AOGD BULLETIN

Volume 22 I December 2022 I Monthly Issue 8

Safeguarding women and their Doctors

Issue Theme:
Post-partum Haemorrhage-
The dreadful nightmare

AOGD SECRETARIAT

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From the AOGD Office


Dr. Asmita M. Rathore


Dr. Y. M. Mala


Dr. Deepti Goswami

Dear AOGD members

Warm Greetings!

As the year 2022 comes to a close, we reflect upon the year that has been. The world had endured an unfathomable pandemic in the previous year. This year it has emerged out of it – battle scarred, its spirit beaten but not broken. Our fraternity of Obstetricians & Gynaecologists, in particular, served humanity with great resilience during the most trying circumstances. Post pandemic, we have sprung back to our usual work schedules. AOGD has also worked with full vigour and maintained a busy calendar of activities this year that peaked with its annual conference.

The annual AOGD conference was held on 12th and 13th November 2022. A snapshot of what the conference has delivered this year -10 preconference workshops, two days of academic extravaganza, more than 600 delegates and faculty, guest lectures by international faculty, more than 200 paper submissions, quiz for post-graduates and a lot of bonhomie!

Coming to the content of this issue of AOGD - the articles in this issue cover postpartum haemorrhage- still a common cause of maternal mortality. A study, covering maternal death reviews of 296 cases, published by our department showed that even though indirect causes like viral hepatitis and cardiac diseases contribute to maternal deaths as much as direct causes, PPH still accounts for the majority of preventable maternal mortality at the facility level. Hence, the need to emphasize PPH prevention, management and care bundles.

In closing, we extend you all the season's greetings and best wishes for the new Year!

Dr. Asmita M Rathore, President
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AOGD Risk Management Support [ARMS] Group

One of the ways to ensure the stress-free work environment and optimal patient care is mutual support among professional colleagues. We propose to form an advisory group of senior AOGD members that can be contacted if one of us is caught in a complex clinical dilemma / dealing with aggressive clients or is apprehensive about how to document or effectively troubleshoot a potential problem. This group will provide the timely advice and will be led by-

Convener- **Dr. Vijay Zutshi** - 9818319110

Co convener- **Dr. Aruna Nigam** - 9868656051

We invite suggestions from all members regarding functioning of this cell which will guide us forming the SOPs. Any member interested in being part of Advisory group may contact the convener.

Pl mail to aogdmamc2022@gmail.com

From the Editor's Desk

Dr. Madhavi M. Gupta
Editor

Dr. Nalini Bala Pandey

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Dr. Reena Rani

Co-Editors

Dear Friends

Warm Greetings!

The editorial team is pleased to present to you the AOGD Bulletin for the month of December 2022.

The biggest annual event of the AOGD, the 44th Annual Conference was successfully held last month.

This issue focusses on Post-partum haemorrhage (PPH)- the dreadful nightmare any obstetrician can face. Under the Game Changer section we bring to you the WOMAN and the WHO CHAMPION Trials which have laid the path for revised management strategies for PPH. The E-MOTIVE study protocol has also been covered. The E-MOTIVE study aims to develop a strategy for how to test whether the E-MOTIVE bundle works through collaborative activities with midwives and doctors in five countries.

Patients with PPH require aggressive measures guided by a well-defined multidisciplinary approach to minimize morbidity and prevent mortality. The importance of a PPH Care Bundle cannot be underestimated. Multiple treatments (e.g. 3-5 treatments) are grouped together in a care bundle and then administered to the woman simultaneously, or one after another in quick succession, and supported by strategies to improve teamwork, communication, and cooperation. Availability of different elements of the bundle care approach, its use in labour wards and training to use for optimum outcomes have been discussed in depth.

Medical Prevention & Treatment of PPH is the starting point to optimize patient care. Use of carbetocin , oxytocin and tranexamic acid use has been discussed.

Resuscitation is the basic and most important aspect of management. The recent concept of Damage Control Resuscitation , Hypotensive/Permissive Resuscitation versus the traditional Aggressive Resuscitation as advocated by FIGO in 2022 has been covered.

We are all well aware that good communication skills are the stepping stone to successfully handling a difficult situation in all aspects of life and medicine is no different. In fact, it may prove helpful to even prevent litigation at times therefore, it is important to master the art of communication. "Safeguarding the Doctors" section covers "Perfecting the art of communication skills" It is a must know skill for everyone.

My heartfelt gratitude to all the authors for their efforts in putting together an article which all of us will love to read and put into daily practice.

Your views and comments are welcome and these are important to improve with every issue.

I end this note with greetings for the coming year filled with joy and good health for each one of you.

Yours in health

Dr. Madhavi M Gupta
Editor

Announcement of Election Results

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Note - AOGD members interested to become member of any above subcommittee should apply to respective chairpersons with their CV by 1st March 2023.

Congratulations to the Newly Elected

GAME CHANGER:

Postpartum Haemorrhage:

The WOMAN Trial (World Maternal Antifibrinolytic Trial) & the WHO CHAMPION Trial

The E-MOTIVE study protocol

Madhavi M Gupta*, Reena Rani**

*Director Professor, **Assistant-Professor, Department of Obstetrics & Gynaecology, MAMC & Lok Nayak Hospital, Delhi

Abstract of the research articles are available free at the journal websites and on Pubmed (http://www.ncbi.nlm.nih. gov/PubMed)

Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum haemorrhage (WOMAN): an international, randomised, double-blind, placebo-controlled trial

WOMAN Trial Collaborators.
Lancet. 2017 May 27;389(10084):2105-2116. doi: 10.1016/S0140-6736(17)30638-4. Epub 2017 Apr 26. PMID: 28456509 Free PMC article. Clinical Trial.

Background: This study was aimed to assess the effects of early administration of tranexamic acid on death, hysterectomy, and other relevant outcomes in women with post-partum haemorrhage.

It was a randomised, double-blind, placebo-controlled trial. Women aged 16 years and older with a clinical diagnosis of post-partum haemorrhage after a vaginal birth or caesarean section were recruited from 193 hospitals in 21 countries and were randomly assigned to receive either 1 g intravenous tranexamic acid or matching placebo in addition to usual care. When bleeding continued after 30 min, or stopped and restarted within 24 h of the first dose, a second dose of 1 g of tranexamic acid or placebo was given. Participants, care givers, and those assessing outcomes were masked to allocation. Originally the study was planned to enroll 15000 women with a composite primary endpoint of death from all-causes or hysterectomy within 42 days of giving birth. However, during the trial it became apparent that the decision to conduct a hysterectomy was often made at the same time as randomisation. Therefore the final sample size was increased from 15 000 to 20 000 women in order to estimate the effect of tranexamic acid on the risk of death from postpartum hemorrhage. All analyses were done on an intention-to-treat basis. This trial is registered with ISRCTN76912190 (Dec 8, 2008); Clinical Trials. gov, number NCT00872469; and PACTR201007000192283.

Methods: Between March, 2010, and April, 2016, 20060 women were enrolled and randomly assigned to receive tranexamic acid (n=10 051) or placebo (n=10 009), of whom 10 036 and 9985, respectively, were included in the analysis. Death due to bleeding was significantly reduced in women given tranexamic acid (155 [1·5%] of 10 036 patients vs 191 [1·9%] of 9985 in the placebo group, risk ratio [RR] 0·81, 95% CI 0·65-1·00; p=0·045), especially in women given treatment within 3 h of giving birth (89 [1·2%] in the tranexamic acid group vs 127 [1·7%] in the placebo group, RR 0·69, 95% CI 0·52-0·91; p=0·008). All other causes of death did not differ significantly by group. Hysterectomy was not reduced with tranexamic acid (358 [3·6%] patients in the tranexamic acid group vs 351 [3·5%] in the placebo group, RR 1·02, 95% CI 0·88-1·07; p=0·84). The composite primary endpoint of death from all causes or hysterectomy was not reduced with tranexamic acid (534 [5·3%] deaths or hysterectomies in the tranexamic acid group vs 546 [5·5%] in the placebo group, RR 0·97, 95% CI 0·87-1·09; p=0·65). Adverse events (including thromboembolic events) did not differ significantly in the tranexamic acid versus placebo group.

Interpretation: The authors concluded that tranexamic acid reduces death due to bleeding in women with post-partum haemorrhage with no adverse effects. When used as a treatment

for postpartum haemorrhage, tranexamic acid should be given as soon as possible after bleeding onset.

Funding- London School of Hygiene & Tropical Medicine, Pfizer, UK Department of Health, Wellcome Trust, and Bill & Melinda Gates Foundation.

Heat-Stable Carbetocin versus Oxytocin to Prevent Hemorrhage after Vaginal Birth

Widmer M, Piaggio G, Nguyen TMH, Osoti A, Owa OO, Misra S, Coomarasamy A, Abdel-Aleem H, Mallapur AA, Qureshi Z, Lumbiganon P, Patel AB, Carroli G, Fawole B, Goudar SS, Pujar YV, Neilson J, Hofmeyr GJ, Su LL, Ferreira de Carvalho J, Pandey U, Mugerwa K, Shiragur SS, Byamugisha J, Giordano D, Gülmezoglu AM; WHO CHAMPION Trial Group.

N Engl J Med. 2018 Aug 23;379(8):743-752. doi: 10.1056/NEJMoa1805489. Epub 2018 Jun 27.

PMID: 29949473 Clinical Trial

Background: Postpartum hemorrhage is the most common cause of maternal death. Oxytocin is the standard therapy for the prevention of postpartum hemorrhage, but it requires cold storage, which is not available in many countries. In a large trial, we compared a novel formulation of heat-stable carbetocin with oxytocin.

Methods: Women across 23 sites in 10 countries were enrolled in a randomized, double-blind, noninferiority trial comparing intramuscular injections of heat-stable carbetocin (at a dose of 100 µg) with oxytocin (at a dose of 10 IU) administered immediately after vaginal birth. Both drugs were kept in cold storage (2 to 8°C) to maintain double-blinding. Women across 23 sites in 10 countries were included. There were two primary outcomes: the proportion of women with blood loss of at least 500 ml or the use of additional uterotonic agents, and the proportion of women with blood loss of at least 1000 ml. The noninferiority margins for the relative risks of these outcomes were 1.16 and 1.23, respectively.

Results: A total of 29,645 women underwent randomization. The frequency of blood loss of at least 500 ml or the use of additional uterotonic agents was 14.5% in the carbetocin group and 14.4% in the oxytocin group (relative risk, 1.01; 95% confidence interval [CI], 0.95 to 1.06), a finding that was consistent with noninferiority. The frequency of blood loss of at least 1000 ml was 1.51% in the carbetocin group and 1.45% in the oxytocin group (relative risk, 1.04; 95% CI, 0.87 to 1.25), with the confidence interval crossing the margin of non inferiority.

Conclusion

The authors concluded that heat-stable carbetocin was noninferior to oxytocin for the prevention of blood loss of at least 500 ml or the use of additional uterotonic agents. Noninferiority was not shown for the outcome of blood loss of at least 1000 ml; low event rates for this outcome reduced the power of the trial.

Funding

Merck Sharpe & Dohme; CHAMPION Australian New Zealand Clinical Trials Registry number, ACTRN12614000870651; EudraCT number, 2014-004445-26; and Clinical Trials

Registry–India number, CTRI/ 2016/ 05/ 006969.)

