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AN OBSERVATIONAL STUDY OF OUTCOMES FOLLOWING USE OF INTRAUTERINE BALLOON TAMPONADE IN POSTPARTUM HAEMORRHAGE.

Gynecology

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ABSTRACT

As we know, the post partum haemorrhoge is still now, one of the the most common killers of our mothers. To fight this dreadful condition, by conservative measures, we use uterotonics and blood products. But off and on, surgical intervention is required ultimately to save the mother's life and we often have to sacrifice the uterus. Here, in our study, we tried to place the mechanical gadget, the uterine balloon tamponade (UBT) in between the uterotonics and the surgery, which was a trial to stop the bleeding without surgical intervention.

MATERIALS AND METHOD : This study was done for 1 year from 1st January,2018 to 31st December,2018 at a tertiary care hospital in South Bengal. The number of cases observed was 60. The Intrauterine Balloon Tamponades were made before hand & preserved in Labour-Room Set-up, to use those as early as possible in post-partum haemorrhage, when diagnosed, or quickly prepared at times, by the skilled attendants facing this disastrous situation.

STUDY DESIGN : A Cross-Sectional study.

RESULT : Total 60 cases of severe type of PPH were included in the study and observed. Uterotonics-only,> failed to control the severe PPH in 70% cases. Uterotonics and UBT, when used side-by-side, succeeded to stop the bleeding in every cases, that means, none of the cases required surgery. In third group (28 cases), where, only uterotonics failed to stop PPH and UBT tried as a rescue, along with the medicines, in 82.14% cases> haemorrhage was controlled but 17.86% required surgical intervention.

CONCLUSION : Our study, once again, established the effectiveness of Intrauterine Balloon Tamponade, applied in time, to control the postpartum haemorrhage, which is the second commonest cause of Maternal Mortality. And, as our modified Foley-Condom Balloon Tamponades were of low-cost devices, this study can boost and at the same time can help our resource- poor health-care centres, having only the preparedness and the minimum skill for application of this low-economic gadget , without wasting the" Golden Time" in the treatment of Post-Partum Haemorrhage.

KEYWORDS

Post-Partum Haemorrhage (PPH), Maternal Mortality, Uterotonics, Uterine Balloon Tamponade (UBT), Surgical intervention.

BACKGROUND

We are well acquainted with the working quantitative definition of post partum hemorrhage, and that is the amount of blood loss in excess of, more or less, 500ml following Vaginal delivery and 1000 ml following Caesarian section, and or, any amount of blood loss, adversely affecting the general condition of the patient. Still now the postpartum hemorrhage is the second leading single cause of maternal mortality, ranking behind preeclampsia- eclampsia[6,7].In fact, PPH is the quickest of maternal killers. It can kill even a healthy woman within 2 hrs. if not treated. To fight this 'can become grave' condition, uterotonics, blood transfusion and prompt and adequate management, in the first step, help the mother to come out of danger. But still there are conditions, where we face intractable bleeding, calling surgical intervention which may even end in hysterectomy. Between medical and surgical management of post partum hemorrhage, there is a path of using mechanical device to stop the severe bleeding. And that is the Intrauterine Balloon Tamponade and the Uterine- packing, judiciously used, both following Vaginal delivery (to avoid surgical intervention) and sometimes even in caesarian scenario, where we could save the uterus at least[8,16]. Thus the uterine balloon tamponade (UBT) becomes popular. There are many type of devices, such as a Foley Catheter; a Condom Catheter; the Sengstaken Blackmore Esophageal tube; the Rusch Balloon; the Bakri uterine Balloon[10].A systematic review of treatment options for PPH, using balloon tamponade found the success rate over 84%, which did not significantly vary from surgical treatment outcomes except the hysterectomy part. Based on the findings, conclusion was drawn as UBT should be considered as prior step of surgical intervention for intractable PPH. The World Health Organization, International Federation of Gynaecology and Obstetrics, The American College of Obstetricians and Gynecologists, The Royal College of Obstetricians and Gynecologists and the International confederation of Midwives recognize UBT as a method that could significantly improve the management of intractable PPH, specially in low-resource areas, where blood transfusion facilities are not available and surgical intervention are not the possible option[1,8,13]. In 2012, WHO updated the "Guidelines for the management of Postpartum Hemorrhage and Retained Placenta", to state : "the use of intrauterine balloon tamponade is recommended for the treatment of PPH due to uterine atony". This recommendation is now stronger than the previous guidelines. Furthermore FIGO included UBT as a recommended second line intervention for the treatment of PPH in their updated guideline, issued in 2012[6,11].

