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EFFICACY OF INTRAUTERINE BALLOON TAMPONADE FOR TREATMENT OF POST-PARTUM HEMORRHAGE.

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OBJECTIVE: To research the effectiveness of intra uterine balloon tamponade (IUBT) in women who do not respond to standard treatment in stopping postpartum hemorrhage. **METHODOLOGY:** This was retrospective case series study, conducted for 01 year from November 2019 to November 2020 at gynae unit Women and Children Hospital Abbottabad. Consecutive non-probability sampling was the sample strategy utilised. Following vaginal birth, all PPH patients who were not responding to medical treatment were included. Individuals with retained placentas, genital tract injuries, and coagulation abnormalities were not included. It was done with an intra-uterine balloon tampon (IUBT). **RESULTS:** Total 160 patients with post-partum hemorrhage due to uterine atony not responding to medical treatment were included, who underwent the insertion of folleys catheter balloon tamponade. All of them had vaginal delivery. Success rate was 95.6%. Only 07 patients (4.3%) had failed treatment with balloon tamponade. Six of them under went bilateral uterine artery ligation and B- Lynch suture application. One patient required subtotal hysterectomy for massive PPH. **CONCLUSION:** IUBT was shown to be a less invasive treatment that exhibited greater efficacy and safety in managing postpartum haemorrhage following a normal vaginal delivery.

KEY WORDS: intra uterine balloon tamponade (IUBT), postpartum hemorrhage (PPH)

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INTRODUCTION

The four management steps—communication, resuscitation, monitoring, investigation, and bleeding arrest—must all be carried out simultaneously. Increasing blood volume and oxygen carrying capacity are the primary goals of

resuscitation during PPH.[1-5] Two 14 gauge intravenous lines must be set up, 20 ml of blood must be obtained for diagnostic tests such a full blood count and coagulation screens like fibrinogen, urea, and electrolytes, and at least 4 units of blood must be cross-matched in order to accomplish these objectives.[6-10] It is best to administer a high quantity of oxygen (15l/minute).[11] Heart rate, blood pressure, oxygen saturation using an oximeter, EKG, and automated blood pressure monitoring are all taken into account.[12] Foley's catheter is used to assess urinary output, and a record sheet for fluid balance, blood, blood products, and operations is started as well.[13] The patient should be kept warm while lying flat using the proper techniques. As soon as blood is available, it should be transfused. Until then, 3.5 litres of warmed crystalloid Hartmann's solution and/or colloid should be infused.[14-15] Thirty percent of maternal mortality are caused by postpartum haemorrhage (PPH)15. It could happen in 1-5% of deliveries in both wealthy and underdeveloped nations[16]. Almost 99% of deaths occur in low-wage countries[17], and the majority do so shortly after delivery. PPH is characterised by vaginal haemorrhage that is greater than 500 ml or greater than 1000 ml following a caesarean section[18]. Uterine atony is the most frequent cause and is unexpected and episodic. Encouragement should be given to women who are known to have PPH risk factors to take the proper precautions throughout pregnancy and the postpartum period in order to reduce their risk. PPH can also occur in people who have no risk factors[19]. Active management of the third stage of labour is a practical, affordable method to halt 60–70% of atonic PPH[20]. Monitoring of maternal physiological indicators is critical to preventing morbidity and death in all obstetric inpatients and assists in the early identification and treatment of the critically unwell patient. This entails employing the Modified Early Obstetric Warning System, a bedside device, as well as monitoring the pulse, blood pressure, and bleeding throughout the fourth stage of labour (MEOWS). Recombinant factor VII is a treatment that should be based on the results of coagulation. The optimum fluid to replenish is compatible blood, which should be transfused as soon as it becomes available[19.] If entirely crossmatched blood is not readily accessible in a dire emergency, group specific uncrossmatched blood or "O" Rh-D negative blood may be the safest to administer[19]. IUBT has proven to be a successful therapy option for PPH control and has had positive outcomes, notably in the management of uterine atony 21. However according to reports, the success rates of the modern UBT range from 60 to 80%[21–25]. More intrusive procedures, such as a hysterectomy as a final resort, are required in failed cases. Due to its relatively non-invasive nature, IUBT has gained popularity in recent years as a second-line conservative management for severe PPH. The use of IUBT is also linked to a decrease in the use of more invasive procedures and has few negative effects on subsequent menstrual and reproductive function [26–29.] The purpose of this paper was to assess the efficacy of IUBT technology as the minimally invasive procedure for management of postpartum hemorrhage.

OBJECTIVE: To research the effectiveness of intra uterine balloon tamponade (IUBT) in women who do not respond to standard treatment in stopping postpartum hemorrhage.

Total 160 patients with post-partum hemorrhage due to uterine atony not responding to medical treatment were included, who underwent the insertion of folleys catheter balloon tamponade. All of them had vaginal delivery.

MATERIAL AND METHOD:

The study was conducted at gynae unit Women and Children Hospital Abbottabad from November 2019 to November 2020 and comprised women aged 18-40 years, uterine atony after a vaginal delivery in both primiparous and multiparous women with gestational ages of 34 to 40 weeks in whom medical treatment with uterotonic

drugs (oxytocin, misoprostol, and PGF2a) had failed. The information was gathered from patient case files who had postpartum haemorrhages. Individuals who had PPH from product retention or genital tract injuries were excluded.

