

OVARIAN HYPERSTIMULATION (OHSS)

1. AIM

- To manage the symptoms, signs and prevent complications of Ovarian Hyperstimulation Syndrome
- To manage OHSS in the appropriate location, depending on severity

2. PATIENT

- Woman undergoing fertility treatments with a diagnosis of Ovarian Hyperstimulation Syndrome who meets one of the following classifications.

Minimal

- Abdominal bloating without pain, nausea or vomiting
- Ovarian discomfort

Mild

- Abdominal pain and distension
- Nausea and vomiting
- Ovaries 8-12cm diameter

Moderate-severe

- Tense ascites,
- Dyspnoea, tachypnoea
- Oxygen (O₂) saturation <95% in room air
- Marked hypovolemia,
- Haematocrit (HCT)>0.45
- Oliguria (<30mL/hr) or anuria, creatinine >120 µmol/L
- Albumin (Alb) <28g/L
- Ovaries >12cm diameter
- Pleural effusion
- Thromboembolism
- Adult Acute Respiratory Distress Syndrome (AARDS)

3. STAFF

- Registered Nurses
- Registered Midwives
- Medical Officers

4. EQUIPMENT

- Alternating Pressure Air Mattress
- Tape measures
- Weigh scales

OVARIAN HYPERSTIMULATION (OHSS) cont'd

5. CLINICAL PRACTICE

- Initial Assessment:
 - Refer woman to Gynaecology Registrar who will arrange assessment in the Reproductive Medicine Unit in working hours, or in emergency department out of hours
 - Perform the following:
 - History and clinical examination,
 - Full blood count (FBC), Urea, electrolytes and creatinine (UEC), liver function tests (LFT), coagulation tests
 - Abdominal Ultrasound
 - +/-Chest x-ray(CXR)
 - Admit woman* see below who meets the following criteria:
 - Vomiting
 - Pain not controlled with simple analgesia
 - Dyspnoea, tachypnoea or chest signs
 - Haematocrit > 0.45
 - Creatinine > 120 µmol/L
 - Albumin <28g/L
 - Oliguria/anuria
 - Clinical ascites
 - Multiple risk factors
 - High clinical suspicion of deterioration
 - Where to admit:
 - Moderate or severe OHSS: Acute Care Centre
 - Mild with risk of deterioration: Macquarie ward

DAY 1

- Management:
 - Continue oral fluids without intravenous(IV) if able to maintain clinical and biochemical targets in mild to moderate cases
 - Administer Intravenous fluids:
 - Mild if tolerating oral fluids, drink to thirst
 - Mod-Severe: 0.9% Sodium Chloride 1L/2 hrs. then if requiring further fluid ↓ to 250mL/hr for further 4 hrs.:
 - Then: if tolerating oral fluids, continue oral fluids, drink to thirst
 - If not tolerating oral fluids, continue slow 0.9% Sodium Chloride or albumin (see below) to achieve target urine output, Hct, Alb.
 - Provide supplemental Oxygen to maintain O₂ saturation > 95%
 - Administer prophylactic Enoxaparin 40mg daily or increased dose if additional risk factors- consider prolonged prophylaxis after discharge
 - Administer calf compressing stockings or intermittent pneumatic calf compression

OVARIAN HYPERSTIMULATION (OHSS) cont'f

- Consider additional therapy as needed including:
 - Analgesia
 - Anti emetics
 - Aperients
 - Ranitidine or esomeprazole for epigastric discomfort
 - Folic acid oral 0.5mg if pregnant
 - High protein oral supplements if hypo-albuminemic
- Avoid any medications contraindicated in pregnancy
- Monitoring and nursing care:
 - Observe O₂ saturation, Respiration Rate (RR), Blood Pressure (BP), Heart Rate (HR), urine output and temperature 2-4/24 hourly until stable. Decrease observations according to condition to allow woman to sleep at night.
 - Measure weight daily and girth measurements at the level of umbilicus (prior to breakfast). Mark abdomen with a permanent marker and cover with a waterproof transparent dressing to ensure consistent and accurate measures
 - Encourage use of Triflow to prevent atelectasis
 - Maintain strict fluid balance-insert Indwelling Urinary Catheter (IDC) if condition moderate to severe
 - Change Intravenous access every 72 hours
 - Apply calf compressors whilst in bed
 - Refer to Physiotherapy and encourage mobilisation as tolerated
 - Order an Alternating Pressure Air Mattress and arrange pressure care as required.
 - Educate woman regarding condition, provide emotional support and arrange counselling if needed