Future Research

Formative research to design an implementation strategy for a postpartum hemorrhage initial response treatment bundle (E-MOTIVE): study protocol

Bohren MA, Lorencatto F, Coomarasamy A, Althabe F, Devall AJ, Evans C, Oladapo OT, Lissauer D, Akter S, Forbes G, Thomas E, Galadanci H, Qureshi Z, Fawcus S, Hofmeyr GJ, Al-Beity FA, Kasturiratne A, Kumarendran B, Mammoliti KM, Vogel JP, Gallos I, Miller S.

Reprod Health. 2021 Jul 14;18(1):149. doi: 10.1186/s12978-021-01162-3. PMID: 34261508; PMCID: PMC8278177.

This is a research protocol for the preliminary phase of the study ("E-MOTIVE"), which means that it is a description of what has been planned and how to implement the same.

Background: Postpartum hemorrhage (PPH) is the leading cause of maternal death worldwide. When PPH occurs, early identification of bleeding and prompt management using evidence-based guidelines, can avert most PPH

related severe morbidities and deaths. However, adherence to the World Health Organization recommended practices remains a critical challenge. A potential solution to inefficient and inconsistent implementation of evidence-based practices is the application of a 'clinical care bundle' for PPH management. A clinical care bundle is a set of discrete, evidence-based interventions, administered concurrently, or in rapid succession, to every eligible person, along with teamwork, communication, and cooperation. Once triggered, all bundle components must be delivered. The E-MOTIVE project aims to improve the detection and first response management of PPH through the implementation of the "E-MOTIVE" bundle, which consists of (1) Early PPH detection using a calibrated drape, (2) uterine Massage, (3) Oxytocic drugs, (4) Tranexamic acid, (5) Intra Venous fluids, and (6) genital tract Examination and escalation when necessary. The objective of this paper is to describe the protocol for the formative phase of the E-MOTIVE project, which aims to design an implementation strategy to support the uptake of this bundle into practice.

Methods: The methods used will be behavior change and implementation science frameworks [e.g. capability, opportunity, motivation and behavior (COM-B) and theoretical domains framework (TDF)] to guide data collection and analysis, in Kenya, Nigeria, South Africa, Sri Lanka, and Tanzania. There are four methodological components: qualitative interviews; surveys; systematic reviews; and design workshops. The findings across data sources, participant groups, and countries will be triangulated to explore factors influencing current PPH detection and management, and potentially influencing E-MOTIVE bundle implementation. These findings will be used to develop potential strategies to improve implementation, which will be discussed and agreed with key stakeholders from each country in intervention design workshops.

Discussion: This formative protocol outlines the strategy for the systematic development of the E-MOTIVE implementation strategy. This focus on implementation considers what it would take to support roll-out and implementation of the E-MOTIVE bundle. The approach therefore aims to maximize internal validity in the trial alongside future scalability, and implementation of the E-MOTIVE bundle in routine practice, if proven to be effective.

Trial registration: ClinicalTrials.gov: NCT04341662

Further Reading

1. Shakur H, Elbourne D, Gülmezoglu M, Alfirevic Z, Ronsmans C, Allen E, Roberts I. The WOMAN Trial (World Maternal Antifibrinolytic Trial): tranexamic acid for the treatment of postpartum haemorrhage: an international randomised, double blind placebo controlled trial. Trials. 2010 Apr 16;11:40. doi: 10.1186/1745-6215-11-40. PMID: 20398351; PMCID: PMC2864262.
2. Brenner A, Ker K, Shakur-Still H, Roberts I. Tranexamic acid for post-partum haemorrhage: What, who and when. Best Pract Res Clin Obstet Gynaecol. 2019 Nov;61:66-74. doi: 10.1016/j.bpobgyn.2019.04.005. Epub 2019 Apr 30. PMID: 31128974; PMCID: PMC6891248.
3. Vernekar SS, Goudar SS, Metgud M, Pujar YV, Somannavar MS, Piaggio G, Carvalho JFDE, Revankar A, Althabe F, Widmer M, Gulmezoglu AM, Goudar SS. Effect of heat stable carbetocin vs oxytocin for preventing postpartum haemorrhage on post delivery hemoglobin-a randomized controlled trial. J Matern Fetal Neonatal Med. 2022 Dec;35(25):8744-8751. doi: 10.1080/14767058.2021.2001799. Epub 2021 Nov 11. PMID: 34763599.

PPH Bundle Care

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Post-partum hemorrhage (PPH) is defined as the loss of at least 500 ml of blood from the genital tract within 24 hours of birth, regardless of whether it was a vaginal or cesare an delivery.[1-3] It occurs in approximately 5% of all live births world wide and, despite allefforts, it is a leading cause of maternal death and morbidity.[4]

PPH remains the leading cause of maternal mortality and morbidity in low- and middle-income countries (LMIC). Hemorrhage-related maternal mortality rates continue to be high due to in consistent and delayed use of effective interventions for prevention and treatment of PPH, and problems with administration in health services (e.g, lack of blood banks, inadequate staffing).[5-7] PPH accounts for 38% of peripartum maternal deaths in India, 50% of these are due to atonic uterus.[8]

It is important to note that most PPH -related death sare preventable through timely interventions by quality-of-care improvements.[9,10]

Care Bundles Approach

The Institute for Healthcare Improvement (IHI) defined bundles as "small sets of evidence-based interventions for a defined patient population and care setting that, when implemented together, result in significantly better outcomes than when implement edindividually" .[11]

In contrast to other care packages that include algorithms and recommendations, care bundles require completion and recording of all interventions to achieve compliance. The higher complian cerates for the bundle implies the same for its individual components too. It is expected that the bundle approach will improve acceptance and implementation of WHO PPH guidelines.

Elements of PPH Care Bundle

Following a literature search and continuous consensus process, experts at FIGO defined carebundles, selected interventions for inclusion, and identified potential PPH care bundles. PPH carebundles were developed through a three-stage modified Delphi process.[12]

Based on the WHO recommendations of 2012 for PPH due to uterin eatony and the WHO 2017 update on tranexamic acid, 11 criteria (Table 1) were selected. In selecting the interventions, community settings (i.e., home deliveries, health after delivery, and dispensary deliveries) assisted by SBAs, primary healthcare centers, and hospitals were considered. A PPH bundle was agreed upon based on the purpose of the selected interventions namely,

1. Prevention and recognition of PPH
2. First response to PPH
3. Response to refractory PPH

Of these three bundles the prevention and recognition of PPH was rejected because it was very similar to the Active Management of third stage of labour package.

Table 1. Description of WHO recommended clinicalinterventions for PPH, 2012-2017[13,14]

Intervention	Description
Uterotonics	Administration of oxytocin (IV/IM); ergometrine/methylergometrine or other combinations of oxytocin and ergometrine (IM); misoprostol (oral). The preferred drug for prevention of PPH is oxytocin (10 IU, IV/IM). If unavailable, IM ergometrine/methylergometrine or the fixed drug combination of oxytocin and ergometrine should be given if not contraindicated. If IM or IV uterotonics are unavailable, then oral misoprostol (600 mcg) should be given

Controlled cord traction*	❖ In light of new evidence, controlled cord traction (CCT) has been revisited. In settings with skilled attendants, this intervention is now considered optional, and it is contraindicated in settings without skilled attendants. The clamping of the cord at an early stage is generally contraindicated. ❖ Surveillance of uterine tonus through abdominal palpation is recommended in all women for early identification of postpartum uterine atony
Postpartum abdominal uterine tone assessment	Palpation of the uterus to assess uterine tone; if the uterus is flabby, it indicates uterine atony
Isotonic crystalloids	Administration of a starting dose of 500 ml of isotonic crystalloids IV, in 30 min; and continuing doses of 500 ml of isotonic crystalloids IV, in 60 mins
Tranexamic acid	A dose of 1g of TXA (100 mg/ml IV at1ml per min), within 3 h of the time of diagnosis (if unknown, time of delivery).A second dose of 1 g can be given if needed atleast30 min after the first dose.
Uterine massage	Circular rubbing of the uterus by manual massaging of the abdomen. This should be continued until the bleeding stops or the uterus contracts. It is not recommended to continuously massage the uterus once the bleeding is controlled
Intrauterine balloon tamponade	Insertion of a deflated balloon in the uterine cavity and then inflating it to achieve a tamponade effect.
Bimanual uterine compression	One hand in the anterior vaginal fornix and one hand behind the uterine fundus, squeezing the uterus between the hands.
External aortic compression	External compression applied with a closed fist at the level of umbilicus and slightly to the patient's left.
NASG	Used as a temporizing measure until source of bleeding is found and treated. It is a lower body compression device made of stretch neoprene which closes tightly with Velcro in segments for the ankles, calves, thighs, pelvis, and abdomen and is applied rapidly starting at the ankles.
A single dose of antibiotics	In the context of placental retention, the placenta should be extracted, and a single dose of antibiotic should be administered

Abbreviations: IM, intramuscular; IV, intravenous, NASG, non-pneumatic antishock garment, TXA, tranexamic acid

Both hemostatic surgery and arterial embolization were excluded from the bundles since neither is feasible in most settings nor applicable to most women with PPH due to uterine atony.

The two accepted PPH care bundles are[15]:

1. First response to PPH

2. Response to refractory PPH

TABLE 2: Components of bundles for postpartum hemorrhage

First response PPH bundle 1.Uterotonic drugs 2.Isotonic crystalloids 3.Tranexamic acid 4.Uterine massage, Initial fluid resuscitation is to be performed with intravenous (IV) administration of uterotonics. If IV uterotonics are not available, fluid resuscitation should be started along with sublingual misoprostol or other parenteral uterotonics. If postpartum hemorrhage (PPH) is due to placental retention, the placenta should be extracted and a single dose of antibiotics should be administered
Response to refractory PPH bundle 1. Compressive measure (aortic compression or bimanual uterine compression) 2. Intrauterine balloon tamponade 3. Non-pneumatic anti shock garment. Uterotonics (e.g., oxytocin diluted in isotonic crystalloids) should be continued and a second dose of tranexamic acid should be administered during the application of this bundle.

First response PPH bundle Uterotonic drugs

This bundle is approved for treatment of atonic PPH at all levels of healthcare facilities to be instituted by skilled birth attendant who is adequately equipped and trained. Suggested

acronyms for this bundle are "MOTIVate" or "MOTIV8" (Massage, Oxytocics, TXA, and IV fluids followed by External genital examination and Escalation)

Response to refractory PPH bundle

Refractory postpartum hemorrhage is bleeding that is resistant to first response measures and is accompanied by deterioration of maternal condition.

Components of the bundle are:

1. Two manual compressive measures
   a) Aortic or
   b) Bimanual uterine compression and
2. Two devices
   a) Intrauterine balloon tamponade and
   b) NASG

Care providers may not apply the whole bundle if the hemorrhage is controlled after one or some of the interventions.

Originally, the PPH bundles were intended to apply to both vaginal and cesarean deliveries. However, it became clear that post-caesarean bleeding might require a modified approach due to the following reasons: uterine massage is unlikely to be effective; uterotonics and IV fluids are likely to be already in place, making these two components of the first response bundle redundant for most patients; and when early detection of PPH occurs, different strategies are likely to be employed compared to vaginal delivery. Therefore, a modified bundle should be developed and evaluated that addresses post-caesarean bleeding needs.

