Snippets from the Quarterly CRMD meeting held on 21/04/2024 at TOGS Academia , Thrissur.

31 cases of maternal deaths were discussed maintaining absolute anonymity. The causes are given in the following table.

It is heartening to see that maternal deaths due to PPH have reduced whereas deaths due to AFE continues; we have to look into the possibility of iatrogenic causes for AFE. Timely resuscitation, immediate delivery with correction of DIC , Relaparotomy if required at the same centre can save life. Valuable time is lost on referral to another centre. Other villains are TB and Dengue. All obstetricians and Nurses should be trained in resuscitation. PPMD(Prevention of Preventable Maternal Deaths) training should be given to all categories of staff in all health centres.

Cause	**Number**
ICH	4
TB (2 TB meningitis and 1 Pulmonary TB)	3
AFE	3
Suicide	2
Sepsis	2
PPH	2

Dengue	2
Eclampsia with ICH	2
AFLP with traumatic PPH	1
Abruption	1
HELLP syndrome	1
Urosepsis, uncontrolled DM	1
Viral pneumonia	1
Pulmonary artery hypertension	1
Peripartum cardiomyopathy	1
Septic abortion	1
Unknown	3

We analysed each of these deaths and subcategorised into the following :

TYPE OF DELAY	**NUMBER**
1.Delay from the part of patient and family	4
2.Delay in reaching the institution	0
3.Delay after reaching the institution	8
4.No delay identified	11
5.Cannot comment	8

AVOIDABLE OR NOT	NUMBER
1.Unavoidable	12
2.Avoidable in an average medical setting	7
3.Avoidable only in the best settings	8
4.Cannot comment	4

Observation :

A 31year old Gravida 3 Para2 Live 2 ,prev 2 FTND at 34 weeks admitted with pain abdomen and bleeding P/V in local hospital. FHS absent. Delivered at 2.25 pm , had severe bleeding, started on blood transfusion and referred to a higher centre as she had breathing difficulty and desaturation. On the way, patient had cardiac arrest. CPR done as per

ACLS Protocol. Intubated, patient in shock and severe metabolic acidosis and hyperkalemia. Started on inotropes. Patient continued to bleed. Bakri balloon inserted. Planned for uterine artery embolization but patient unstable had cardiac arrest and death occurred at 7.23pm same day.

Cause of death: Abruptio placenta , PPH , DIC , Haemorrhagic shock

Recommendations :

There was a delay of 5 hours in delivering this patient after Abruption was diagnosed during which she went into DIC. In a centre where Bakri Balloon could be inserted, much more effective and lifesaving methods like Transvaginal uterine artery clamp (TVUAC) and Suction cannula should have been tried before she went into DIC. Uterine tamponade with Bakri balloon or condom tamponade has become obsolete now with the arrival of

TVUAC and suction cannula. Suction cannula and tamponade cannot be used together. TVUAC is mostly for lower segment PPH and suction cannula for upper segment PPH. These are the first aid measures in any atonic PPH. All the more an unstable patient should not be transferred without measures to stabilise her in the primary centre and support her on the way.

Observation:

A 27-year-old Para1 Live 1 Post LSCS with High fever on postop day 5. Admitted in local hospital and detected MRSA Septicemia. USG showed partially organised collection in the region of right ovary 47x30mm. Treated with Meropenem, Vancomycin and Teicoplanin and discharged 10 days later . Admitted in higher centre 5 days later as fever persisted. Patient was tachypnoeic and hypotensive, managed in ICU. Treated with Meropenem and Teicoplanin. CT done. Minimal fluid in

pelvis. Fever persisted, MRI Spine and Pelvis taken; High vaginal swab showed Acenetobacter. Blood culture sterile. Later she developed B/L lower lobe consolidation/collapse with pleural effusion & severe LV dysfunction. Started on NIV, later needed invasive ventilation. Condition progressively worsened, initiated ECMO. Developed MODS, Death on POD Day 31.

Cause of death: Sepsis, MODS, DIC

Recommendations :

This is a pure case of sepsis with MODS. She had multiple hospital acquired infections. Our approach should be PAM : (Prevent, Aggressively approach and Manage expeditiously). Prevention is better than cure - Hospital Infection Control Committee and Antimicrobial Stewardship program should be part of every hospital; even the temperature, humidity and the number of air changes of the operation room matter in addition to the

proper antibiotic prophylaxis (choice of the drug, timing and dosage), Povidone iodine vaginal toileting, Chlorhexidine skin preparation etc. Once sepsis is diagnosed, the approach should be multipronged. Removal of source of infection is also important to prevent septicaemia. The isolation of MRSA and Acinetobacter (typically hospital acquired) should remind all of us about proper hand hygiene practices in our daily clinical practice.

Observation:

A 29 year old Gravida 2 Para1 Live 1 delivered in local hospital at 37 weeks at 11.50 am immediately following which she had 2 episodes of GTCS and sudden cardiac arrest, revived after 1 cycle of CPR. IV Lorazepam, Midazolam, inotropes, soda bicarb & Levetiracetam given. Mild PPH ,1unit PRBC given, vaginal pack inserted and referred to a higher centre. On admission patient drowsy,

BP 90/60. Peripheral pulses feeble. Sudden breathing difficulty, unresponsiveness, and cardiac arrest. CPR started, intubated. ECHO massive RA, RV dilation. 50 mg IV Alteplase given. ABG severe metabolic acidosis. Adrenaline given. Multiple cardiac arrest and death declared at 2.35 pm same day.