Thus in our study, we took the opportunity of UBT in case of PPH, not responding to uterotonics[13,15], excluding mainly the traumatic causes and RPOC. Prior to start this study, Our team did a solid home-work to note the every aspect of many types of UBT. The Foley Catheter, the economic one, when used as balloon tamponade, > it proved less adequate to obliterate the gravid uterine cavity satisfactorily and thus could not stop the bleeding as a whole.We tried multiple Foley catheters at a time, inflating the balloons one by one after introduction in utero. Some times we succeeded to stop the bleeding, but many a times we faced the failure for the ill adaptive character of multiple inflated balloons. A Condom Catheter was a better option than the Foley and cheap also. But the residual blood seepage could not be assessed always, which accumulated proximally and increased the symphysio-fundal height of uterus due to concealed character of hemorrhage. The Sengstaken Black- more Esophageal tube, the Bakri Uterine Balloon are costly. The Rusch Balloon is also costly and is not available in our set up. We searched the economic one and at that same time the convenient one to use, when we found the C.G. Balloon Tamponade used by Dr. Nalini Sharma of Chattishgarh. We just modify her C.G. Balloon only by fixing the proximal end attachment of condom with the cut Foley's catheter tip above the upper ring attachment, so that removal of the UBT can be done easily and safely.

OBJECTIVES :-

1) To control the Postpartum Hemorrhage when 1st line uterotonics fail.
2) To avoid Surgical intervention for PPH
3) To establish an effective, as well as an economic way to reduce morbidity and mortality of our mothers having PPH.
4) To observe the efficacy of Foley-Condom Balloon Tamponade to control PPH.

INCLUSION CRITERIA :-

- Woman had PPH following vaginal & Caeserian delivery.

EXCLUSION CRITERIA :-
- Traumatic PPH
- Retained products of conception (RPOC)
- Secondary PPH
- Chorioamnionitis

STUDY DESIGN :- Cross-Sectional Study.

MATERIALS & METHOD

This study was done at CALCUTTA NATIONAL MEDICAL COLLEGE and HOSPITAL, SOUTH BENGAL from 1st January,2018 to 31st December,2018. Sixty cases of postpartum haemorrhage were included in this study, maintaining the exclusion criteria, on our admission dates, due to convenience.

Tools used:
1) 22 Fz Foley Catheter and Urobag;
2) A Condom;
3) Scissors;
4) 10 ml & 50 ml Syringe;
5) Normal Saline.

PREPARATION OF FOLEY'S – CONDOM BALLOON TAMPONADE

First, air was introduced in sterile Foley Catheter bulb to inflate it, - excision of the bulb done by scissors, so that bulb opening can be used to inflate the condom covering. – The condom was then unfolded over one third of the proximal end of the catheter – 2 rings of 1 – 2 cm width were cut from the distal end of that Foley Catheter – By encircling the rings, one above and one below, the condom was secured over the catheter – Tip of the Foley Catheter along with upper end of condom above the upper ring excised together – Then the proximal upper ring stitched with the catheter and the condom above the tie, ensuring the patency of the catheter. Lastly, the whole device was checked for inflated condom balloon and no leakage . The ready to use "Foley-condom Balloon Catheter" kept deeped into antiseptic solution for a fixed time and preserved sterile for the necessity or when the mother found having severe PPH, uterotonics were started first and during fresh preparation of this Foley – condom Balloon Catheter, bimanual compression of the uterus maintained to buy the time and to minimize the blood loss – The ready to use Balloon tamponade then introduced inside the uterine cavity with the help of sponge – holding forceps and Balloon was inflated with NS with average of around 500ml. Vagina was packed with sterile gauze > and distal end of the Foley Catheter connected to an urobag lastly, to collect the blood seeped out from the uterine cavity. Balloon tamponade now left in situ for at least 12-24 hrs and deflated gradually over 15 min during removal. For this study, we first trained ourselves for preparing the Foley-Condom Intrauterine Balloon Tamponade in a very short time. Where severe PPH cases were encountered, our assigned team tried to reach there promptly. Evaluation of the case done quickly to take the decision of UBT introduction. And the process started to be effective as early as possible.