Note: Before intervening and applying bundles, clinicians should assess the etiology of PPH. These bundles are recommended for uterine atony.

Implementation of PPH bundles in LMICs

A facility-level implementation strategy should be developed for the first response PPH bundle in LMICs. As part of this strategy, health systems must be strengthened, communication improved, teamwork enhanced, and referrals improved along with better monitoring, supervision, and evaluation.

In response to refractory PPH bundle, it is important to resolve pending controversies including operational definitions of refractory PPH and improve understanding of various IBT devices.

Other PPH Bundles

An **Obstetric Hemorrhage Safety Bundle** was developed in 2015 by the National Partnership for Maternal Safety - which represents all major women's healthcare professional organizations in the US. The partnership aimed to have every birthing facility adopt the safety bundle. As part of this consensus bundle, four action domains were identified: readiness, recognition and prevention, response, reporting and systems learning. Within these four action domains, there are 13 key elements (Table 3)

TABLE 3: Obstetric hemorrhage safety bundle action domains (from the National Partnership for Maternal Safety, Council on Patient Safety in Women's Health)

Domain	Key elements
Readiness (Every Unit)	1. Haemorrhage cart with supplies, checklist, and instruction cards for uterine balloon tamponade and compression sutures. 2. Immediate access to hemorrhage medications (kit or equivalent). 3. A response team to call when help is needed (blood bank, advanced gynecologic surgery, other support and tertiary services). 4. Massive and emergency-release transfusion protocols (type-O negative or uncross-matched). 5. Unit education on protocols, unit-based drills (with post drill debriefs).
Recognition and Prevention (Every Patient)	6. Assessment of hemorrhage risk (prenatal, on admission, and at other appropriate times). 7. Measurement of cumulative blood loss (formal and as quantitative as possible). 8. Active management of the third stage of labor (department- wide protocol).
Response (Every Hemorrhage)	9. Uni-standard, stage-based obstetric hemorrhage emergency management plan with checklists. 10. Support program for patients, families, and staff for all significant hemorrhages.
Reporting and Systems Learning (Every Unit)	11. Establish a culture of huddles for high-risk patients and post-event debriefs to identify successes and opportunities. 12. Multidisciplinary review of serious hemorrhages for systems issues. 13. Outcomes monitoring and process metrics in perinatal quality improvement committee.

Reproduced from Council on Patient Safety in Women's Health Care[16]

Postpartum Hemorrhage Emergency Response (Fig 1-3)

A comprehensive training package to deliver quality PPH Emergency Response (PPH ER) has been developed by the Division of Global Health of MGH (Massachusetts General Hospital) in collaboration with senior Ob/Gyns and maternal health champions in India and Kenya. [17] To strengthen health systems and address emergency obstetric care, this program was developed with the help of in-country leaders.

An intervention package consisting of relatively simple, cost-effective, and low-technology interventions was designed in accordance with WHO guidelines for PPH management. The package is suitable for facilities at all levels of the health care system.

It also includes training of facility managers/ quality officers/government-level supervisors on the following non-clinical elements to ensure successful implementation of the program.

a) Teamwork and Communication

b) Facility Readiness

c) Network Integration

d) Data, Monitoring and Quality Improvement

e) Leadership

There are slide presentations, trainer's manuals, how-to toolkits, checklists, post-training technical assistance, monitoring, and evaluation support included in the PPH ER program. According to the specific needs of each country and context, it can be adapted.

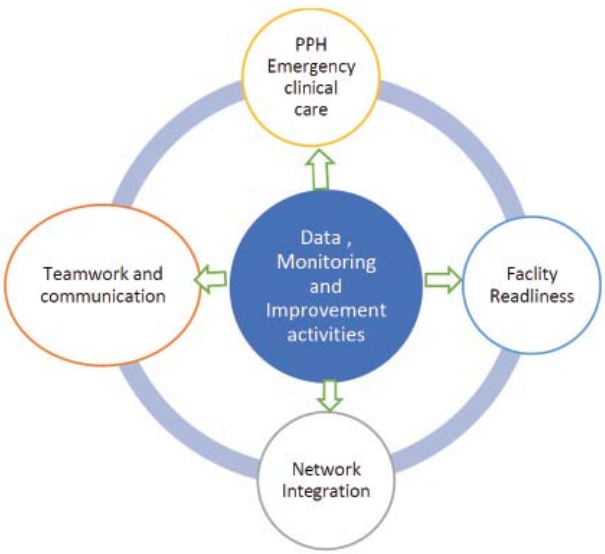

Fig 1: PPH Emergency Response Pocket Card[18]

Although the PPH bundles are based on rigorously developed evidence-based recommendations, they have yet to be tested and evaluated as a strategy to improve clinical care for patients with PPH.

An analysis of a retrospective, a pre-post case-control study was conducted in a tertiary care center in North India to analyze if PPH bundles of care can reduce maternal mortality and morbidity. PPH care bundle implementation resulted in a significant decrease of 60% in the number of patients requiring blood components (p=0.0319) and a significant reduction of the need for radical surgical treatment of PPH, including hysterectomies (p=0.032).[20]

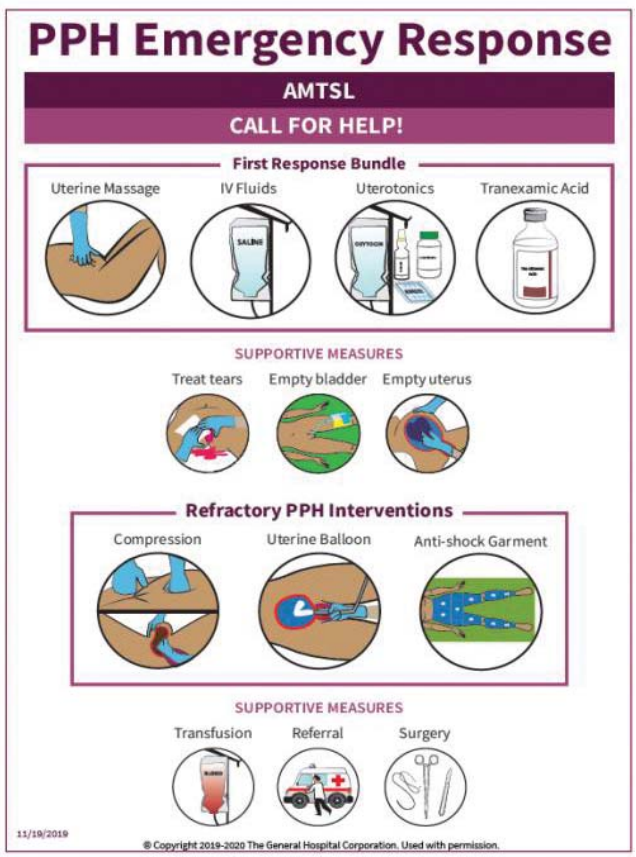

Fig 2: PPH Emergency Response Pocket Card (Front) [18]

Conclusion

PPH bundles are simple and practical ways to control and manage atonic PPH, which is a major cause of maternal mortality globally, particularly in India. As part of the implementation of the bundles, training and dissemination of information are important measures to save maternal lives.

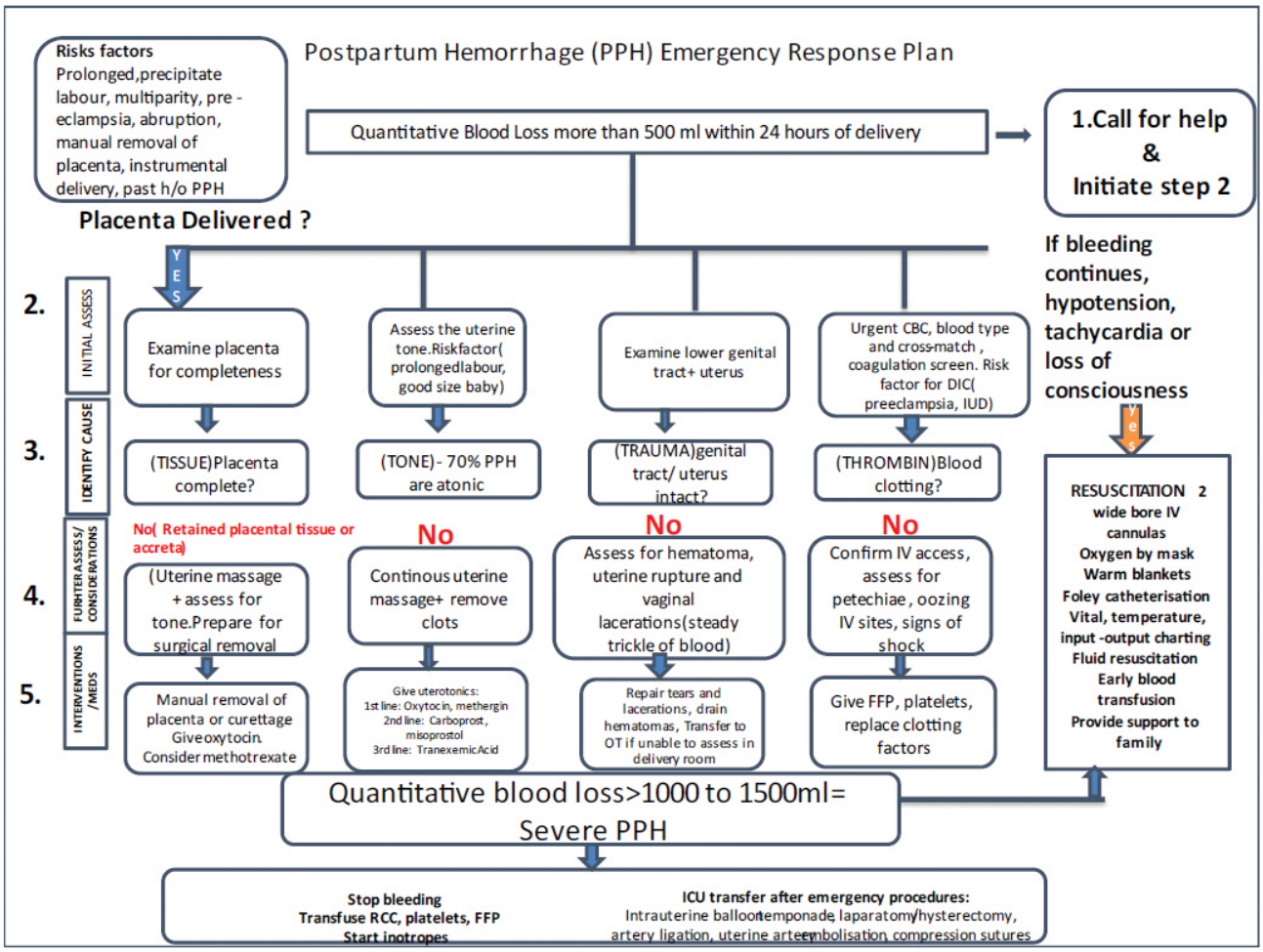

Fig 3: PPH Emergency Response concept Map [19]

