

## Elevated Serum Levels of Interleukin- $1\alpha$ , Interleukin- $1\beta$ , and Human Chorionic Gonadotropin in Women With Preeclampsia

Sahar M.Y. El-Baradie, MD,<sup>1</sup> Manal Mahmoud, MD,<sup>2</sup> Hanan H. Makhlouf, MD<sup>2</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, Al Fayom University, Egypt

<sup>2</sup>Department of Clinical and Chemical Pathology, Al Fayom University, Egypt

### Abstract

**Objectives:** We sought to investigate the relationship between serum levels of interleukin  $1\alpha$  (IL- $1\alpha$ ), interleukin  $1\beta$  (IL- $1\beta$ ), and human chorionic gonadotropin ( $\beta$ -hCG) in women with a normal pregnancy and with preeclampsia, and their association with disease severity. We also wished to calculate the accuracy of these markers in diagnosing the disease and predicting its severity.

**Materials and Methods:** The study was conducted at Al Fayoum University in Cairo between December 2006 and September 2007. Thirty-two primigravid women with preeclampsia (preeclamptic group) scheduled for Caesarean Section were recruited and matched for age and duration of pregnancy with 30 normotensive primigravid women (control group). Of the preeclamptic women, 18 had severe preeclampsia, and 14 had mild preeclampsia. Blood sampling was performed for assays of serum IL- $1\alpha$ , IL- $1\beta$ , and  $\beta$ -hCG.

**Results:** Serum concentrations of IL- $1\alpha$ , IL- $1\beta$ , and  $\beta$ -hCG were significantly greater in preeclamptic women than in normotensive pregnant women ( $P < 0.001$ ). Moreover, they were significantly higher in women with severe preeclampsia than in mild cases ( $P < 0.001$ ). There was a positive correlation between serum IL- $1\alpha$ , IL- $1\beta$ , and  $\beta$ -hCG among all groups. The sensitivity, specificity, positive predictive value, negative predictive value, and overall accuracy of serum  $\beta$ -hCG in predicting preeclampsia were 56.25%, 91.43%, 80.71%, 79.07%, and 74.63%, respectively. These values for IL- $1\alpha$  were 94.44%, 89.8%, 77.27%, 97.78%, and 91.04%, respectively, and for IL- $1\beta$ , the values were 88.89%, 90.92%, 88.89%, 90.92%, and 94.03%, respectively.

**Conclusion:** Serum levels of IL- $1\alpha$ , IL- $1\beta$ , and  $\beta$ -hCG were significantly increased in preeclamptic women compared with normotensive women, and these levels correlated with disease severity. However, serum IL- $1\alpha$  and  $1\beta$  had a greater overall accuracy than  $\beta$ -hCG in diagnosing severe preeclampsia.