



OVARIAN HYPERSTIMULATION SYNDROME: AN UPDATE ON CONTEMPORARY REPRODUCTIVE TECHNOLOGY AND ETHICS

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Ovarian Hyperstimulation Syndrome (OHSS) is a complication that occurs in approximately 10% of women receiving treatments to stimulate the release of eggs as part of infertility treatment. This procedure is known as controlled ovarian hyperstimulation. Most cases of OHSS (approximately 20-33% of reproductive cycles) are mild and thus are not considered to be clinically significant; however, severe cases (approximately 0.1-2%) can become life threatening.¹ Certain groups of patients receiving infertility treatments are at a higher risk of OHSS including those under the age of 35, with polycystic ovarian syndrome, or with high estrogen levels. In mild cases symptoms include mild to moderate abdominal pain and discomfort, nausea, and vomiting as a result of the enlargement of the ovaries. Symptoms in severe cases of OHSS can include severe abdominal pain, excess fluid collection in the peritoneal cavity (ascites), respiratory difficulties, and changes in blood volume, which can lead to life-threatening complications such as acute renal failure and acute respiratory distress syndrome.

While all medications used to induce ovulation carry a small risk of OHSS, OHSS is most commonly associated with the hormone human chorionic gonadotropin (hCG) administered after the follicles are developed and the eggs are mature. Pregnancy following controlled ovarian hyperstimulation increases the likelihood, duration, and severity of OHSS.² OHSS may also be more likely if a multiple pregnancy occurs following ovarian stimulation. While egg donors are at some risk for developing OHSS, their risk is lower than classic in vitro fertilization (IVF) patients (i.e., women who become pregnant with their own fertilized eggs), due to the absence of pregnancy following controlled ovarian hyperstimulation.³

This condition has been brought to recent attention given its connection with assisted reproductive technologies, specifically IVF. A study in Israel for example, reported that while the overall number of severe OHSS cases following ovulation induction

treatments remained the same, the incidence of severe OHSS following IVF has increased from 0.06% to 0.24% of all IVF cycles. The authors attribute this increase to the over-utilization of high-dose gonadotropin protocols.⁴ For some patients, however, a high-dose is necessary to achieve pregnancy. Prevention options for OHSS include delaying the administration of hCG until estrogen levels drop (coasting), lowering doses of hCG, delaying pregnancy by cryopreserving embryos, and the transfer of a single embryo (instead of multiple embryos).⁵

Due to the recent increase in severe OHSS in the U.S., many medical professionals and bioethicists have argued for increased study and regulation of the methods currently utilized in assisted reproduction in order to ensure that women are protected from unsafe procedures and harmful lasting effects of treatment. Jennifer Lahl, national director of the Center for Bioethics and Culture Network, states for example,

Ovarian hyperstimulation syndrome (OHSS) is a very real concern, well documented in the medical literature as a serious health risk to women. With the mounting evidence of the medical risks, professional groups outside of the United States are pushing for mild approaches in assisted reproduction, in order to mimic the more natural reproductive cycle of a woman's body. Here in the United States, we would do well to learn from those who acknowledge the realities of OHSS, the short and long-term health risks associated with fertility drugs, and have made changes to their medical practice in order to protect women.⁶

Given this complication's association with assisted reproductive technologies, it is imperative that women considering IVF or egg donation be thoroughly informed as to their individual risk of OHSS as well as prevention and treatment strategies in order to protect their health and safety.

1 Annick Delvigne and Serge Rozenberg, "Epidemiology and Prevention of Ovarian Hyperstimulation Syndrome (OHSS): A Review," *Human Reproduction Update* 8 (2002): 560.

2 The Practice Committee of the American Society for Reproductive Medicine, "Ovarian Hyperstimulation Syndrome," *Fertility and Sterility* 90 (2008): S188.

3 Raoul Orvieto, "Can We Eliminate Severe Ovarian Hyperstimulation Syndrome?" *Human Reproduction* 20 (2004): 321.

4 Y. Abramov, U. Elchalal, and J. G. Schenker, "An 'Epidemic' of Severe OHSS: A Price We Have to Pay?" *Human Reproduction* 14 (1999): 2181-2183.

5 Delvigne and Rozenberg, 565-573.

6 Jennifer Lahl, email message to author, January 7, 2010.