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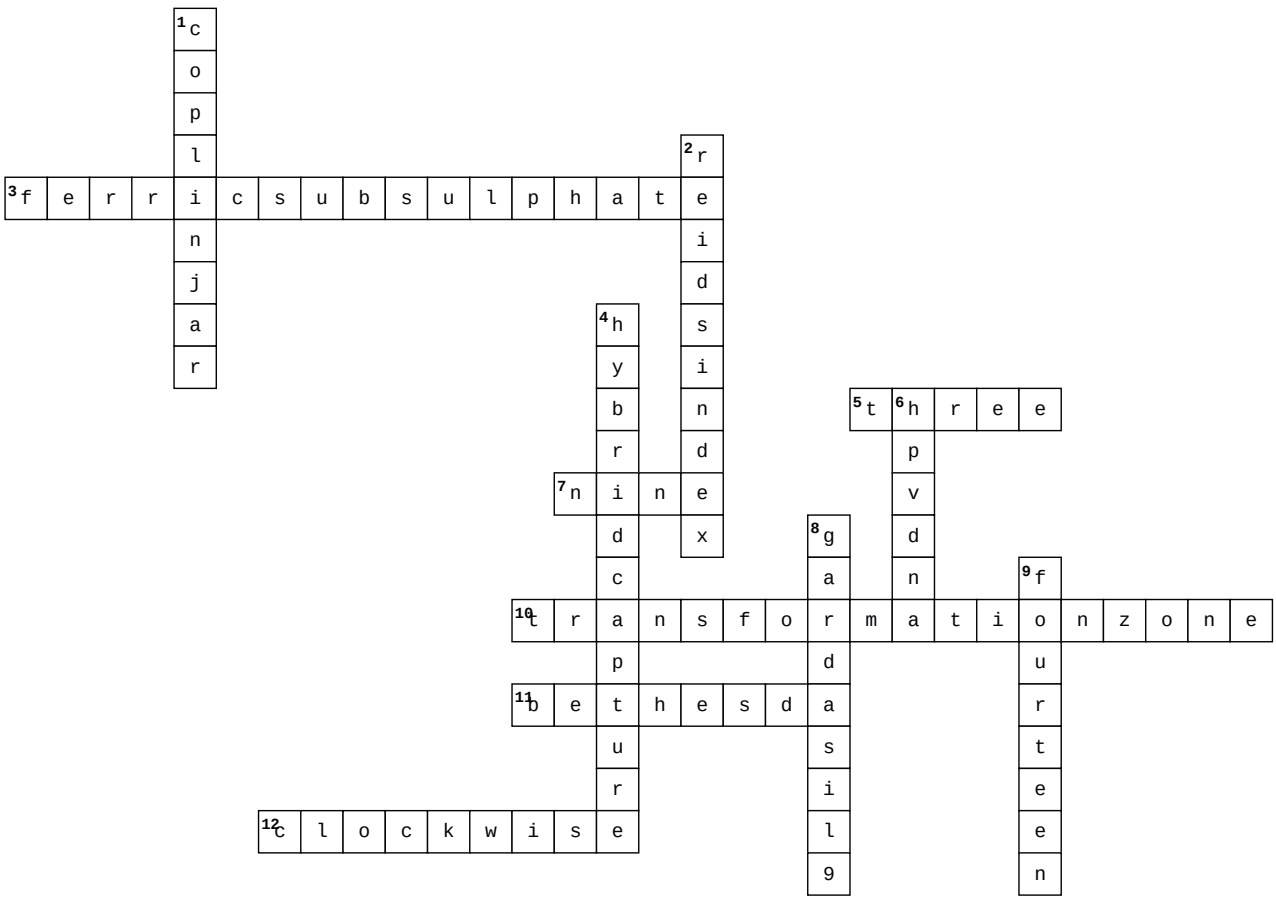
Answer key of Quiz of October 2022



Winners of the monthly quiz, October Issue 2022

1. Dr Laxmi Dave
2. Dr Anuradha
3. Dr Kiran

Medical Prevention & Treatment of PPH

Deepika Meena*, Noopur Chawla**
*Professor, **Senior Resident, Department of Obstetrics & Gynaecology, Lady Hardinge Medical College & Smt Sucheta Kriplani Hospital, New Delhi

Introduction

WHO estimates that of the 5,29,000 maternal death occurring every year, 25.7% of death takes place in India and two third of these maternal death occur after delivery, PPH being the most commonly reported complication. Patients with PPH require aggressive measures guided by a well-defined multidisciplinary approach to prevent morbidity and mortality.

Post-partum haemorrhage is defined as blood loss of more than 500 ml from the genital tract after delivery or more than 1 litres following caesarean section. According to ACOG, PPH is defined as a drop in haematocrit of 10%. In most cases, the cause of post-partum haemorrhage can and should be determined. PPH is said to be minor when the blood loss is between 500 -1000 ml and major if more than 1 litres and severe if more than 2 litre blood loss is present.

Primary PPH	Haemorrhage according within 24 hours following childbirth, the most common cause being atonic PPH
Secondary PPH	Haemorrhage occurring after 24 hours and up to 12 weeks postpartum, most common cause is retained placenta.

Prediction and prevention of PPH:

The most significant intervention shown to reduce the incidence of PPH is the active management of the third stage of labour (see below). Other measures to prevent or reduce the impact of PPH include

- Prenatal identification of at risk women (Prolonged labour, multiple pregnancy, polyhydramnios, large baby, obesity, previous history of uterine atony, coagulopathy), prompt assessment of blood loss, effective management and involvement of multidisciplinary teams is of utmost importance to save the lives of these women.
- Detection & treatment of anaemia during pregnancy. Many studies have indicated an association between antenatal anaemia (Hb less than 9 g/l) and greater blood loss at delivery and postpartum.
- Minimal trauma during assisted vaginal delivery.
- Identification of placenta Previa by antenatal ultrasound examination.
- Where facilities exist, magnetic resonance imaging (MRI) may be a useful tool and assist in determining whether the placenta is accreta or percreta. Women with placenta accreta/percreta are at very high risk of major PPH. If placenta accreta or percreta is diagnosed antenatally, there should be consultant-led multidisciplinary planning for delivery.

Active management of third stage of labour is a feasible, low cost measure to prevent 60-70% of atonic PPH

- Prophylactic uterotonic administration during the third stage of labor with oxytocin (IM/IV, 10 IU) being the preferred drug.
- Ergometrine or Misoprostol (600 mcg) can be used if oxytocin is not available.

- Oxytocin in a Uniject system, prefilled, single-dose injection with a fixed needle can be used in low resource settings in the absence of skilled workers.
- A powdered, inhalable, heat-stable oxytocin is also being developed for an aerosol delivery system.
- Consider the use of intravenous tranexamic acid (0.5–1.0 g), in addition to oxytocin, at caesarean section to reduce blood loss in women at increased risk of PPH.
- Carbetocin is a long-acting synthetic oxytocin analogue, 1- deamino -1- monocarbo -(2-O-Methyltyrosine) recommended for prevention of PPH. It has been approved in 23 countries for prevention of uterine atony and excessive bleeding following caesarean delivery in spinal or epidural anesthesia.[1]

Table: Comparison of Oxytocin and heat stable Carbetocin.[1,2,3,4]

Parameter	Oxytocin	Carbetocin
Dose	40 IU infusion.	Bolus of 100 µg IV
Hypotensive effect present in both.	Greater	Lesser
Need of additional uterotonic agent during caesarean section	Greater	Lesser
Estimated blood loss	Similar	Similar
Drop in haemoglobin	Similar	Similar
Diuresis effect.	less	more
Temperature	require refrigeration	does not require refrigeration
Half life	1 to 6 min	40min.

Treatment of PPH

Resuscitation & immediate management:

- ABC, 100% oxygen
- 2 large bore cannula & bloods for X-match
- Fluid resuscitation; crystalloid/colloid 2000mls via rapid infuser or pressure bags e.g. Level 1 Rapid infuser (can achieve >500mls/min warmed fluid flow)
- Fluid therapy and blood product transfusion
- Crystalloid Up to 2 litres Hartmann's solution
- Colloid up to 1–2 litres colloid until blood arrives
- Blood Cross matched
- If cross matched blood is still unavailable, give uncross matched group-specific blood OR give 'O RhD negative' blood if required.
- Fresh frozen plasma 4 units for every 6 units of red cells or prothrombin time/activated partial thromboplastin time > 1.5 x normal (12–15 ml/kg or total 1 litres)
- Platelets concentrates if platelet count < 50 x 10^9
- Cryoprecipitate If fibrinogen < 1 g/l

Thromboelastography and rotational thromboelastometry coagulation tests

Medications	Dose	Remarks
OXYTOCIN	40 IU /500 ml Hartmann's solution at 125 ml/hour	Overdose or prolonged use can cause water intoxication. Fast IV may cause hypotension
ERGOMETRINE	0.5 mg slow IV/ IM	Cannot be given in patients with Hypertension, vascular disease, hepatic or renal dysfunction, sepis or PLHA taking protease inhibitors
CARBOPROST	250 µg IM every 15 minutes up to 8 times; Direct Intra myometrial 0.5 µg (under responsibility of administering clinician)	Contraindicated in patients with asthma, renal, hepatic or cardiac disease
MISPOPROSTOL	1000 µg rectally	Avoid in patients with Cardiovascular disease
*TRANEXAMIC ACID	Slow IV bolus of 1gm (1ml/min. over 10 min.)	Can be repeated after 30 minutes or if bleeding restarts within 24 h of completing the first dose
*CARBETOCIN	100 µg diluted in 10 ml NS and administered slowly (over 30-60 seconds) IV	Can be administered only with Regional/ Epidural anaesthesia

