

=ABSTRACT=

### Pregnancy Outcomes in Women with Unexplained Elevation of Maternal Serum Human Chorionic Gonadotropin Levels at Midtrimester

Yun Jung Lee, M.D., Sei Kwang Kim, M.D., Eun Hee Ahn, M.D.,  
Jin Woo Lee M.D., Hye Kyung Kwon, M.D., Chang Hee Lee, M.D.,  
Young Han Kim, M.D., Sang Wook Bai MD., Ki Hyun Park, M.D.,  
Young Ho Yang, M.D., Chan Ho Song, M.D.

*Department of Obstetrics and Gynecology, Yonsei University College of Medicine, Seoul, Korea*

**Objective :** Our purpose was to determine the association between unexplained elevation of maternal serum human chorionic gonadotropin (hCG) in the second trimester and adverse pregnancy outcomes.

**Material and methods :** Between February 1995 and July 1999, we evaluated 1566 pregnant women who have underwent second trimester triple marker screening tests (alpha-fetoprotein, unconjugated estriol, human chorionic gonadotropin) and delivered at Severance Hospital, Yonsei Medical Center. Multiple pregnancies, abnormal fetal karyotypes, fetal anomalies, and abortions were excluded from the study. One hundred twenty-one women with hCG levels greater than 2.0 multiples of the median (MoM) were included in the study group while 1389 women with hCG levels less than 2.0 MoM served as the control group. Pregnancy outcomes were obtained from the delivery and neonatal records in our institution. Adverse pregnancy outcomes between the two groups were compared using chi-square test and Fisher's exact test.

**Results :** Women with unexplained elevation of human chorionic gonadotropin levels were associated with statistically significant increased risks for preeclampsia, preterm delivery, and low birth weight ( $p < 0.05$ ). However, there were no significant differences between the study and control groups with respect to preterm premature rupture of membranes, abnormal fetal heart rate tracing, abruptio placentae, intrauterine fetal death, and neonatal death.

**Conclusion :** An unexplained elevation in human chorionic gonadotropin level in the second trimester may increase the risk for preeclampsia, preterm delivery, and low birth weight but not for other adverse pregnancy outcomes such as preterm premature rupture of membranes, abnormal fetal heart rate tracing, intrauterine fetal death, or neonatal death.

**Key words :** Human chorionic gonadotropin, Adverse pregnancy outcome, Triple marker screening test

15 20

. Merkatz<sup>1</sup>  
(alpha-fetoprotein:

: 2001. 1. 1.

AFP) hCG 가

, Bogart<sup>2</sup> (human chorionic gonadotropin: 10 (bipar-

hCG) 가 (fetal diameter) .

Wald<sup>3</sup> 18 , 7 ,

(unconjugated estriol: uE3) 21 , 10 56 1510

25-30%

1510 hCG가 2.0 MoM 121

가 , 2.0 MoM 1389

(triple marker screening test)가

hCG가 140/90 mmHg 6 2

24 300 mg

가 가 6

100 mg/dl . 37

4-8

hCG 2.0 5.0 MoM (multiples of median) hCG 2500 gm

total hCG 37

free hCG nitrazine paper test

Taita Johnson<sup>9</sup> hCG가 3.5 MoM (late deceleration)

(severe variable deceleration)

Luthy<sup>10</sup> hCG 가 가

가

20 , 29

hCG

SAS (windows version 6.12) (nominal variable) chi-square test Fisher's exact test p value가 0.05

1995 2 1999 7 , 35 AFP 가

15 20 2.5 MoM t-test

29.4 ± 3.7 29.3 ± 3.4 , 35

가 10 (8.3%) 98 (7.1%)

AFP, hCG, uE3 immunoradio-metric assay kits (Diagnostic Products Corp., Los Angeles, CA, USA) 1.0 ± 0.7 , 2.0 ± 0.4 AFP 3

(MoM) 2.5 MoM (2.5%), 11 (0.8%) (Table 1).

MoM