Cause of death: AFE, PPH

Recommendations:

Tonic clonic seizures and cardiac arrest in the immediate post-partum period in a normotensive patient is almost always AFE unless otherwise proven. AFE is almost always followed by DIC and PPH as happened in this case. AFE patients will not stand a transfer from one centre to another if not stabilised in the first centre. Vaginal pack conceals PPH, here again TVUAC and Suction cannula should have been used. If DIC has already set in , suction cannula may not be advisable but TVUAC can still be used.

In the higher centre Alteplase (thrombolysis) might have been given thinking it is Pulmonary embolism. The old saying “Too many cooks spoil the broth” is apt here as the focus was taken away from AFE to pulmonary embolism and Thrombolytic therapy was given in a PPH patient. Dilated cardiomyopathy in a post cardiac arrest patient is a routine finding and need not indicate Pulmonary embolism always. The sequence of events in a patient like this is important to arrive at a clinical diagnosis.

Observation:

A 35-year-old Para3 Live3 had undergone elective LSCS near EDC, at 6.45 am at local hospital. She had overt DM and hypertension. Intraoperatively dense bowel adhesions and bladder also adherent. Post operatively developed atonic PPH and hypotension. Referred to a higher centre on Noradrenaline

drip. Patient arrived in shock. Intubated. USG showed free fluid, Patient in DIC. Blood products transfused, Massive transfusion protocol (MTP) activated at 6.30 pm. CT scan showed intraperitoneal bleeding and rectus sheath haematoma. INR 3, Relaparotomy done. Hematoma evacuated. 1 litre of dark coloured blood in peritoneal cavity, obstetric hysterectomy with left oophorectomy done. Patient developed cardiac arrest on table. CPR given Mass closure done. Declared dead on same day at 10:40 pm. Postmortem done: Death due to DIC following PPH.

Cause of death: Post LSCS, PPH, DIC

Recommendations:

Termination should have been at 37 to 38 weeks of gestation as she had diabetes and hypertension. It is to be presumed that during Caesarean also she had excessive bleeding because of the distorted Anatomy due to adhesions. The atraumatic uterine artery

clamps (T clamp or L clamp) or Green Armytage clamps or even sponge holders can be used even in the presence of bladder adhesions before the adhesions are cleared. What is important is to get a clear field to separate the adhesions. Any hypotension and PPH in the post operative period should be actively managed. Suction cannula can easily be used in post Caesarean patients. Ideally patients should be shifted only after stabilisation. Hypotension in the post op period unless otherwise proven is due to bleeding and should be expeditiously managed. Complete hemostasis at Caesarean section is crucial as it can lead to intraperitoneal bleeding , hypotension and DIC and uterus becoming atonic.

Observation:

A 23-year-old Primi gravida with gestational hypertension on Labetalol, leaking at 31 w 6d.

Managed conservatively. Two days later at 7.45 am fetal distress detected. Emergency CS done under spinal, shifted to recovery room. At 2.30 pm patient had tachycardia, saturation fall, hypotension. Investigations showed abnormal coagulation profile. USG showed hemoperitoneum. Relaparotomy done. 300 ml of altered blood drained. At extubation, patient had cardiac arrest. Put on ventilatory support and inotropes. Echo good LV function. Nephrology consultation advised haemodialysis and plasma pheresis. LFT, RFT deranged. Consulted gastro enterologist. Albumin infusion, N Acetyl Cysteine, 40 FFP were given. Five days later heart rate suddenly increased which settled in 15 minutes. Planned referral to a higher centre for CRRT(Continuous Renal Replacement Therapy) and liver transplant. Suddenly developed cardiac arrest from which she could not be revived.

Cause of death: HELLP Syndrome, PPH

Recommendations:

Going through the notes, it appears that it was a case of HELLP syndrome which was overlooked in the pre op period. PIH profile should be repeated frequently in cases of conservative management so that falling platelets, worsening LFT etc are picked up promptly. Almost 35% of the Hypertensive maternal deaths in Kerala occurred due to HELLP syndrome. sFlt : PlGF ratio might serve to decide the time of termination in Hypertensive disease complicating pregnancy in the future.

Other Recommendations:

Three cases of TB caused maternal death

Two cases of suicide deaths, one in the first trimester and one at 20 weeks.

Cord around the neck in USS is not an indication for Caesarean section.

Always look under the rectus muscles for bleeding before wound closure as veins can get torn while stretching and opening.

Agitation in a previously healthy postpartum woman is more likely to be due to hypoxia rather than psychiatric illness.

Spinal anaesthesia is fine in preeclampsia if there is no coagulopathy and no desperate urgency to deliver.

Cerebrovenous thrombosis may lead to intracerebral bleed, here the triggering event is important to decide the treatment.

Message to KFOG Members in the light of CRMD Meetings

To make our Confidential enquiry more effective, we would request each district MDNMSR team to report all maternal deaths

of the district to CRMD team along with a copy of the case records.

Facility based audit is regularly taking place in the hospitals involved; a KFOG member is invariably a part of the Audit team. It will be greatly appreciated if the KFOG member participating in the audit could forward a case sheet copy to our team.

Revised forms A and B are put up in the KFOG website ; they are to be filled up and sent to CRMD team in the eventuality of a maternal death along with anonymised case sheet. It is strictly a ‘NO BLAME’ game and a great learning experience! We thank you for your continuing support.