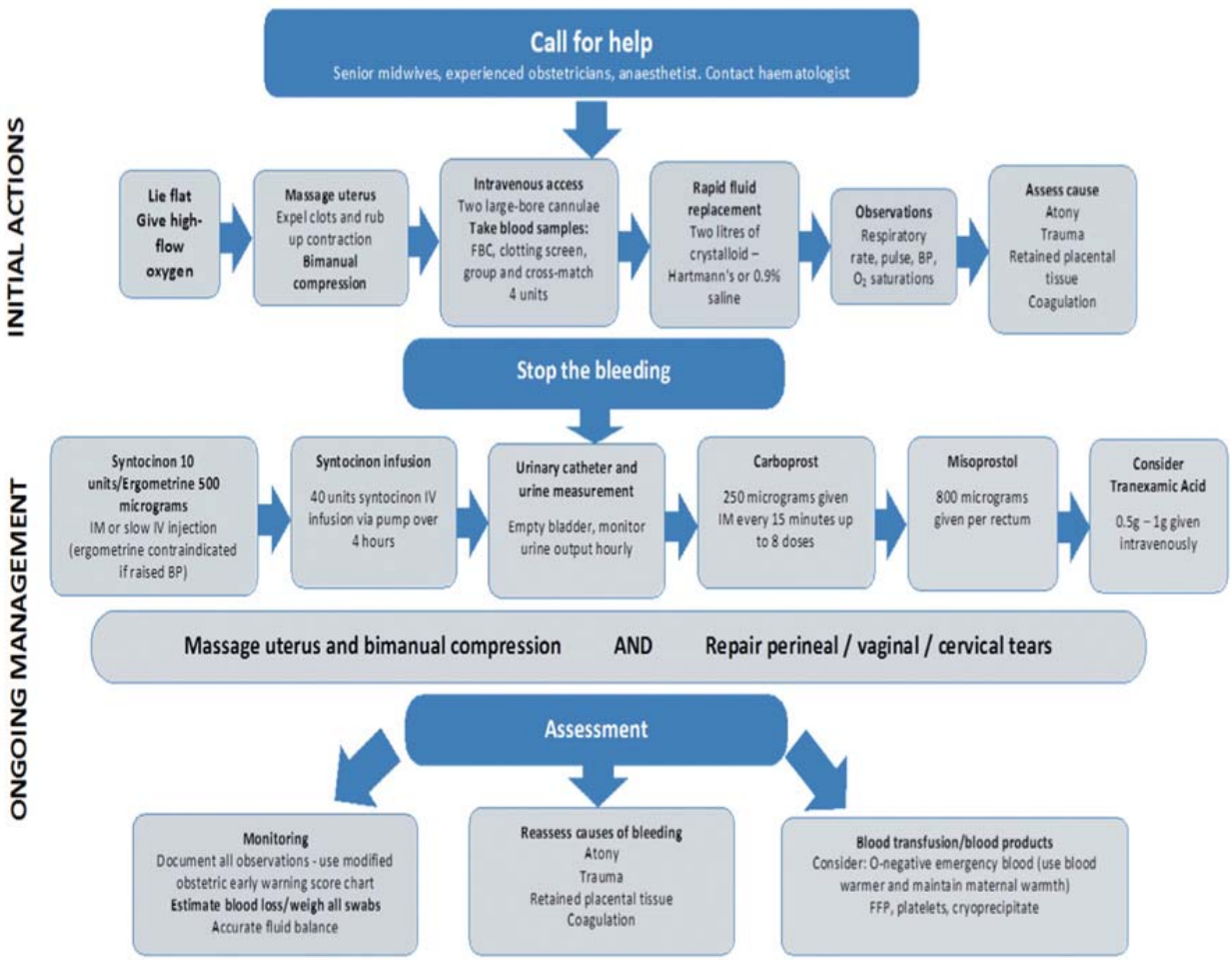
*Tranexamic acid: A potent antifibrinolytic drug. **Administration of TXA is recommended as soon as the diagnosis of PPH is made if the diagnosis is made within 3 h of delivery**. However, larger adequately powered, multicentre randomized controlled trials are needed before the prophylactic use of TXA can be recommended for the prevention of PPH. The main action is by blocking of the lysine-binding sites of the plasminogen molecule, which are of importance for the binding to fibrin. High-dose tranexamic acid can reduce blood loss, fall in Hb and the need for blood transfusion. Precautions have to be taken as it inhibits thrombus breakdown and therefore can increase thrombo-embolic events in women with PPH.[5-7]

Recombinant factor VIIa is an effective, though expensive, synthetic agent used to control bleeding in refractory PPH. It should be given only when haematocrit is adequate, platelet count is >50x10^9/l, fibrinogen >1 gm/l, pH>7.2 and temperature >34°C. Dose is 90 µg/Kg IV over 3-5 minutes, repeated only if necessary. Its use may lead to thrombotic complications.

The routine use of rFVIIa is not recommended in the management of major PPH unless as part of a clinical trial.

Summary

Globally PPH is the leading cause of maternal mortality and morbidity. Prevention plays a very important role by identifying high risk factors and active management of labour. A multidisciplinary approach is essential in managing severe haemorrhage. Heat-stable carbetocin is noninferior to oxytocin and could be considered as a good alternative agent to oxytocin in the PPH prevention in the third stage of labor in women with induced or augmented labor . The choice of carbetocin for routine prophylaxis will depend on cost effectiveness.



TXA has already proven to be of benefit in the management of established postpartum haemorrhage. More research is needed to evaluate the role of other agents. If 3rd dose of carboprost required or 3rd uterotonic required to control bleeding , consider balloon tamponade with preparation to shift to OT if it Fails.

Guidelines

1. FIGO recommendations on the management of postpartum hemorrhage 2022.
2. Prevention and management of postpartum haemorrhage, RCOG Green-top Guideline No. 52, March 2011.
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Calendar of Virtual Monthly Clinical Meetings 2022-23

30th December, 2022	Sir Ganga Ram Hospital
27th January, 2023	ABVIMS & Dr Ram Manohar Lohia Hospital
24th February, 2023	UCMS & Guru Teg Bahadur Hospital
31st March, 2023	MAMC & Lok Nayak Hospital
28th April, 2023	LHMC & Smt. Sucheta Kriplani Hospital
26th May, 2023	Sitaram Bhartia Hospital

Resuscitation : The Cornerstone in Management of Postpartum Hemorrhage

Ratna Biswas
Director Professor, Department of Obstetrics & Gynaecology, Lady Hardinge Medical college & Smt. Sucheta Kriplani Hospital.

Postpartum haemorrhage (PPH) is a life threatening complication and is one of the leading direct cause of maternal mortality in India.

Postpartum haemorrhage is defined as bleeding of more than 500 ml for vaginal deliveries and more than 1000 ml for cesarean deliveries or blood loss that is accompanied by signs or symptoms of hypovolemia occurring within 24 h after birth, regardless of the mode of delivery 1.(ACOG 2017)

Resuscitation in postpartum hemorrhage

Resuscitation is an essential component in the management of PPH and must be initiated alongside definitive measures to control hemorrhage. The protocol to be followed is guided by the amount of blood loss .

The NICE guidelines on prevention and management of PPH (2016)[2] categorizes PPH into minor and major with separate protocols for management of each category.

Minor PPH is defined as blood loss between 500–1000 ml without clinical shock.

In such instances, resuscitation is initiated by obtaining an intravenous access with 14-gauge cannula after which 20 ml of venous blood sample is sent for grouping and cross matching of 2-4 units packed cells, complete blood count and coagulation parameters including fibrinogen . Monitoring of pulse, respiratory rate and blood pressure is done every 15 minutes. Fluid resuscitation is commenced with warmed crystalloid infusion. Urine output should be maintained >0.5ml/kg/hour.

Major PPH is defined as blood loss in excess of 1000 ml and still continuing to bleed or appearance of clinical shock . Shock is identified by a low mean arterial pressure (MAP) of <60 mmHg. Other features include a narrow pulse pressure of <25 mmHg, shock index (HR/ Systolic BP) >1, cold extremities, RR > 22mHg, altered mentation, oliguria, metabolic acidosis and hyperlactemia due to tissue hypoxia.

Resuscitation for major blood loss is initiated with A, B & C , that is assessment and management of airway ,breathing and circulation with patient in flat position. The woman must be kept warm using appropriate available measures . Blood transfusion is initiated as soon as possible, if clinically indicated[2].

How to administer fluids ?

Until packed red blood cells (PRBC) is available, initial resuscitation is started with warmed isotonic crystalloid solution. Fluid is given in boluses. One litre of fluid is transfused over 20 minutes followed by reassessment of vital parameters . 2nd litre is transfused over 40 minutes. Reassessment of clinical parameters is done with each bolus. Further 1.5 litres of fluid may be transfused with additional crystalloid or colloid solution (succinylated gelatin) . Hydroxyethyl starch should not be given as it can predispose to acute renal failure. Fluid should be transfused through a fluid warmer .

High flow oxygen (10–15 l/min) via a facemask should be administered, regardless of maternal oxygen concentration. Anaesthetist should be called in if airway is compromised due to impaired consciousness level. Level of consciousness and airway control improve rapidly once the circulating volume is restored[2].

The cornerstones of resuscitation are restoration of blood volume and oxygen-carrying capacity. Blood transfusion is guided by clinical picture without wasting time for laboratory results.

Goals of management of massive blood loss is to maintain the haematological and coagulation parameters at a certain reference value: [2](NICE 2016):

- Hb greater than 8.0 g/l
- Platelet count greater than 50 X 109/l

- Prothrombin time (PT) less than 1.5 times normal
- Activated partial thromboplastin time (APTT) less than 1.5 times normal
- Fibrinogen greater than 2 g/l

Blood transfusion Protocol

Massive life threatening obstetric haemorrhage would require an urgent and immediate blood transfusion wherein non cross matched group O, rhesus D (RhD)-negative and K-negative units can be transfused after which a switch to group-specific blood transfusion is done as soon as feasible.

Hemostatic Resuscitation[3](FIGO 2022)

Traditionally resuscitation in postpartum hemorrhage primarily consists of administration of fluids and packed red blood cells (PRBC) transfusion.

Hemostatic resuscitation limits the use of crystalloids and involves early administration of blood and blood products with aim to prevent the development of coagulopathy. In this a high transfusion ratio of 1:1:1 (Packed cells: FFP: Platelets) is maintained to provide all constituents of whole blood. This ratio has shown a survival advantaging in few studies and lower rate of complications. If PRBC is not available while managing massive hemorrhage than whole blood can be substituted.

The PRBC, FFP, and PLT are applied in a 1:1:1 ratio because it is similar to the constituents in whole blood and because a "high ratio" is related to fewer complications and better patient survival outcomes.[2,5,6,7]

The PROMTT study showed an improvement in mortality in the first 6 hours for patients with high ratios of transfusion (<1:2 Vs >1:1).[8] Secondary analysis from PROMTT has shown a reduction in mortality at 24 hours and 30days in women who had early administration of plasma within first 3 h and within the first 3–6 transfused units.[9]

The PROPPR study[10] revealed that patients transfused with a 1:1:1 ratio achieved hemostasis and had fewer deaths due to exsanguination at 24 hours

Fibrinogen and cryoprecipitate

In massive hemorrhage, fibrinogen is the first clotting factor to be depleted significantly to reach critical levels. Values of <200 mg/dl is an indication for replacement therapy in massive transfusion protocol.[4,6] FFP, cryoprecipitate and human fibrinogen concentrate are sources of fibrinogen. FFP has very low concentration of fibrinogen. A unit of cryoprecipitate contains 2 g fibrinogen for each 100 ml.[4] The usual dose of cryoprecipitate is 10 units, which is estimated to raise serum fibrinogen by 100 mg/dl.[4] Fibrinogen concentrates if available can replace cryoprecipitate.

Massive transfusion protocols

Massive transfusion means transfusion of ≥4 PRBC units (some articles considered ≥10 PRBC within 24 h), or replacement of total blood volume within 24 h, or replacement of 50% of blood volume within 3 hours.[6] Each round has a specific number of PRBC, FFP, PLT, and cryoprecipitate units according to the protocol established in the institution, an example is given below . Once initiated , the blood bank will prepare and send the blood and components for rounds 2–4 successively and if the patient continues bleeding the protocol will start again from round 1. Once bleeding is controlled the protocol should be deactivated.

Massive transfusion protocol in obstetrics[4]

	PRBCs	FFP	Platelets	Cryoprecipitate
Round 1	6 U	6 U	6 U	10 U
Round 2	6 U	6 U	6 U	10 U

Round 3 Tranexamic acid 1 g intravenously over 10 min

Round 4	6 U	6 U	6 U	

The adverse events of massive transfusion protocol include, hyperkalaemia, hypocalcaemia, citrate toxicity, transfusion-related immunomodulation, transfusion-related circulatory overload (TACO), transfusion-related kidney injury, transfusion-related acute lung injury (TRALI) (0.1 per 1000 units transfused), transfusion-related febrile nonhemolytic reactions (0.8 per 1000 units transfused), and acute hemolytic transfusion reaction (0.19 per 1000 units transfused).[1,11,12] Transfusion-related infectious diseases are uncommon (less than

1/100 000–1 000 000).[11,12]

Hypotensive resuscitation

Hypotensive resuscitation, also called permissive hypotension, consists of restricting crystalloid resuscitation during the early stages of a hemorrhagic shock to maintain lower than normal systolic or mean blood pressure, sustaining organ perfusion until control of the bleeding occurs.

