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Research Article

MANAGEMENT OF ATONIC POST PARTUM HEMORRHAGE

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ABSTRACT
Postpartum hemorrhage is a leading cause of maternal morbidity and mortality worldwide. The incidence of PPH is between 4 to 6 % when blood loss is estimated subjectively and increases to 10% when objective estimates are used. Aims and objectives were 1) To determine the incidence of atonic PPH 2) To determine risk factors of atonic PPH 3) Evaluate role of obstetrician in preventing atonic PPH and obstretic hysterectomy 4) Study current protocol in management of atonic PPH**.** 13,650 patients were delivered in Vadilal Sarabhai Hospital from 15 april 2010 to 15 December 2012, out of which 200 had Atonic PPH. Out of 200 patients Maximum occurance of atonic PPH was found in 23 years of age groups, 38% in primigravida, 34% patients had history of previous cesarean section, more in patients with obstetric complication like antepartum haemorrhage, PIH, twins, polyhydramnios, IUD, malpresentation etc. Suscess rate of stepwise devascularization is 78.15%, out of which of bilateral uterine artery ligation is 77.31%, and of uterine compression suture is 88.46%, out of which success rate of CHO is 90.90% and success rate of B-Lynch is 75%, Incidence of obstetric hysterectomy and maternal mortality due to atonic PPH is 1.5%. Though hysterectomy is the definitive treatment in women with severe atonic PPH, in patients who desire future fertility, medical management, mechanical methods and surgical procedures like uterine artery ligation, uterine compression sutures are effective weapons.

Keywords: *Atonic Post Partum Hemorrhage, Uterine Artery Ligation, Uterine Compression Sutures*

INTRODUCTION
Taj Mahal – One of the Seven Wonders of the World, one of the greatest monuments, dedicated to the memory of "Queen Mumtaz" by her husband "Emperor Sahajahan", is a testimony and a grim reminder of the tragedy of maternal mortality due to bleeding during child birth, that can befall any women in childbirth (Parihar, 2007).

Postpartum hemorrhage is a leading cause of maternal morbidity and mortality worldwide. It results in the death of 1,40,000 women annually, with the evidence of substandard care in most cases. The incidence of PPH is between 4 to 6 % when blood loss is estimated subjectively and increases to 10% when objective estimates are used. One of the Millennium Development Goal set by the United Nations in 2000 is to reduce maternal mortality by three- quarters by 2015. If this is to be achieved maternal deaths related to postpartum hemorrhage must be significantly reduced.

Postpartum hemorrhage (WHO – 1990) is defined as the loss of more than 500 ml of blood from the genital tract at vaginal delivery, 1000 ml at cesarean section or 1500 ml at cesarean hysterectomy (Mishra, 2006). ACOG has suggested a clinically more relevant definition of PPH may be hematocrit drop by 10% or haemorrhage that requires immediate transfusion (Washington, 1989). The rate of PPH increased from 1.5% in 1999 to 4.1% in 2009, and the rate of atonic PPH rise from 1% in 1999 to 3.4% in 2009. It is due to increased maternal age at child birth, cesarean deliveries, multiple pregnancies, induced labours in primipara, syntocinon augmentation, environmental contaminants, toxins. Major advances in the care of women with postpartum hemorrhage have been reported since the mid 1980, taken together they provide many new possibilities for reducing mortality and morbidity. ***Incidence***: 3.9% with vaginal deliveries, 6.4% with cesarean deliveries, In order to reduce the maternal mortality ratio dramatically, all women must have access to high quality care at delivery. That care has three key elements-

1. A skilled attendant at delivery
2. Access to emergency obstetric care

3. A functional referral system

Once complication occurs, the key to save a women's life is to provide her adequate care in time. Several therapeutic measures are described recently with the twin objectives of saving the women's life and preserving her uterus for future pregnancies.