DAY 2 and subsequent

- Reassess for:
 - Pleural or pericardial effusions
 - Ascites
 - Ovarian torsion, masses and pain
- Recheck:
 - FBC, UEC, LFT daily
 - BHCG as per Fertility team
- Prescribe appropriate IV fluids to achieve clinical and biochemical targets:
 - Urine output (UO) >120 mL/4 hours
 - Hct < 0.39
 - Albumin (Alb) > 28g/L
 - Reduce IV crystalloid to minimum amount required to maintain targets
 - Substitute IV albumin if Alb<28g/L eg 20% Alb 25-50 mL/hr or normal serum albumin(NSA) 75-100 mls

OVARIAN HYPERSTIMULATION (OHSS) cont'd

- Consider ascitic tap under ultrasound guidance (consultant decision) if:
 - Excessive abdominal pain or distension from ascites
 - Respiratory embarrassment (secondary to ascites)
 - Reduced urine output despite adequate hydration (renal vein compression)
- Consider pleural tap (consultant decision) if:
 - Worsening respiratory status despite high flow O₂
 - Respiratory embarrassment unrelieved by ascitic tap

6. DOCUMENTATION

- Integrated clinical notes
- Observation Chart

7. EDUCATIONAL NOTES

- OHSS is an exaggeration of a physiological process related to multi-follicular development as a result of controlled ovarian stimulation with gonadotrophins
- The use of hCG to trigger the final steps of oocyte maturation is an important but not a necessary prerequisite to the development of OHSS.
- The pathophysiological process involves excessive production of VEGF, exaggerated perifollicular neovascularization, increased vascular permeability and third spacing of fluid resulting in clinical effects.
- Risk factors:
 - Polycystic ovarian syndrome
 - High antimullerian hormone
 - Previous OHSS
 - Age <30
 - GnRH antagonist for pituitary down-regulation
 - >20 follicles >11mm diameter at trigger
 - >15 eggs harvested
 - Oestradiol level >18,000 pmol/L
 - Ovulation triggered with hCG
 - hCG luteal phase support
 - Pregnant
- In Acute Care these women are managed by the Anaesthetic Reg/Fellow, Physician and the Fertility team
- Care should be taken when prescribing intravenous fluid replacement. Potassium supplementation should be avoided as the woman may already be hyperkalaemic.

8. RELATED POLICIES/ PROCEDURES/LOCAL OPERATING PROCEDURES

- Thromboembolism Prophylaxis and Treatment

OVARIAN HYPERSTIMULATION (OHSS) cont'd

9. RISK RATING

- Low

10. NATIONAL STANDARDS

- Standard 5 – Comprehensive Care

11. REFERENCES

- 1 Boothroyd C, Karia S, Andreadis N. RANZCOG CREI Consensus Statement on prevention and detection of ovarian hyperstimulation syndrome. Aust N Z J Obstet Gynaecol. 2015; 55(6): 523-34.
- 2 Kwik M, Karia S, Boothroyd C. RANZCOG CREI Consensus Statement on treatment of Ovarian Hyperstimulation Syndrome. Aust NZ J Obstet Gynaecol, 2015: 55; 413-419.
- 3 Royal College of Obstetricians and Gynaecologists Green Top Guideline number 5, February 2016, the management of ovarian hyperstimulation syndrome.

REVISION & APPROVAL HISTORY

Reviewed and endorsed Gynaecology Services Quality Committee January 2020
Addition June 2013
Approved Quality & Patient Safety Committee 18/4/13
Reviewed March 2013 Obstetrics LOPs group
Endorsed Gynaecology Services Management Committee 14/4/11
Reviewed Dr S Lowe march 2011
Approved Patient Care Committee 2/10/08
Reviewed September 2008
Approved Quality Council 19/9/05
Reviewed July 2005 - Gynaecology Clinical Committee 12/8/05
Approved Quality Council 17/6/02
Endorsed Gynaecological Clinical Committee 3/12/01

FOR REVIEW : FEBRUARY 2025

What is OHSS?