It involves administering small crystalloid volumes which reduces the risk of dilutional coagulopathy. In addition, maintaining a low blood pressure prevents the disintegration of pre-formed blood clots.

Aggressive resuscitation may worsen coagulopathy and hemorrhage by increasing intravascular hydrostatic pressures, diluting coagulation factors, and inducing hypothermia, which results in increased mortality.[6,15,16] Furthermore, rise in blood pressure may cause further bleeding and loss of red blood cells leading to tissue hypoxia and acidosis. The drawbacks of aggressive resuscitation can also be explained with the hypothesis that in hemorrhagic shock the endothelial glycocalyx becomes thinner and administration of large amounts of crystalloids exacerbates this state, leading to fluid extravasation that may cause cerebral, cardiac, and pulmonary edema.[4,6,16] Fluid in third space worsens hemodynamics and decreases kidney perfusion.

Initial fluid resuscitation in hypotensive resuscitation consists of administration of crystalloids in small boluses of 500 ml of balanced crystalloid solutions such as Ringer's lactate . Saline transfusion has a risk of hyperchloremic acidosis and worsening of kidney function and is not recommended. After the administration of each bolus, clinical parameters are re-assessed to look for improvement in vitals and urine output.

Targeted blood pressure in hypotensive resuscitation - The European guideline on management of major bleeding and coagulopathy following trauma recommends permissive hypotension with a systolic blood pressure target of 80– 90 mm Hg (MAP 50–60 mm Hg) until major bleeding has been controlled (Recommendation Grade 1C)[17]

Several studies in trauma patients have demonstrated that hypotensive resuscitation is correlated with survival benefits with significantly lower PRBC and fluid requirement, in addition, there is decrease in multiple organ dysfunction and acute respiratory distress syndrome.[13] A cohort study of women with PPH showed that the group that received less fluid resuscitation had less signs of shock and less blood product requirement.[18] The results of the study showed that increased fluid administration was associated with lower concentrations of fibrinogen, hemoglobin, hematocrit, platelet count and prolongation of prothrombin time, and partial thromboplastin time.[18] The study also demonstrated that administration of >4 L of fluids is associated with subsequent bleeding and adverse maternal outcomes.

Damage control resuscitation in PPH

Blood loss exceeding 40% of total blood volume during PPH leads to global hypoxia and metabolic acidosis.[19] These metabolic complications, accompanied by organ hypoperfusion, trigger an irreversible coagulopathy contributing to a vicious cycle of continuing hemorrhage leading to multiple organ dysfunction and death.[20]

Damage Control Resuscitation

This involves a series of interventions to control hemorrhage so as to prevent the onset of the lethal of triad of coagulopathy, acidosis, and hypothermia and maximize tissue perfusion.

It consists of permissive resuscitation by blood product transfusion, use of massive blood transfusion protocols, limited use of crystalloids, bleeding control (including damage control surgery [DCS] and damage control interventional radiology [DCIR]), and physiological and biochemical stabilization in the ICU.[21,22,23] Hemostatic or hypotensive resuscitation may be undertaken based on the clinical situation.

This surgical management consists of staged surgical approach in which the operative time is minimized by performing damage control surgery at the first instance to counteract life-threatening conditions and deferring the definitive surgical procedures until normal physiology is restored at the intensive care unit.

DCR is usually reserved for severe hemorrhage where the patient may not survive the complete surgical procedure in the operation theatre.[21] It can be undertaken in higher level facilities where experienced medical staff is available and blood bank service is available round the clock.

Decision for damage control surgery

There are certain physiological and metabolic markers to identify patients who would benefit from DCS.[24] Three parameters have been described in the literature as significant clinical indicators for early implementation of DCR and DCS [25]:

- Blood loss >1500 ml,
- Acidosis (base deficit >8),
- Hypothermia

Alternative indications of Damage control surgery are[23,24]:

1. Systolic BP<70mmHg,
2. pH<7.1
3. Venous bleeding not amenable to surgical control
4. Persistent bleeding despite several transfusion of blood products (>10 units of PRBC)
5. Increasing and continuous need for fluid due to non arterial bleeding
6. Hemodynamic instability requiring persistent vasopressors or development of ventricular arrythmias
7. Coagulopathy resulting from loss of coagulation factors, hypothermia and acidosis (pH,7.3)
8. Duration of surgery >90 Minutes

Continuous vital sign monitoring and serial monitoring with blood gas analysis and body temperature are recommended.

Bleeding Control at Damage Control Surgery (DCS):

The primary objective to control bleeding is achieved through abdominal hysterectomy -Total or subtotal. The bleeding site must be identified to decide on the most suitable approach. When the bleeding is from lower uterine segment, cervix, or vaginal fornices, a total hysterectomy is preferred.[26,27]

Packing is the cornerstone of obstetric DCS.[23,24] Pelvic packing should be performed with at least 7–10 sponges.[17,19] These are placed directly over the bleeding surfaces with sufficient pressure to stop the bleeding. Excessive pressure should be avoided as it may lead to increased intraabdominal pressure, resulting in abdominal compartment syndrome.[28] A pelvic umbrella pressure pack exiting from the vagina where cuff is left open is an effective measure to control bleeding.[29] The addition of hemostatic agents such as thrombin spray or fibrin glue may be a useful approach to limit ongoing bleeding together with packing. No consensus exists regarding the use of prophylactic antibiotics. Broad-spectrum antibiotics, usually a second generation cephalosporin (eg, 2 g cefoxitin intravenously every 6 hours) until the packing is removed may be used . In patients allergic to b-lactam agents, the combination of levofloxacin (500 mg intravenously daily) with metronidazole (500 mg intravenously every 8 hours) may be used. Caution in use of aminoglycosides should be exercised in this setting due to the increased risk of acute kidney injury due to multiple factors.

Temporary abdominal closure is performed using a negative pressure system like vacuum pack or partial closure with a Bogota bag without the need for negative pressure.[19,30] In recent times the use of negative pressure wound therapy devices allows continuous fluid collection from the abdominal cavity decreasing the edema and ascites and providing higher rates of primary fascial closure.[31,32] It is placed over the open abdomen by using a visceral protective layer (commercially available with the vacuum device) which is placed between the exposed viscera and the foam layer of the device. The use of vacuum-assisted closure has been associated with improved survival and higher success in delayed fascial closure compared to other temporary closure techniques.

The optimal time to remove the pack is between days 2 and 3 postoperative when coagulopathy has reversed. If further interventions are anticipated, the temporary closure of the abdominal cavity is continued. Definitive

closure of abdominal cavity is performed after all surgeries have been successfully completed and additional damage has been repaired or reversed.

POSTOPERATIVE CARE

Patients with intraabdominal packing are shifted to ICU and mechanically ventilated and managed with multidisciplinary team. In the ICU, the primary focus is on managing ongoing coagulopathy. Excessive crystalloid (or colloid) administration should be avoided to prevent dilutional coagulopathy and third space loss ,which will increase intraabdominal pressure[33]. Platelet transfusion is recommended for levels below 50,000/mm^3 in the presence of active bleeding. In ongoing bleeding, the serum fibrinogen should be maintained above 150 mg/dL and ideally above 200 mg/dL[34] with infusion of cryoprecipitate or fibrinogen concentrates.

Viscoelastic tests thromboelastography or thromboelastometry may be used to guide blood and blood product transfusions and adjuvant pharmacologic agents such as tranexamic acid. In a hemodynamically stable patient without active bleeding , blood or blood product transfusion should not be used to correct abnormalities of hematological parameters. Hypocalcemia (secondary to chelation from citrate contained in blood products) can impair coagulation and should be corrected.

Massive transfusion may lead to hyperkalemia which requires aggressive correction. Use of surface warming devices is recommended as it prevents coagulopathy. Metabolic acidosis is usually the result of lactate accumulation and improves after correction of tissue perfusion and coagulopathy and does not require sodium bicarbonate correction is most situations . Critical care management such as lung-protective mechanical ventilation, targeted sedation with daily spontaneous breathing trials, early enteral feeding, and thromboembolism prophylaxis (mechanical until bleeding risk is decreased), should be routinely practised.

Complications:

The main complications include infection of the surgical wound in 28% of cases, intra-abdominal collections in 20%, and evisceration in 10% of patients.[19] A multidisciplinary approach is required in case of injuries secondary to the surgical procedure such as urinomas, perforations, fistulas etc.

Conclusion:

Resuscitation is an essential component in the management of postpartum hemorrhage and traditionally consists of fluid resuscitation and packed cell transfusion. Hemostatic resuscitation consists of early resort to blood and blood components replacement in massive hemorrhage with the aim to prevent the onset of coagulopathy. Fibrinogen levels should be maintained above 200mg/dl and platelet count above 50,000 in a bleeding patient. Hypotensive resuscitation, also called permissive hypotension, consists of restricting crystalloid resuscitation during the early stages of a hemorrhagic shock to maintain lower than normal systolic pressure. Damage control resuscitation involves a series of interventions to control hemorrhage and prevent the onset of the lethal of triad of coagulopathy, acidosis, and hypothermia. Damage control surgery in indicated if the lethal triad develops . Abdominal packing is the primary method of DCS and is indicated for control of non arterial bleeding in women who will not withstand prolonged surgical intervention. It should be undertaken in higher centre with appropriate expertise. Appropriate and timely resuscitation and control of bleeding is key to improved survival in women with postpartum hemorrhage.

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Communication Skills – Perfecting the Art

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The rising trend of litigation in the medical field is a great source of concern for the medical fraternity and more so for the practicing gynecologist as the maximum number of medico-legal cases are against the obstetrician.

There is a growing understanding that Good Communication skills can prevent litigation considerably, therefore it is important to perfect the art of communication along with perfecting one's medical knowledge & surgical skills.

It is rightly said that the more time you spend talking with the patient in the Out-Patient Department (OPD), the lesser are the chances of you being in the court room!

Apart from reducing risk of litigation,

Good Communication also helps in

A) Improving accuracy of diagnosis

b) Compliance with treatment

c) Improving Clinical Outcome

d) Promoting Patient trust & Satisfaction

e) Clinician Satisfaction

Many Clinicians feel that communication skills cannot be learned if you are not gifted with such skills but that is not true. It can be taught & learnt.

It is important to understand, that while the word **Information** is giving out, **Communication** means getting through.

There are some general guidelines on Communication skills.

1. Greet

Greet the patient by her name, it adds a personal touch & sees her as an individual & not as a "case". Never address her by a token number or case file number.

2. Define the Purpose of the Encounter

Always start with an agenda, for example "your referral doctor has written that you have heavy periods, is that your main complaint?"

Tell her your purpose is to take details of her symptoms, perform an examination, arrange appointment, tests & discuss possible management options. This helps the patient to relax and understand things better.

3. Let the Patient talk

"Tell me what is troubling you?

The aim is to give the patient at least 90 seconds to put forward her complaints. While talking if the patient diverts and starts discussing irrelevant issues, gently bring her back to the main complaint.

4. Listen

This is most important & yet difficult to master! It is important to get the message across that you are there to listen to her and help her.

This can be done by paying attention and not interrupting, echoing and by appropriate non-verbal language like maintaining eye contact & good body posture.

5. Question & Discuss

While talking to the patient & then listening to her complaints it is important to guide, quiz, redirect and focus on the main complaint.

