Postpartum haemorrhage

PPH is the leading cause of maternal mortality in both developed & developing countries .

PPH is defined as excessive bleeding from the genital tract following the delivery of the baby (> 500 cc following vaginal delivery&1000ml following C/S) , A loss of these amount within first 24hr , of delivery is termed early or primary PPH , whereas such losses are termed late or secondary PPH , if they occur after 24hrs until 6wks post delivery

Other definition : is a significant fall in hematocrit of 1 gm/dl following delivery or the need for blood transfusion .

Incidence of PPH :

The incidenence of PPH is 3-9% of all deliveries . PPH can be minor (blood loss 500-1000) or major (> 1000 ml) . The major PPH can be divided to moderate (1000-2000)ml or severe (> 2000)ml

AEtiology of primary PPH :

There are different causes of primary PPH described as 4T .

1. Tone (Atonic uterus) : failure of the uterus to contract effectively , which is the commonest cause, occurs in 70% of cases of PPH .
2. Tissue (Retained placenta & membranes)10%
3. Trauma (Genital tract trauma)20% such as :
    - ✓ Vulval & perineal tear
    - ✓ Episiotomy
    - ✓ Vaginal tear
    - ✓ Cervical tear
    - ✓ Uterine rupture

- ✓ Vulvo- vaginal hematoma
- ✓ Broad ligament hematoma

4. (Thrombin)1%, coagulation disorders such as :
   - ✓ DIC
   - ✓ Autoimmune thrombocytopenic purpura
   - ✓ Leukemia
   - ✓ Von-willberand's disease

Other rare causes :

5. Placenta accrete
6. Uterine inversion

It is not uncommon for more than one of these causesto be present in the same woman with PPH .

<u>Risk factors of I PPH</u>

1. Factors presenting antenatally :
   a. Placental abruption
   b. Placenta previa
   c. Multiple pregnancy & polyhydramnios
   d. Pre-eclampsia & gestational HT
   e. Antenatal anaemia(< 9 gm/dl)
   f. Previous PPH (recurrence rate > 10%)
   g. Asian ethnicity
   h. Obesity (BM I > 35kg/m^2)
   i. Multiparous
   j. Uterine fibroid
2. Risk factors becoming apparent during labour& delivery
   a. Delivery by C/S
   b. Induction of labour
   c. Retained placenta
   d. Medio -lateral episiotomy

e. Operative (instrumental) vaginal delivery .
f. Prolonged labour (>12 hr.)
g. Big baby (> 4kg)
h. Pyrexia in labour
i. Age > 40 years

Prediction &prevention of PPH

The risk factors for PPH may presented antenatally or intrapartum , must be identified & managed by active management of third stage of labour , which lowers maternal blood loss & reduce the risk of PPH , by:

I- active Mx-of third stage of labour

A/Prophylactic oxytocics (reduce risk by 60%)

1. Oxytocin 5 IU or 10 IU (I.M) …. (or – oxytocin 5 IU by slow IV infusion)
2. Syntometrine : may be used in absence of H.T cardiovascular disease & asthma but it increases incidence of vomiting
   5 IU oxytocin + 0.5mg ergometrine
   Which is given I.M after delivery of baby head or I.V after delivering of baby anterior shoulder
3. Misoprostol 1000microgram rectally or 600microgram sublingually

B/ early clamping & cutting of cord

C/ controlled cord traction

ii // placental site localization in patient with previous C.S by U/S or MRI , to exclude , placenta accrete .

Management of established I PPH :

The useful guidelines for the management of massive obstetrical hemorrhage has been divided to 4 lines, these include :communication, resuscitation, monitoring &investigation on,arresting the bleeding.

1. Call for help of (midwife , consultant , anesthetist & hematologist)
2. Assess airway & breathing (O2 of 10-15L/min)
3. Establish two 14-16 gauge intervenors lines 20ml blood sample should be taken . FBC , coagulation screen , urea & electrolytes and cross match (4 units) should be obtained.
4. Keep the woman flat & warm
5. Transfuse blood as soon as possible
6. Until blood is available infuse up to 3.5L of warmed crystalloid Hartmanns solution (2L) and/or colloid (1-2L)as rapidly as required .