Ovarian hyperstimulation syndrome (OHSS) is a complication of fertility treatment. Fertility drugs stimulate the ovaries to produce many egg sacs (follicles). In 0.5-5% of cases there is an excessive response to these fertility drugs which causes OHSS.

In OHSS certain factors are released from the swollen ovaries into the bloodstream. These make the blood vessels leakier, allowing fluid and protein from the blood to leak into areas such as into the skin, around the bowels and on the outside of the lungs. This causes the symptoms that you may be experiencing. When the fluid moves out of the blood vessels it makes the blood stickier and you feel dehydrated. A major part of the care that we will provide will include ensuring you are well hydrated by delivering fluids via a drip and using treatments to thin the blood and prevent any clots forming in your blood vessels. OHSS is categorised as mild, moderate or severe according to your symptoms.

What are the signs and symptoms of OHSS?

- A tense bloated abdomen due to the swollen ovaries and any fluid that has leaked around the bowels making you feel uncomfortable
- Reduced urine due to dehydration
- Nausea, reflux or vomiting
- Difficulty lying flat due to the bloating and shortness of breath due to the pushing from your bloated abdomen and/or fluid around your lungs

How is OHSS diagnosed?

There is no specific test that can diagnose OHSS. A diagnosis is made on the basis of your symptoms and a clinical assessment. This will include:

- Examining you to determine whether there is any fluid in your lungs, chest or abdomen.
- An initial abdominal ultrasound to measure the size of your ovaries and to establish whether there is any extra fluid in your abdomen.
- Regular blood tests to measure the fluid and protein loss from your blood and to determine how concentrated your blood is and how well your kidneys and liver are working.

What happens next?

- If your symptoms are mild you may be admitted to the Macquarie ward for observation.
- If your symptoms have progressed to moderate you will need to be monitored more closely and managed within the Acute Care Centre. When your condition has improved you will be sent to Macquarie ward or home.

What are the treatments and preventions in OHSS management?

There is no treatment that can reverse OHSS. OHSS will get better with time. The management of OHSS is to help alleviate symptoms and prevent complications.

Management includes:

- Pain relief medications
- Anti-reflux and anti-nausea drugs to help reduce nausea and vomiting
- An intravenous drip with fluid and protein to replace the lost fluid
- Oxygen via a mask or nasal tubing
- High protein drinks such as Ensure or Sustagen.
- Support stockings or calf compressors and daily injections to prevent clot formation.
- An indwelling catheter may be placed into your bladder to measure your urine output.

A procedure known as a paracentesis may be needed if your abdomen is very tense and swollen because of the fluid build-up. This is when a thin needle or tube is inserted into the abdomen, under local anaesthetic, to remove some of the fluid which is making you feel uncomfortable.

Monitoring and Care in Acute Care Centre

You will be supported and monitored very closely by the medical and nursing teams within Acute Care Centre. The care will include:

- Daily review by various medical teams.
- Daily measurement of your weight and waist before breakfast and inspection of your abdomen to determine whether fluid is increasing or decreasing.
- A blood test each morning.
- Your temperature, heart rate respiratory rate and blood pressure are taken regularly.
- We will assist you to use a "Triflow" each hour. This is a special tool which helps you take bigger breaths.
- We will accurately record all your oral and intravenous input and record the amount of urine you are passing.

- Calf compressors will be placed on your lower legs which massage them while you are in bed.
- Nursing you on a special comfy air mattress and getting you to move as much as possible
- A physiotherapist will help you get up and walk and will also assist with your breathing exercises. As soon as you are feeling well enough we will encourage you to walk as much as you feel you are able to.
- In addition you will be provided with emotional support and counselling as needed as it is normal to experience a range of emotions from high to low with positive and negative feelings during your hospitalisation. Be assured that these will normally pass with time.

How long does OHSS last?

- If you have mild OHSS your symptoms should usually resolve in a few days.
- If you have moderate to severe OHSS you may need to stay in hospital approximately 7-10 days.

Will I need any care further care after discharge?

You may need to go home on daily blood thinning injections and oral protein supplements.

You will continue to see your usual Doctors after discharge.

If you have any further questions the Doctors, Nurses and Midwives will be happy to answer them.