PPH BUNDLES

By Kousalya Chakravarthy

Time	BUNDLE	ACTION
ZERO		1. Post-delivery – AMTSL - Carbetocin 100ug IV **/oxytocin 10U** IV/IM ; controlled cord traction; uterine massage 2. If PPH - Recognize the cause of PPH – 4Ts – Treat, the cause. If trauma -suture and secure haemostasis. 3. Rule out Tissue – check placenta/ accessory lobes of placenta/Remove retained products of conception 4. Assess the amount of blood loss. Start crystalloids immediately. 5. Tone : bimanual compression; Additional **oxytocin 20U in 20ml NS** @5U/hr(5ml/hr) OR 20U in 500ml RL @125ml/hr. 6. Check the vitals and note down. 7. Check for any risk actor for PPH
10minutes	1	1. Reassess the cause for bleeding. Put a V drape. Calculate MABL. 2. Secure two wide bore cannula 16G /18G; Take cross matching for compatible blood and for FFPs 3. If Atony**: Prostadin** 250ug IM + Ondensetron4mg IV – Note time- to be repeated after 15min(Max 8 doses) 4. **Tranexamic Acid 1gm** IV – note time; to be repeated after 30 minutes 5. Apply EAAC, continue bimanual compression, oxytocin infusion 6. Warm Crystalloids up to 2Litres (3RL +1NS) 7. Supplemental oxygen with Hudson's mask @10L 8. Multisystem monitor- SpO_2, NIBP every minute, ECG, HR monitoring; Maintain SBP 90 -100mmHg 9. Foleys catheterization and urometer to assess urine output
20minutes	2	1. Continue O2, monitoring vitals, inform Anaesthetist 2. **Methergine** 0.2 mg IM, **Misoprostol** 1000mg rectal or Buccal(powder and keep in the mouth) 3. Continue EAAC, bimanual compression, oxytocin infusion 4. Assess for response – check vitals; Reassess the cause for bleeding; reassess the blood loss; measure mops, measure blood in the bucket, weigh clots, check urine output 5. Blood loss ≥ MABL or Hb < 8gm% ; OSI 1.0, **transfuse** 1 PRBC; continue warm crystalloids; Prepare for MTP 1. 6. Reassess Vitals, if haemodynamically **unstable and still bleeding;** 2nd PRBC transfusion. 7. ABCs - Vasopressors – Noradrenaline infusion; Blood gases; Central Line- EJV / IJV; arterial line; Assess volume status;
30minutes	3	1. Check Vitals; Pallor; OSI; Capillary refilling; Urine output. **Blood loss >1000ml** - Call for help 2. **2nd dose** of **Prostadin** 250ug IM 3. Send Labs: CBP,APTT,PT,INR, creatinine, liver enzymes, LDH 4. If haemodynamically **unstable and still bleeding** – **transfuse MTP 1 - 4FFPS and 4 PRBC** 5. Shift to Operating room and reassess 6. **Plan** Definitive management – Bakri balloon / laparotomy & procedure/ embolization

40 minutes	4	1. Inj **Tranexamic Acid** 1gm IV **2ND dose** 2. Reassess the cause and the extent of bleeding in the Operating room. 3. Discuss the option of laparotomy procedures / hysterectomy with the patient and the attenders 4. Senior doctors in the team - Reassess to activate MTP 2/ MTP 3. 5. Avoid hypothermia, hypotension, acidosis and DIC. 6. 30ml of calcium gluconate in 100ml NS to be given over 30 min to prevent hypocalcaemia.
50 minutes	5	DEFINITIVE MANAGEMENT – Laparotomy. Compression sutures. Internal iliac ligation. Hysterectomy Continue oxytocic drugs Continue fluid, blood, and blood component resuscitation Monitor vitals, be aware of the triggers and the targets of transfusion Maintain intraoperative haemodynamic stability
Post PPH care		SHIFT TO ICU; MOH & MTP Complications – AKI; TRALI; TACO; Transfusion reactions; infection; Postoperative pulmonary complications Need elective ventilation for stabilization of vitals. ICU care of the patient. **By Kousalya Chakravarthy**

ABCs – Airway Breathing, Circulation; AMTSL- Active management of third stage of labour; EAAC – External abdominal aortic compression; EJV – External jugular vein; ECG- electrocardiogram; FFPs- fresh frozen plasma; HR – heart rate; IJV – internal jugular vein; IM – intramuscular; IV – intravenous; NS normal saline; MABL – maximum allowable blood loss; NIBP- non-invasive blood pressure; OSI – obstetric shock index; PPH - postpartum haemorrhage; PRBC – packed red blood cell; RL – ringer lactate; SBP- systolic blood pressure.