RESULTS:

IUBT was used to control the PPH due to uterine atony after vaginal deliveries in 160 patients. These were the patients in whom the initial medical treatment with uterotonic medications had failed to control PPH. Out of 160 patients, IUBT was successful in 153 patients (95.6%) and this method failed in 07 patients (4.3%) where other methods were required to control the hemorrhage including bilateral uterine artry ligation, uterine compression sutures and hysterectomy (which was required in one patient) table 1. The demographic characteristics of patients in whomI UBT was used and their relationship with the frequency of success of IUBT is shown in table 2. The age of 96patients was between 18 to 30 years. In this age group, IUBT was successful in 94 patients (97.9%). On the other hand 64 patients were in age group of 31 to 40 years where 59(92.1%) out of these had successful treatment with UBT. 125 patients having PPH had a gestational age >37 weeks and out of them 119 (95.2%) had successful treatment with IUBT. A total of 35 patients had gestational age of <37 weeks and out of them, 34 patients (97.1%) had successful control of PPH with IUBT. Multiparous patients were 111 and 49 were primiparous with a success of 93.6% and 100% respectively with IUBT.

Table 1: Frequency of success of balloon tamponade (n=160)

Total No patients	successful	Failed
160	153(95.6)	07(4.3%)

Table 2: Effectiveness of UBT with respect to maternal demographic characteristics(n=160)

Parameter	No of patients	Successful	Failed
Maternal age	18 to 30 years(n=96)	94(97.9%)	02(2%)
	31 to 40years (n=64)	59 (92.1%)	05 (7.8%)
Gestational age	<37 gestation weeks (n=35)	34(97.1%)	01(2.8%)
	>37 weeks(n=125)	119 (95.2%)	06 (4.8%)
Parity	Primiparous (n=49)	49(100%)	00
	Multiparous (n=111)	104 (93.6%)	07 (6.3%)

DISCUSSION:

With a prevalence incidence of 6%, PPH is one of the top causes of maternal death as well as one of the main causes of mortality in women globally. The prevalence of rats is highest in Africa, where it is roughly 10.5%. Rat prevalence in Pakistan has been assessed by the WHO to be 34%. Around 150,000 maternal deaths occur each year due to PPH, 90% of which happen within 24 hours of birth [30, 31, 32.] The adoption of a UBT was predicted to have the potential to prevent a sizable portion of PPH deaths in Africa in 2010 according to a previous review of the grey literature that assessed the health effects and cost-effectiveness of various strategies to prevent or manage PPH [33]. The Bakri, Foley, Sengstaken-Blakemore, Rusch, and condom catheter are only a few of the available balloons. [12] Another alternative for the treatment of severe PPH is intrauterine tamponade using a balloon catheter. A study of patients with severe PPH who used this strategy to manage them has been published in the literature. The catheter was successfully inserted in the majority of instances,

although 10% of them required hysterectomy despite the tamponade's effectiveness. [39] In our trial, we used the more affordable and widely accessible balloon catheter from Folley, either one or two at a time. Despite its great efficacy, one patient had a hysterectomy for severe PPH, while another required bilateral uterine artery ligation and B-lynch suture placement. Regarding the effectiveness of UBT to decrease surgical interventions or maternal fatalities among women with severe PPH caused by uterine atony, there is some contradicting information. UBT was found to have positive effects in a small nonrandomized study[36] and one RCT[34], although another RCT[35] revealed that UBT might have negative consequences. [23] PPH patients who were refractory to medicinal therapy were treated with intrauterine balloon tamponade, according to a case series[17]. Catheters controlled PPH in 18 of 20 instances (about 90%) when they were appropriately positioned. Even though the catheter was successfully inserted in two cases, hysterectomy was still necessary. The success rate for haemorrhage caused by uterine atony was 100% (11/11 instances). Technical issues caused placement failure in three instances[40]. In our study we included all women undergoing vaginal delivery with uterine atony. There were no patients with instrumental deliveries. We observed a success rate 0f 95% which is comparable to the results reported in previous studies [37,38]. In our study most of the patients were of young age(n=96)and the effectiveness of IUBT was higher(97.9%) in them as compared to old age group patients.as for as the parity is concerned, IUBT was more successful(100%) in Primiparous women as compared to multiparous women(93.6%) [41]

CONCLUSION:

Compared to a woman living in a rich nation, the probability of a woman dying from a maternal-related cause during her lifetime is around 33 times higher in low- and middle-income countries. The main factor causing maternal death and morbidity is PPH. By identifying high-risk variables and actively managing labour, prevention plays a crucial role. Given its simplicity, low risk of complications, and ability to preserve reproductive function in our nation, there should be a low threshold for balloon tamponade use as a preventative measure in women at high risk of PPH. However, more research is needed to fully understand the obstacles to IUBT use in environments with limited resources.

ETHICS APPROVAL: The ERC gave ethical review approval

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin

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CONFLICT OF INTEREST: No competing interest declared.

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