For example if there is a complaint of heavy menstrual bleeding it is appropriate to discuss pad count, frequency etc., and focus on the main complaint.

6. Providing Information & Sharing Decision Making Ask, Tell, Ask (Ata)

The educational sandwich of ATA is important. For example if patient has heavy periods and ultrasound has revealed a large ovarian cyst, it is imperative to ask the patient what conclusion has she drawn? Very often patients come out with what is bothering them the most, for

example they may be frightened by the ovarian cyst & think it is cancer. After asking her what her opinion is, as her doctor you must then tell her that in 90% of the cases it's benign and not cancer. Explain the management and dispel her doubts. Finally ask her again what she has understood so that when she goes home she can convey the proposed line of treatment to her family members.

ATA helps in providing information & sharing decision making.

Identifying 5 Kinds of Patients

A. Some patients are balanced, educated & intelligent. It is easy to discuss line of treatment, procedures and risk factors. Fortunately the majority of our patients fall in this category.

B. Some patients will listen to only what they have in mind.

They have some preconceived notions and beliefs and we have to show them the opposite side to break this idea or belief.

For example:-

A patient of Abnormal Uterine Bleeding (AUB) who is afraid of endometrial cancer. No matter what you tell her she is convinced that eventually the problem of AUB will lead to cancer. It is important to break this belief by giving statistics on sharing outcomes of patients with similar complaint treated by you so that the patient is convinced, that it is most likely not Cancer.

C. Some patients are irritating. They ask the same questions again and again.

"Doctor, can I eat Brinjal?

You say "Yes! You can eat anything".

They again ask "can I eat spinach "?

And so on and so forth.

It is important to make them write and tick mark the answers to the questions they ask so that they are aware that they are repeating things.

At the same time make them laugh and also make them understand they should not keep repeating the same questions.

D. Some patients have full faith in you. They put you on a pedestal and say that you are God to them. Beware of such patients and do not get flattered. Make them understand that you are **NOT** God but will give them the best service only.

E. Some patients either do not understand what you are really saying or they **DO NOT WANT** to Understand. Despite explaining to them the risks of a planned high risk surgery they keep saying "Doctor, you have to emerge victorious, we know nothing will happen."

Be reluctant to take these patients, be ready to refer them for second opinion. Don't be enthusiastic to take them & don't gloss over the risks or say that all the complications can be handled in your centre.

Dealing with Difficult Communication Situations

There are some different communication situations which every gynaecologist faces and it can be very stressful tackling these issues. However, there are some communication tips which can help you tackle these situations.

1. Breaking Bad News:-

Firstly prepare yourself. Take a stock of the situation and decide what you are going to say by getting all the facts.

Second - Give a warning note (or two)

Third - After the warning note, play it straight. Use non-technical language & break the bad news.

Fourth - Be responsive & repeat as often as necessary so that the communication is understood clearly.

Fifth - Give (appropriate) hope. Before breaking the bad news it is important to have the facts to hand. Observe & acknowledge the patients' emotional reactions.

Check patients' understanding of what you are saying.

2. The Angry Patient or Relative

The aim to deal with this difficult situation is to resolve the conflict positively.

Firstly- listen to the angry patient "get curious, not furious". Find out exactly what has made her angry.

Secondly - Empathize and deal with the

emotions

Thirdly - Take an action (if appropriate)

All these apply as long as the patient is angry but not abusive.

With a physically abusive patient, remove yourself from the scene and Call for Help.

3. Disagreement Between Patient and Doctor.

This can happen especially in the kind of treatment planned by the doctor or procedure to which the patient may not agree to. The way to deal with this difficult situation is to:

Firstly - Challenge gently but firmly

Secondly- Negotiate but avoid coercion

Thirdly - Compromise if appropriate. This can be done keeping in mind that the change in treatment/ medication should not cause any harm to the patient.

Lastly always advise the patient to take a second option when she doubts your line of treatment/ procedure.

4. Disclosing Medical Errors and Complications

Honest approach is the best way when such events occur.

Firstly- prepare yourself

Secondly- prepare the patient by giving the warning notes

Thirdly- Communicate the error

Fourthly- Apologize, if that is the correct response

And finally, give evidence that you are taking steps to remedy it.

Good Communication is a reflection of good human nature.

The 7 C's of Communication are:

Conciseness, Correctness, Concreteness, Clarity, Completeness, Consideration and Courtesy.

While the ABC of good practice is **Appearance** and **Availability, Behaviour** and **Capability or Competence,** it is true that the most important **"C**" is **COMMUNICATION.**

Events held in November 2022

S. No.	Date	Events
1	28.10.2022	AOGD Monthly clinical meeting at PGIMSR & ESI Hospital
2	09.11.2022	Preconference AOGD Workshop on "Basic ultrasound skills for Obstetricians" by Fetal Medicine & Genetics Sub-Committee
3	09.11.2022	Preconference AOGD Workshop on "A to Z of PPH" by DDU Hospital Maulana Azad Medical College & LNH
4	09.11.2022	Preconference AOGD Workshop on "Revise the Basics, Enhance the Skills. Cervical Cancer - Prevention and Screening " byBreast and Cervical Cancer Awareness, Screening & Prevention Sub-Committee
5	10.11.2022	Preconference AOGD Workshop on "Gynae Endoscopy: Rejuvenating Young Minds" by Endoscopy Sub-committee &All India Institute of Medical Sciences
6	10.11.2022	Preconference AOGD Workshop on "Optimizing emergency obstetric care. Point of care'- (POC) assessment and intervention" by LHMC & SSK Hospital
7	10.11.2022	Preconference AOGD Workshop on "Learn IUI. Trouble shooting and new regulations" Infertility Sub-Committee
8	11.11.2022	Preconference AOGD Workshop on "Maternal Resuscitation" by Multidisciplinary Sub-Committee and GTB Hospital
9	11.11.2022	Preconference AOGD Workshop on "Demystifying Ovary" by Max Super-specialty, Group of Hospitals
10	11.11.2022	Preconference AOGD Workshop on "Anorectal Disorders: A Primer for the Gynaecologist" by Uro-gynaecology Sub-Committee
11	11.11.2022	Preconference AOGD Workshop on "Gynae Onco-surgery" by VMMC & SJH
12	12th&13th NOV 2022	44th **ANNUAL AOGD CONFERENCE** by MAMC & Lok Nayak Hospital
13	21.11.2022	PG Forum on "AUB Reproductive age Group" by PGIMSR & ESI Hospital
14	25.11.2022	AOGD Monthly clinical meeting at VMMC & Safdarjung Hospital

December Events

S. No	Date	Events
1	02.12.2022	Webinar on "Hypergycaemia in pregnancy" by AOGD Safe motherhood committeee
2	03.12.2022	CME on "Practical approach to Gynaecological conditions" by AOGD
3	18.12.2022	Public forum on Creating awareness and promoting health "BADLAAV" by Public awareness committee FOGSI
4	30.12.2022	AOGD Monthly clinical meeting at Sir Gangaram Hospital
5	.2022	PG forum
6	.2022	sub-committee
7	30.12.2022	AOGD Monthly clinical meeting at Sir Ganga RamHospital, Delhi

Cross Word Puzzle

Reena Rani, Mangla Sharma
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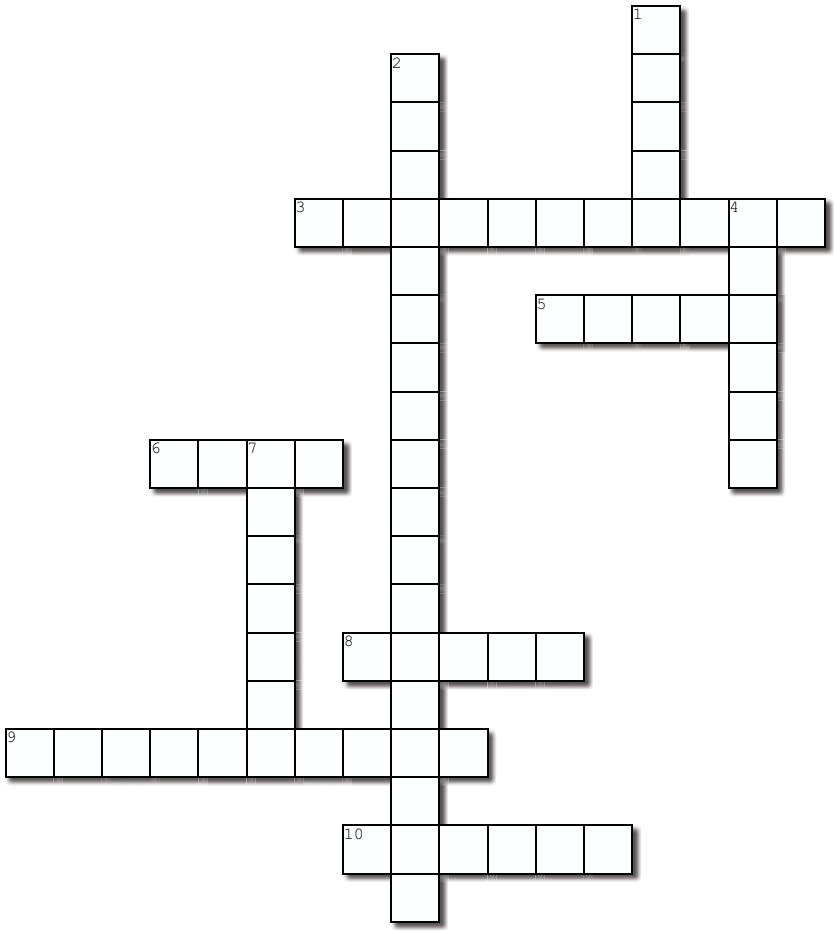

Created using the Crossword Maker on TheTeachersCorner.net

Across

3. ….. is indicative of the degree of hypovolemia in postpartum haemorrhage
5. Dose modification of injection Tranexamic acid is required in ..... compromise
6. Recommended by WHO for transportation of patient with PPH
8. Half life of injection carbetocin is around….minutes
9. first coagulation factor to be diminished in PPH
10. Trial which determined the effectiveness of transfusion of blood products in 1:1:1 ratio in severe hemorrhage

Down

1. Trial which validated use of tranexamic acid in PPH
2. Point of care testing for hemostatic impairment and coagulopathy in PPH
4. Uterine balloon tamponade which comes with pre-assembled tubing and fluid bag besides balloon catheter
7. Sequelae of PPH which results in lactation failure

Mail the answers to aogdeditor22@gmail.com. The correct answers and names of the three winners will be announced in the next issue.

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Proceedings of the AOGD monthly clinical meeting at VMMC & Safdarjung Hospital on 25.11.2022

Focal Atrial Tachycardia in Pregnancy

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Supraventricular tachycardia are the most common cardiac rhythm abnormalities in pregnancy with an estimated frequency of 22 per 1,00,000.

Case: A 23year old woman G4A3 at 30weeks gestation was referred with chief complaint of palpitations and shortness of breath on mild exertion since 4-5 days. Her 2D Echo showed severe Tricuspid Regurgitation with mild Mitral Regurgitation with normal ejection fraction. She had been started on Tab. Metoprolol 25mg twice a day.