   If cross matched blood is still unavailable, infuse upuncrossmatched group specific blood O-Rh-ve blood . fresh frozen plasma is given 4 unit for every 6 units of red cells .

   Platelet concentrates given if platelet count < 50X 10^9 & cryoprecipitate if fibrinogen < 1g/L .

7. Continuous monitoring of blood pressure , pulse rate temperature & RR.
8. Follys catheter to monitor UO.
9. Arrest bleeding by clinical abdominal & vaginal examination to rule out the cause of PPH .

The commonest cause of PRIMARY PPH is uterine atony , when it is the cause of the bleeding , the following measures should be instituted :

1. Bimanual uterine compression (rubbing up the fundus) to stimulate contraction
2. Ensure empty bladder
3. Syntocinon 5Iu by slow IV infusion (may have repeat dose)
4. Ergometrine 0.5 mg by slow IV or IM injection
5. Syntocinon infusion (40 units in 500ml Hartman's solution at 125mi/hr)
6. Carboprost ($PGF_2\infty$) 0.25 mg by IM repeated at 15min interval for maximum 8 doses, contraindicated in asthma .
7. Misoprestol (PGE1) 1000 microgram rectally.

If pharmacological measures fail to arrest VB, initiate surgical hemostatic measures, they are :

1. Intrauterine balloon tamponade .
2. Hemostatic brace suturing (B-Lynch or modified compression sutures) .
3. Bilateral uterine arteries ligation
4. Bilateral ligation of internal iliac arteries
5. Selective arterial embolization
6. Hysterectomy .

Secondary PPH

2^{o} PPH is defined as excessive vaginal bleeding (100 ml/day) from uterus after 24 hours postdelivery up to 6 weeks postpartum , specially at $10^{th\ day}$(2^{nd} week) post-delivery, why ?

its incidence = 0.5-1.5%

aetiology of 2^{o} PPH :

1. Uterine subinvolution or atony(endometritis)
2. Lower genital tract trauma & hematoma
3. Placental abnormalities : accreta

4. Uterine fibroid
5. Chorio carcinoma & placental site trophoblastic tumor
6. Bleeding disorders , coagula pathies& use of anticoagulant

Risk factors of 2° PPH

1. Smoking
2. Previous HX of 2° PPH
3. Multiparous
4. Retained products of conception
5. Pre labour RM
6. Threatened Miscaniage
7. Multiple pregnancy
8. APH
9. Hospitalization at 3rd trimester
10. Delivery by C/S
11. Precipitated & prolonged labour

MX of 2° PPH

1. Resuscitation
2. Clinical examination
3. Investigations : of FBC coagulation studies , CRP , serum HCG vaginal swabs
4. Ultrasound of pelvis (for retained products of conception)
5. Treatment by :
   a. Uterotonic agents
   b. Broad spectrum antibiotics
   c. Tranexamic acid
   d. vasopressin
   e. Clotting factors concentrates
   f. Oral COCP
6. Uterine evacuation . It may be appropriate to administer 12-24hr of antibiotics cover prior to evacuation .
7. Others :

a. Bilateral & selective uterine artery embolization
b. B-lynch suture
c. Chemotherapy
d. VIII administration

Complications & PPH

1. Sequale's of hypovolemic shock
2. DIC
3. Sepsis
4. Transfusion or anesthetic complication
5. Fluid overload & pulmonary oedema
6. DVT & pulmonary embolism
7. Anaemia
8. Postpartum hypopituitarism from pituitary necrosis (sheehan's syndrome)

Case :

A 38 years old female undergoes IVF . She has twin pregnancy , has been listed for elective C/S , she goes into spontaneous labour at 33 weeks . The patient immediately becomes tachycardic & hypotensive & there is blood on the floor.

Q1 : what is the diagnosis ?

Q2 : what is the likely cause ?

Q3 : enumerate 3 risk factors to this case

Q4 : which drug were likely to be administered ?

Q5 : it is estimated that the patient lost 2.7L of blood , was she likely to need a blood transfusion ?