

OVARIAN HYPERSTIMULATION SYNDROME FACT SHEET

Ovarian Hyperstimulation Syndrome, or "OHSS" is a medical complication that can occur as the result of the use of some fertility medications such as gonadotropins (see separate handout). OHSS is rarely seen after the use of clomiphene the estimated incidence is less than 1%. But, OHSS may occur in up to 8% of women using gonadotropins for IVF. The clinical spectrum of this syndrome is broad and most affected women have only a mild to moderate form. Severe OHSS occurs in 0.1-2% of IVF cases and less frequently in ovulation induction treatment cycles.

OHSS is not completely understood but it is thought that the high hormone levels generated by ovarian stimulation combined with the hCG trigger for egg retrieval is what leads to the clinical syndrome. Women who develop many small follicles are most prone to the disorder. After the hCG is given, the ovaries enlarge as the follicles become corpora lutea and increase in size. The corpora lutea produce large amounts of progesterone and estrogen. Either the hormones themselves or some factor associated with hormone production causes blood vessels to become "leaky". The fluid from the blood stream leaks into the abdominal and chest cavities. At the same time, the blood volume decreases and becomes more concentrated ("hemoconcentration"). This can result in renal dysfunction, electrolyte imbalance and an increased tendency to blood clotting ("hypercoagulability"). Affected patients first notice abdominal distension and weight gain. As the blood becomes more concentrated, nausea and vomiting develop along with decreased urine output. Increasing abdominal pressure leads to shortness of breath, abdominal discomfort or pelvic pain. The enlarged ovaries may be more prone to rupture or torsion (twisting) causing pain and, possibly, internal bleeding. Consequently, we recommend that all IVF patients but especially, OHSS patients, should minimize physical exertion.

The severity of the syndrome is gauged by the degree of the characteristic signs and symptoms as well as results from lab tests. Mild OHSS is defined as ovarian enlargement < 5 cm, small amounts of abdominal fluid and no hemoconcentration. Moderate OHSS includes ovarian enlargement between 5-10 cm with moderate abdominal fluid and no hemoconcentration. In its severe form, OHSS is characterized by ovarian enlargement, a large accumulation of fluid in the abdomen (ascites) with hemoconcentration and reduced urine output. Blood electrolytes are often abnormal. Kidney and liver function may be impaired and there is an increased risk for blood clots. Severe OHSS is a rare but serious complication that may require hospitalization. If not treated promptly, intensive care treatment may be required. In the days before close monitoring of treatment, rare deaths were reported (1 in 45,000 to 1 in 500,000 cases). Fortunately, we are better now at identifying who is most likely to develop severe OHSS. We monitor closely and can modify treatment to avoid the circumstances that lead to severe OHSS. We can avoid most cases by 1) withholding hCG or reducing the dose, 2) using another medication to trigger ovulation or egg retrieval, 3) "coast" or withhold gonadotropins until the estrogen levels fall before giving hCG or 4) canceling treatment when blood and ultrasound information suggest too high a risk of OHSS. Since the risk of OHSS is higher if the patient achieves pregnancy, in patients at high risk, we sometimes freeze all the embryos in an IVF cycle rather than risk a potential pregnancy. When we opt not to transfer the embryos or when we are dealing with an egg donor, we can also place the patient on daily Lupron injections for 10 days which seems to reduce the incidence of severe OHSS.

Despite monitoring with blood tests and ultrasounds, it is not possible to prevent the occurrence of severe OHSS altogether. When suspected, we administer extra proteins (called albumin) intravenously to minimize the severity of OHSS. With early, aggressive outpatient treatment we nearly always prevent hospitalization.

OHSS always resolves with time. If not pregnant, it resolves rapidly with the onset of the period. If pregnant, it can last for a few weeks longer. So, our goal is to make you as comfortable as possible and to prevent the serious medical consequences until the syndrome resolves spontaneously. OHSS develops about 5-7 days after the HCG shot is given but can occur earlier. Nausea and vomiting is usually the first sign of developing severe OHSS. Abdominal distension and the sensation of difficulty breathing soon follow. Patients with severe OHSS can easily tell that they are worsening over time. Fortunately, the syndrome develops slowly over a few days so that we have plenty of time to intervene and relieve the symptoms before the woman becomes too ill.

If we think that you might be at risk for OHSS, we will ask you to do the following after your hCG injection:

- Drink at least 6 glasses of Gatorade daily. Gatorade is best enjoyed chilled and the darker colored flavors are most palatable.
- Weigh yourself each morning before eating or drinking anything. Call the office if you are gaining more than 2 pounds each day.
- Monitor the color and volume of your urine. If the volume is low and it persists in looking concentrated, please call for evaluation.
- Call the office promptly if you develop nausea or vomiting.
- Call the office promptly for severe abdominal pain that lasts longer than 20 minutes.

We will have you come into the Center for evaluation by examination, ultrasound and blood tests. We may need to see you daily for reevaluation and treatment until your symptoms begin to improve.