MATERIALS AND METHODS

This study includes 200 patients who developed atonic post partum haemorrhage following their delivery at Vadilal Sarabhai Hospital from 15 april 2010 to 15 December 2012 out of 13,650 total deliveries. Detailed history and examination findings were noted in order to find out the possible cause of atonic PPH. Blood loss was assessed on the basis of measurement from the basins, linens, mops and sponges and fixed size gauze pads of size 10 x 10 having capacity of 30 ml. The data collected was analyzed systematically, tabulations were made and observations compared with series present by various foreign and Indian authors. Management done in systemic manner first medical management done, followed by mechanical methods like uterine compression, uterine packing, bakri balloon, followed by surgical methods like uterine artery ligation, ovarian artery ligation, CHO or B – Lynch compression sutures, and finally obstetric hysterectomy tried.

RESULTS AND DISCUSSION

Results

Total 13,650 patients were delivered in Vadilal Sarabhai Hospital from 15 April 2010 to 15 December 2012, out of which 200 had Atonic PPH with incidence of 1.46% compared to Callaghan *et al.,* (2010) which had 2.4%. Increased incidence of atonic PPH now a days due to increased maternal age at child birth, cesarean deliveries, multiple pregnancies, induced labours in primipara, Oxytocin augmentation. Present study showed that occurance of atonic PPH is maximum 70% in emergency cases which corresponds to Halder *et al.,* (2008), which had 80%. Atonic PPH is lower in registered patients as they have benefits of antenatal care, diagnosis and management of high risk pregnancy and mode of delivery is pre-planned. In present study atonic PPH is most common in age group 21 to 25 years (Mean 23 years) because this is age of maximum fertility. In Kaul *et al.,* (2006) study maximum atonic PPH at 22 years of age.

Present study shows that the occurrence of PPH is high in primipara 35% compared to second para which had 22%, highest with multipara 65%. Primipara are prone to prolonged labour, uterine inertia and operative interference which predispose to atonic PPH.

Table 1: Etiological factors of atonic PPH

Etiological Factor	Present Study N	Percentage %
Multipara	130	65
Placenta previa	11	5.5
Multiple pregnancy	27	13.5
Pregnancy induced hypertension	29	14.5
Induced Labour	26	13
Abruptio placenta	08	4
Polyhydramnios	01	0.5
Prolonged Labour	21	10.5
Retained placenta	01	0.5
Intra uterine death	4	2
Malpresentation	11	5.5
Jaundice	1	0.5
Previous cesarean section	52	26

In Grand multipara size of baby increases, incidence of malpresentation is high, both uterine and abdominal wall lack a good muscular tone, incidence of antepartum hemorrhage is high. Moreover as a result of repeated child birth, poverty, malnutrition, overwork, chronic iron deficiency anemia, these women are in a poor condition to withstand even a slight amount of blood lossm (Agota *et al.*, 1999).

Incidence of atonic PPH is more in patients whose pregnancy is associated with obstetric complication like antepartum haemorrhage, Pregnancy induced hyper tension, twins, polyhydramnios, anemia, Intra uterine death, malpresentation etc. (Table – 1).

Above table shows Co – morbid conditions and atonic PPH in present study. In present study atonic post partum hemorrhage is most common 60% in 35 to 39 weeks of gestation due to more distention of uterus. In present study, 58% cases had atonic PPH following cesarean section, out of which 48.5% were emergency cesarean section while 11% were elective cesarean section which corresponds to Saha *et al.*, (2008) study (Table – 2). Even in absence of abnormal placentation blood loss is higher for cesarean than vaginal delivery, leads to atonic PPH. Iqbal *et al.*, (2009) states atonic PPH is more common 57.8% after spontaneous vaginal delivery than after cesarean section. Total of 3,07,415 deliveries in Norway from 1999 to 2004, 3333 had severe post partum hemorrhage, 1064 had atonic postpartum hemorrhage most common 57.8% after spontaneous vaginal delivery. According to Saha *et al.*, (2008) incidence of atonic PPH is more after cesarean delivery (60%) than vaginal delivery (40%). The findings also suggest that prelabour cesarean delivery is a better option than trial of labour if the probability of emergency cesarean delivery is considered to be high on an individual basis.

