



## Ovarian Hyperstimulation Syndrome

### WHAT IS OVARIAN HYPERSTIMULATION SYNDROME (OHSS)?

Ovarian Hyperstimulation is a possible complication of fertility treatment. It is a condition in which the ovaries respond in an exaggerated way to the fertility medication used to produce eggs. In its mild form it is of little significance but in its severe form it is potentially dangerous. OHSS occurs mostly in patients that are taking gonadotropins (Gonal-F, Follistim, etc.) although more rarely, it has been also observed in patients that are taking Clomiphine Citrate (Clomid). There are extremely rare instances in which OHSS has occurred spontaneously in women that have not taken any medications.

Gonadotropins are injectable medications that are used to stimulate the ovaries to produce eggs. The ovaries in turn respond to gonadotropins by forming follicles (small sacs filled with fluid). It is inside these follicles that the eggs develop and mature. The follicles will grow in size as the eggs become ready for either ovulation or egg retrieval. As the follicles grow in size they produce a hormone called estradiol. Estradiol levels will increase steadily as the follicles develop in size.

Patients are monitored closely during gonadotropin therapy, by means of ultrasound and estradiol levels, to determine when the eggs are ready to ovulate or be retrieved, and also to adjust the dose of medication according to the patient's response.

Women who respond to gonadotropins by forming multiple follicles (greater than 10) in each ovary and showing high levels of Estradiol may experience a certain degree of OHSS after receiving an injection of the hormone hCG. The hormone hCG is given to finish the maturation process of the eggs and trigger ovulation in preparation for retrieval or insemination.

## WHAT ARE SYMPTOMS OF OHSS?

It is believed that there are about 100,000 cycles of assisted conception annually around the world and about 100 cases of severe OHSS. The risk of severe OHSS is therefore one in a thousand IVF treatments.

Symptoms may last for approximately 1 to 2 weeks following the hCG injection and gradually resolve. If the patient becomes pregnant, symptoms tend to take longer to resolve.

- Mild OHSS is characterized by bloating, some abdominal distention, mild abdominal discomfort. The ovaries may enlarge up to 8cm. Most women may experience mild hyperstimulation. Heavy metals: Cadmium, Lead, Mercury, Manganese
- In moderate OHSS the ovaries measure 8-12 cm diameter and there is abdominal distension and discomfort. May also have nausea, vomiting, diarrhea, breathlessness and ultrasound evidence of ascites (accumulation of fluid in the abdomen). This fluid leakage occurs due to certain substances that are produced during OHSS that cause the vessels inside the abdomen to become “leaky”. Thus, fluid from your circulation leaks into the pelvic cavity. If this fluid loss from the circulation is not replaced, it can lead to dehydration.
- Severe OHSS is characterized by free fluid in the abdomen, increased blood viscosity (thickness), dehydration, low protein level, and chemical imbalances in the blood. Fluid may collect in the lungs, which can cause respiratory problems and decreased circulation to the kidneys can cause renal problems. Disturbances in the blood due to OHSS can cause a tendency to form clots.

## WHO IS AT A HIGHER RISK FOR OHSS?

It is known that women who have ovaries that tend to produce multiple follicles, such as Polycystic Ovaries (PCO), are at a higher risk for OHSS. Other women may have a tendency for OHSS, although the reason remains unknown.

## CAN OHSS BE PREVENTABLE?

The only sure way to prevent OHSS is to stop treatment with gonadotropins and withhold the hormone hCG.

## MANAGEMENT OF OHSS

### *Mild OHSS*

If you are experiencing mild symptoms of OHSS and/ or you are given the hormone hCG in preparation for insemination or egg retrieval you should start drinking large quantities of fluids that contain electrolytes such as Gatorade, Propel, etc. This is done to replace fluid from your circulation that may be accumulating inside the abdomen.

### **Mild OHSS**

Women who have moderate symptoms should notify the doctor's office. Patients will be instructed to:

- Drink about 8 ounces every waking hour, but each individual can modify the quantity based on how much fluid can be tolerated. Report nausea/vomiting, and diarrhea.
- Weight themselves daily and report great increases (1 pound or greater/day).
- Monitor the amount and quality of urine produced. Report a marked decrease in the quantity of urine passed or very dark and concentrated appearance.
- Try consuming a high protein diet as tolerated. The benefits of a high protein diet in OHSS are not proven so it is not imperative, especially, if the patient is experiencing nausea and vomiting.

Certain patient will receive a medication called Albumin through an IV at the time of egg retrieval. Albumin is a form of protein and its purpose is to "thicken up" the blood to minimize the amount of fluid accumulating in the abdomen.

The doctor will make recommendations as to whether it is appropriate for the patient to proceed with the transfer of embryos or insemination depending on the severity of the patient's symptoms. Pregnancy tends to prolong and sometimes make symptoms worse.

### **Severe OHSS**

Women experiencing difficulty breathing as part of OHSS symptoms should contact the doctor immediately. Patients with severe OHSS symptoms need to be hospitalized in order to receive intravenous fluids, monitor and correct blood chemistry imbalances, and to drain the fluid accumulated in their abdomen (paracentesis).

Typically, patients with severe OHSS will not proceed with an insemination. In the case of In-Vitro Fertilization, the embryos are frozen.