%, 62.9% leukocytospermia  
 (p<0.05), leukocytospermia  
 24.1%, 51.6% leukocytospermia  
 (p<0.01), leukocytospermia 21.6%, 25.0%  
 leukocytospermia (Table 2).

ICSI Leukocytospermia  
 63.9%, 62.1%, 48.6%, 42.9%, 34.3%, 33.3%  
 (Table 3).

Leukocytospermia IVF ICSI ICSI  
 , , (63.9%, 48.6%, 34.3%) IVF (33.4%,  
 21.1%, 21.6%) (p<0.05, Table  
 4).

(Cumming et al., 1990). 가

(Aitken & West, 1990) WHO(1993)  
leukocytospermia  
가

가 ICSI  
가 mL

ICSI

ROS (Weiss SJ.,1989).  
peroxidative damage

(Aitken & Clarkson, 1987).  
(Van der Ven et al., 1987). ROS

ROS 가 (0.6  $10^6$ PMN/mL) ROS (74 %) (7~14 %) (Wolff, 1995).

(Parinaud et al., 1997), ROS

(fragmentation) (cell blockage)

(Paszkowski & Clarke, 1996).

leukocytospermia

leukocytospermia

ROS가

( , 1995) 가

ICSI leukocytospermia

가 ICSI가

ROS

ROS

WBC

(Parinaud et al., 1997),

pentoxifylline deoxyadenosine 가

(Tournaye et al., 1994)

ICSI

WBC

WBC

가 , leukocytospermia ICSI

가 . Leukocytospermia IVF ICSI , , ,  
, ICSI IVF .  
, ICSI ,  
, ICSI leukocytospermia .



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