Table 2: Mode of delivery and atonic PPH

Mode Of Delivery	No. Of Cases	Percentages
Spontaneous Vaginal Delivery	77	38.5%
Operative Vaginal Delivery	04	2%
Emergency Cesarean Section	97	48.5%
Prelabour Cesarean Section	22	11%
Total	**200**	**100%**

Past obstetric history was significant in 34% patients having history of previous cesarean section. Emergency cesarean section has more chances of atonic PPH 48.5% than elective cesarean section 11%. In present study success rate of medical and mechanical methods is 40.5%. Walter *et al.*, (1988) stated that routine administration of oxytocin does have an effect on the rate of postpartum hemorrhage reducing it about 40%. Success rate of stepwise devascularization (Bilateral uterine + Ovarian artery ligation) is 78.15%, out of which bilateral uterine artery ligation successed in 77.31% compared to study of Cho *et al.*, (2000) which had 80% and 95% in study of O'Leary *et al.*, (1966) Uterine artery ligation is relatively safe procedure that can be performed by most obstetricians. It also allows future child bearing. This technique is most useful and successful when hemorrhage is of a moderate degree and occurs from the lower uterine segment.

Conservative procedures like CHO sutures, B – Lynch sutures and Hayman sutures may prove more effective than obstetric hysterectomy for the control of life threatening post partum hemorrhage (Washington, 1989).

In present study success rate of uterine compression suture is 88.46% (23/26), out of which success rate of CHO is 90.90% (20/22) and success rate of B-Lynch is 75%(3/4). (Table – 3) The CHO method has been associated with uterine cavity synechiae and pyometra. In present study only one case developed menstrual irregularity secondary to intrauterine synechiae after placement of CHO compression suture, hysteroscopic resection of adhesions was required to restore the uterine cavity. The current level of application of the B-Lynch suture world-wide includes over 1300 successful cases, of these there are only 19 failures. Failure is due to delay in application, defibrination and inappropriate material (Washington, 1989).

In present study incidence of obstetric hysterectomy due to atonic PPH is 1.5% (3/200) compared to Sahu *et al.,* (2004) which had 16%. This shows conservative measures like uterine artery ligation, stepwise devascularization, uterine compression sutures are always tried first. If all efforts fail, obstetric hysterectomy is needed.

Table 3: Mode of treatment in atonic PPH

Treatment	No. of cases	%
Medical + Mechanical methods	81/200	40.5
Stepwise Devascularization	93/119	78.15
Compression sutures	23/26	88.46

In present study incidence of obstetric hysterectomy due to atonic PPH is 1.5% (3/200) compared to Sahu *et al.,* (2004) which had 16%. This shows conservative measures like uterine artery ligation, stepwise devascularization, uterine compression sutures are always tried first. If all efforts fail, obstetric hysterectomy is needed.

In present study mortality rate of atonic PPH is 1.5% (3/200) compared to Saha *et al.,* (2008) 10% (1/100). Better availability of facilities, skilled obstetrician, anaesthetics, blood transfusion services, ICU set up and above all team work and spirit to work for patients had lead to successful management of atonic PPH.

Discussion

Post partum hemorrhage is a nightmare even to the present day obstetrician. Even though the maternal mortality rate has been reduced dramatically by hospitalization for delivery and the availability of blood for transfusion, death from hemorrhage remains prominent in majority of mortality reports. "She died in childbirth" – These haunting words have echoed throughout the ages. Hemorrhage probably has killed more women than any other complication of pregnancy in the history of mankind.

Historically, PPH was one of the leading causes of maternal deaths in industrialized nations upto the second world war. It is still a leading cause of maternal death in rest of the world today.

Conclusion

Post partum hemorrhage is an extremely challenging obstetric emergency associated with significant morbidity and mortality. Early recognition and treatment are essential to ensure the best outcome from this life threatening condition. Even after so much pharmacological and surgical advances, very few practical solutions are available to decrease PPH related morbidity and mortality. Use of newer drugs like misoprostol, reactivated factor VIIa and trenexamic acid have shown some promise as potential solution to this life threatening condition.

Though hysterectomy is the definitive treatment in women with severe atonic PPH but in patients who desire future fertility, medical management, mechanical methods like uterine compression, uterine packing, uterine tamponade and surgical procedures like uterine artery ligation, uterine compression sutures and arterial embolization are effective weapons.

All obstetricians need to be familiar with the simple technique of uterine artery ligation and compression sutures to prevent many unwarranted hysterectomies. Thus early anticipation, early intervention with proper planning are required to reduce the maternal morbidity and mortality in PPH. To conclude prevention is better than cure.

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