

## The Relationship between Soluble Serum HLA-G and ICSI Success Rates

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### Abstract

**Background:** Pregnancy is a successful transplantation. Factors evading rejection of the fetus by the mother's immune system are poorly understood and success rate and maintenance of embryos in assisted reproductive technologies (ART) may also depend on the same factors. The molecules of HLA-G are non-classical major histocompatibility complex class I antigens that have recently attracted attention in regards to pregnancy. The aim of the present study was to determine the concentration of HLA-G and its correlation with success or failure rates of ICSI.

**Methods:** Serum samples of 107 women who were undergoing ICSI (the case group) were collected before and 14 days after embryo transfer, as were serum samples of 24 women with normal pregnancy (the control group) in the first trimester of pregnancy. Soluble HLA-G1 and G5 isoforms and the total sHLA-G were assayed by sandwich ELISA. Nonparametric Kolmogorov-Smirnov (K-S), Mann Whitney U and Wilcoxon tests were used for statistical analysis.

**Results:** No significant differences were observed in clinical variables including age, infertility duration and treatment regimen between the control and the case groups. Levels of sHLA-G1 and sHLA-G5 and the total sHLA-G prior and after ICSI in the control group, respectively, were  $47.4 \pm 62.8$  U/ml, OD:  $1.47 \pm 0.58$  prior and  $59.6 \pm 69.5$  U/ml, OD:  $1.38 \pm 0.57$  after ICSI. In the non-pregnant group, the values respectively were  $35.7 \pm 55.2$  U/ml, OD:  $1.37 \pm 0.45$  prior and  $39.7 \pm 57.2$  U/ml, OD:  $1.31 \pm 0.46$  after ICSI, corresponding to the control group;  $53.16 \pm 47.92$  U/ml and OD:  $1.29 \pm 0.49$ . No significant statistical differences were found between the pregnant, non-pregnant and the control groups. No significant changes in the serum levels of sHLA-G1 and sHLA-G5 isoforms and the total sHLA-G were observed following embryo transfer.

**Conclusion:** No significant correlation was found between sHLA-G and the success of pregnancy in women undergoing ART. It seems that serum HLA-G has no prognostic value in the prediction of ICSI failure.

**Keywords:** ART, ELISA, histocompatibility, HLA-G antigen, ICSI, Implantation, Intracytoplasmic sperm injections, IVF, leukocyte antigen, Pregnancy, Serum, sHLA-G1, Soluble.

**To cite this article:** Alinejad Z, Jafari Shakib R, Yari F, Zahiri Z, Forghan-parast K, Atrkar Roushan Z, Nagafi F. The Relationship between Soluble Serum HLA-G and ICSI Success Rates. *J Reprod Infertil.* 2011;12(2):93-99.

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Received: Jul. 4, 2010  
Accepted: Oct. 17, 2010