OUR PRIMARY END POINT-
- Arrest of blood loss after tamponade application or Surgical intervention.
- Follow up monitoring through out the hospital stay.

RESULT :

Table 1 Causes of Post partum Haemerrhoge :
The 4 Ts :

Tone	Atonic Uterus
Trauma	Laceration, Haematomas, Rupture Uterus, Inversion of uterus
Tissue	RPOC
Thrombosis	Coagulopathies

Here in our study, for UBT, traumatic causes &RPOC are excluded.

Table 2 Causes of severe PPH encountered in our study (maintaining the inclusion criteria)
N = 60

Causes of PPH	No of Cases	%
• Placenta Previa	19	31.66%
• Atonic Uterus (undetermined cause)	11	18.33%
• Coagulopathies in :-		
Abruptio Placentae	9	15%
HELLP Syndrom	7	11.66%
IUFD	1	1.66%
• Grand Multiparity	6	10%
• Multifetal Pregnancy	3	5%
• Hydramnios	3	5%
• Big baby 4	1	1.66%
Total :	**60**	

Table 3 Modalities taken for controlling severe PPH cases & their outcomes:

Measures taken	No of Patients	PPH controlled	PPH not controlled
• Medicines only (Uterotonics) • (Oxytocin, Ergometrin, Prostaglandin)	40	12 (30%)	28 (70%)
• Uterotonics + UBT from the beginning	20	20 (100%)	0
• Uterotonics + UBT in failed-Uterotonics- only cases	28	23 (82.14%)	5 (17.86%)

Table 4 Surgical intervention required :

Measures Taken	No. of Patient required Surgery
Uterotonics + UBT from the beginning (n = 20)	0 (0%)
Uterotonics + UBT following Medicine- only- failed cases (n = 28)	5 (17.86%)

DISCUSSION

This study is cross-sectional typed one. Sixty patients were included, into the study, who had severe postpartum haemorrhage. Cases were recorded on our admission days mainly, in the department of Obstetrics and Gynaecology at Calcutta National Medical College and Hospital. The target of the study was to evaluate the effectiveness of Foley-Condom Intrauterine Balloon Tamponade in severe postpartum haemorrhage cases. In our study, most common causes of severe PPH were Placenta Previa (31.66%)[2]. Uterine Atony of idiopathic cause stood in the second commonest position (18.33%). Increased incidence of Placenta Previa causing severe PPH may be due to, we were dealing with increased incidence of Post Caeserian Pregnancies. Among coagulopathies, Abruptio Placentae cases were in front line.Whenever mother found having PPH, uterotonics started first with the hope of bleeding will get controlled. But with only uterotonics, success achieved in 30% cases(12 out of 40). Whereas, uterotonics, when used along with UBT simultaneously, from the beginning, because of alarming severe postpartum haemorrhage > success rate was surprisingly 100%. When UBT tried later in uterotonic-failed cases, bleeding was controlled in 82.14% cases (23 out of 28), and in 17.86% cases, surgical intervention was the only option to save the mother. In this study, when bleeding continued for 15 minutes observation following tamponade application,- interpretation was a failure of UBT. Here, out of 28 cases, 5 were stamped as failure of UBT. 2 cases were due to faulty catheter placement, when severity of bleeding, promptly changed the decision of continuation of Uterotonic-UBT regime towards the Surgery, to prevent maternal death. 3 cases also required Surgical intervention because delay in Tamponade application when DIC was already supervened.

CONCLUSION

This is just a repetition that PPH is one of the most common causes of Maternal Mortality. To fight this dreadful condition, still now the first option is the Uterotonics. The mechanical gadget, like UBT can stand between the medicine and surgery. The use of Foley-Condom-Balloon Tamponade is a low-priced device. Because of widely available Condoms are used here, as well as, preparation of this type of UBT can be taught to the health-care -providers at the point of care at peripheral low-resource health centres[1,8,14], where at one hand, surgical approach is not always available, and on the other hand, to send the patient having PPH to the referral centre means to waste the "Golden-Time" of management,-- the fascility of using UBT at peripheral centres can be thought off seriously obviously by the Skilled Attendants. It is rightly

said that, the UBT is not only life-saving, but it could practically reduce the costs of- unnecessary transfer, surgery and supportive care[1,8].

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