On admission, her pulse rate was 120/min, irregularly irregular and respiratory rate was 24/min. Rest of her vitals were stable. On per abdominal examination, fundal height corresponded to 30weeks, cephalic presentation and Fetal heart sound was regular. Cardiology opinion was sought and dose of Metoprolol was increased to 50mg twice daily dosing. She had 2 syncopal episodes in ward and her heart rate resisted between 140-164beats per minute. Patient was shifted to Obstetric CCU. Her ECG was done which was suggestive of Focal Atrial Tachycardia. Patient was shifted to Cardiac CCU for emergency pharmacological cardioversion. She received Inj. Adenosine 6mg followed by 12mg after 15min interval. Heart rate transiently responded but again increased to 144/min. Her heart rate finally responded to diltiazem, whose dose was titrated upto 90mg thrice daily along with Metoprolol 100mg twice daily dosing.

Patient had no relief in palpitations and chest pain. She was given the option of starting Flecainide (class IIIc anti-arrhythmic) Vs catheter ablation of ectopic focus under minimal fluoroscopy. As the facility for catheter ablation under minimal fluoroscopy was not available at our centre, patient opted for Tab. Flecainide , which was started at 50mg twice daily dosing. Despite being on 3 anti-arrhythmic drugs, her heart rate persisted between 140-160/min. After thorough counselling with the patient, she was taken up for LSCS after steroid cover. She delivered a healthy baby boy of 2kg.

In post-operative period, her heart rate continued to remain >=140/min, irregularly irregular, despite 3 anti-arrhythmics. She was planned for catheter ablation. However, after 72hours, her heart rate settled down to 86-92/min. Flecainide was stopped on 3rd post-operative day. Both mother and baby were discharged in good condition on postoperative day8.

Followup ECG done after a week showed resolution of Focal Atrial Tachycardia. Dose of metoprolol and diltiazem was titrated down and eventually stopped.

Tachyarrhythmias in pregnancy are hypothesized to be due to increased sympathetic activity. The increase in plasma volume and heart rate leads to stretching of atrial and ventricular myocytes leading to activation of ion channels, resulting in arrhythmogenesis. Focal Atrial Tachycardia accounts for 5-15% of Supraventricular tachycardia. It can be associated with tachycardia induced cardiomyopathy. Usually, it does not respond well to pharmacotherapy and in most cases resolves after delivery. Treatment of choice is catheter ablation of ectopic focus under minimal/zero fluoroscopy. At centres where this is facility is not available, flecainide is a reasonable therapeutic option after proper counselling.

Congenital pulmonary airway malformation (CPAM)- A Rare Entity

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Introduction: It is a rare pulmonary developmental hamartmatous abnormality comprised of adenomatoid proliferation of bronchioles lined by respiratory epithelium that form cysts at the expense of normal alveoli.

They have a normal communication with the tracheobronchial tree, vascular supply & venous drainage is to pulmonary circulation. They are of five types amongst them Type 1 (Macrocystic >10 mm) is most common with good prognosis, Type 2(micro-cystic) is of size 2-10mm, originates from bronchiole and Type 3 is Adenomatoid, originates from alveoli. They comprise 25% of all congenital lung masses, 1 in 25000 live births,>95% are limited to 1 lobe or segment, 2-3% are bilateral.

Cases Amongst a total of 10 cases which were followed up and managed in a span of 2 years in our institute five were Type I, four were Type 2 were four and one was Type 3. We discussed 3 cases.

Case 1: 25yr Primigravida @ 25wks Pog presented with level II ultrasound(usg) depicting a CPAM of size 1*1 cm in left upper lung. CVR (cpam volume ratio – which is a prognostication marker and value <1.6 is favourable prognosis) was calculated by measuring the head circumference and CPAM volume. Transplacental antenatal steroids was administered. She had a spontaneous preterm breech delivery. In post natal follow up at 3rd and 6th month by CECT and CXR of the neonate the cyst size has increased, hence is planned for cyst excision.

Case 2: 28yr, G2P1L1 at 20 wks presented with CPAM (Type 3) with adenomatoid elements of size 0.52*1.78*2.76 cm in the posterior lobe and to the left of the heart. The heart was displaced to the right. CVR was 0.4 and USG follow up was done monthly, antenatal steroids was administered. She delivered at term at which time the CPAM had resolved and baby is currently following up in pediatric surgery and doing well.

Case 3: 19 yr Primigravida @24wk POG presented with level 2 usg depicting cystic lesion of size 4.4*3.8cm in the right side of thoracic cavity s/o macrocystic CPAM. CVR was 1.16, antenatal steroids were administered however fetus developed signs of hydrops and usg guided cyst aspiration was done twice. Due to ban on import licence of shunts it could not be placed. She delivered at term and postnatal CECT chest revealed ground glass opacities in the neonate's chest. Cyst excision was done by right poster lateral thoracotomy however unfortunately baby expired on postoperative D15 due to sepsis.

Case 4: 23yr, Primigravida presented @ 24 weeks usg depicting Type 2 CPAM which was multi cystic and located inferior and posterior to the heart. CVR was 1.13 and mother was lost to follow up. She came at term in labour and had an uneventful delivery. Baby is asymptomatic and, following up in pediatric surgery with CXR and CECT.

Conclusion: Prenatal diagnosis of CPAM and follow up by usg should be done by calculating CVR. Genetic association has not been seen in these cases. Antenatal management by steroid administration and thoracocentesis/ shunt placement (in case of hydrops)can be done especially of macro cystic variety. Laser ablation can be done in microcytic type. Post natal observation by CXR and CECT and surgical resection provides good long term outcome.

Dengue in Pregnancy: Life threatening situations

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Vardhman Mahavir Medical College, Safdarjung Hospital

An Arbovirus of Flaviviridae family causes dengue. The vectors for this virus are Aedes Aegypti and Aedes Albopictus.As per WHO estimate 100 million infections occur every year with around 500,000 DHF(Dengue Hemorrhagic fever) cases with almost 22000 deaths annually. Early detection and access to proper medical care reduces fatality from 20% to below 1%. A/W poor fetal and maternal outcomes.

With regards to Dengue in pregnancy, risk of DSS (Dengue Shock Syndrome) is higher in pregnancy. Its vertical transmission is well established. There is high chances of complications like PPH, premature labour, severe oligohydramnios and stillbirth. This condition poses a challenge in both diagnosis and management. Normal physiological changes of pregnancy like Increased blood volume with generalised vasodilatation; increased heart rate and falling hematocrit resemble signs of severe dengue, thus delaying recognition of severe illness. Moreover, common Obstetrics problems cause haematological and hepatic changes thereby masking the disease. The

D/D include severe pre- eclampsia, HELLP, DIC and Acute Fatty Liver of pregnancy. The Fluid management, decision of blood and blood products transfusion, decision of termination of pregnancy, managing inevitable delivery during critical phase are important of consideration while managing such cases.

Five cases of dengue in pregnancy were discussed. All the cases presented in the critical phase of dengue. None of them presented with fever, most gave history of fever few days back. One patient presented just with ARDS. Two patients had severe Preeclampsia posing a diagnostic dilemma. All required surgical intervention. All were diagnosed as dengue in post-op. All five of the cases had severe thrombocytopenia.

Pregnancy is a high risk factor. Patients with dengue in pregnancy must be admitted. Dengue is suspected if there is leukopenia along with fever. Do tourniquet test (febrile phase). The pulse pressure < 20 mm Hg and capillary refill time > 2 seconds indicates shock. Avoid any surgical intervention during critical phase. If delivery is inevitable, keep Platelet levels above 50,000/mm3and establish hemostasis.

Dengue in pregnancy is a serious viral infection with significant maternal and fetal effects. An overlap of signs and symptoms of Preeclampsia and dengue, make the diagnosis clinically challenging. Delivery does not improve the condition and should not be done until blood parameters normalize and patient recovers.

Events held under Aegis of AOGD in November 2022

AOGD Monthly Clinical Meeting on 28th October 2022
PGIMSR & ESI Hospital

AOGD preconference workshop on "Basic ultrasound skills for Obstetricians"
9th Nov by Fetal Medicine & Genetics Sub-Committee

Workshop on "A to Z of PPH" on 9th Nov
DDU Hospital Maulana Azad Medical College & LNH

Workshop on "Revise the Basics, Enhance the Skills. Cervical Cancer – Prevention and Screening" by Breast and Cervical Cancer Awareness, Screening & Prevention Sub-Committee

Workshop on "Gynae Endoscopy: Rejuvenating Young Minds" on 10th Nov
Endoscopy Sub-committee by All India Institute of Medical Sciences

Learn IUI. Trouble shooting and new regulations on 10th Nov by Infertility Sub-Committee

Workshop on "Optimizing emergency obstetric care. Point of care'- (POC) assessment and intervention" on 10th Nov by LHMC & SSK Hospital

Workshop on "Maternal Resuscitation" on 11th Nov
Multidisciplinary Sub- Committee

Workshop on "Demystifying Ovary "on 11th Nov
Max Super-speciality ,Group of Hospitals

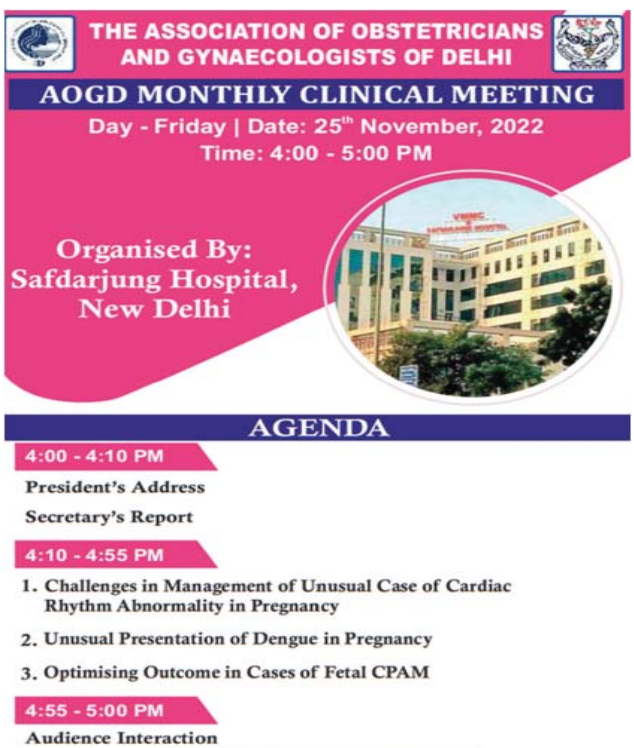
Workshop on "Gynae Onco-surgery "on 11th Nov
VMMC & SJH

Workshop on "Anorectal Disorders: A Primer for the Gynaecologist"
Uro-gynaecology Sub-Committee

44th AOGD Annual conference on 12th & 13th Nov
MAMC & LNH (Free Communication)

44th AOGD Annual conference on 12th & 13th November
MAMC & LNH

PG Forum on "AUB Reproductive age Group"
on 21st Nov PGIMSR & ESI Hospital



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Source:

1. Dugoff L, Norton ME, Kuller JA. The use of chromosomal microarray for prenatal diagnosis. J Obstet Gynecol 2016;215(04):B2-B9
2. Microarrays and Next-Generation Sequencing Technology: The use of Advanced Genetic Diagnostic Tools in Obstetrics and Gynecology. Obstet Gynecol 2016;128(06):262-268
3. N Engl J Med. 2012 December 6; 367(23): 2175–2184. doi:10.1056/NEJMoa1203382.

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