

POSTPARTUM HEMORRHAGE MANAGEMENT

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Abstract

Mortality is related to pregnancy, delivery or postpartum. The efforts to reduce maternal mortality are not only known from the high coverage but also from the quality of services that emphasize the competency needs of health workers, the completeness of medicines, equipment, facilities and infrastructure in all health services. The aim of this study to conduct a scoping review to determine the effectiveness of each management of postpartum hemorrhage. Method: There were five stages used for scoping review. This Scoping review of 12 articles, obtained from 2 databases (Pubmed, Sciendirect). Critical Appraisal with Joanna Brigs. Most articles on the research method used Cohort, Case Series, Randomized Controlled Trial, Restrospective Cohort and Prospective. Result: The researchers classify the main points in five themes that appeared, those were administration of carbetocin, administration of oxytocin, administration of sublingual misoprostol, administration of balloon bakri, administration of catheter condom tamponade as the management of postpartum hemorrhage. Conclusion: Handling hemorrhage with sublingual administration of misoprostol, carbetocin and bakri balloon was a part of continuous treatment, so that changes or additions ed more on the effectiveness of postpartum hemorrhage management.

Keywords: management, postpartum hemorrhage

1. INTRODUCTION

Maternal and neonatal deaths to date in Indonesia have always been the main topic known that the occurrence of deaths for neonates can occur every three minutes and every one hour the death of one woman occurs. This death is related to pregnancy, childbirth or the puerperium [1]. Based on the diagram results from the IDHS that the maternal mortality rate in Indonesia from 1994-2015 continued to decline. In 1994 it reached 390 per 100,000 live births and tended to decline to 228 per 100,000 in 2007. However, in 2012 MMR increased to 359 per 100,000 live births and in 2015 the MMR dropped to 305 per 100,000 live births [2]. Maternal mortality is caused by 2 things, namely direct and indirect causes. The direct cause of death was 46.96% (99 people) and indirect causes of death were 51.4% (109 people) and 1.9% of deaths were unknown cases. The direct cause of maternal death is due to bleeding, sepsis and hypertension. So that it is the main cause of maternal death with a presentation of 37.1% of maternal deaths over the past decade [3].

Efforts to reduce maternal mortality are not only known from the high coverage, but can be seen from the quality of services that emphasize the competency needs of health workers, the completeness of medicines, equipment, facilities and infrastructure in all health services [4]. Based on the world health organization states that the occurrence of maternal deaths every year there are 140,000 or 1 woman every 4 minutes. Reports from WHO have 25% of maternal deaths caused by postpartum hemorrhage and counted 100,000 maternal deaths annually [5]. Postpartum hemorrhage is a major cause of maternal death after childbirth in countries with low income including Indonesia, with almost a quarter of deaths in mothers giving birth in the world. Prevention of postpartum hemorrhage can be carried out in various stages, namely with the use of uterotonics, which is oxytocin as the first choice in the treatment of postpartum hemorrhage. Then massage the uterus as a treatment for postpartum hemorrhage and immediately start the administration of isotonic crystalloid fluid. Then the use of tranexamic acid can be given in refractory atonic cases and use of intrauterine balloons for refractory bleeding or if uterotonic prophylaxis is not available. Bimanual uterine compression and external aortic compression as temporary measures until substance care is available [6].

Treatment that can be done conservatively in postpartum haemorrhage is to maintain blood volume stability by using large-diameter cannula via the intravenous route, always through gradual observation, administration of crystalloid fluid via intravenous and blood transfusions. The maintenance of deep postpartum haemorrhage is done by administration of uterotonics and using uterovaginal tamponade [7]. Handling of postpartum hemorrhage with uterotonic prophylaxis has various types and combinations that have advantages and disadvantages of each type of drug. The types are misoprostol, oxytocin, methyl-ergometrin and ergometrin, which have been compared for each type. Based on the results of the comparison that oxytocin is the recommended main choice, oxytocin must be stored in a cold place. Therefore by responding to the above problems it is permissible to administer misoprostol orally, but what needs to be known is that misoprostol has side effects such as fever and chills. So in choosing uterotonics for the treatment of postpartum hemorrhage must be in accordance with the method of administration and dosage administration. If from the initial treatment failure and bleeding continues, it can be done by administration of tamponade balom, uterine compression sutures, arterial ligase and hysterectomy [8].

Potential risk factors for postpartum hemorrhage are placenta previa, fetal presentation, duration of labor, uterine trauma and cervix at delivery. With surgical history, labor induction and augmentation, macrosomia, placenta is low [9]. The high maternal mortality rate has only recently spun on three main problems, namely bleeding, preeclampsia-eclampsia, and infection, so it is hoped that efforts that focus more on these three problems can be done through each role of health workers. The initial frustration that can be made in postpartum hemorrhage is focusing on antenatal examination and early detection of danger signs such as large children, grandemultipara, polyhydramnios, history of cesarean section,

history of labor induction, prolonged labor, vacuum use or forceps, anemia. If one of the danger signs is found in the mother, then immediately refer to a complete health facility and an Obsgyn specialist, then administer crystalloid fluid before the act of labor takes place [10].

2. METHODOLOGY

Scoping Arrangement This review is adjusted to the Scoping Review steps. The steps for preparing a Scoping Review are 1) Identification of problems, 2) Prioritizing problems and questions, 3) Prism flow diagrams, 4) Performing critical appraisal, 5) Extracting selected paper data, 6) Collecting data and making maps to answer question.

Step 1: Identification of Midwifery Problems

Active management at the third time is an initial prevention strategy. The main component of action is the administration of uterotonic, controlled controlled center pulls and uterine masage. Provision of uterotonic prophylaxis is used to stimulate uterine contractions to prevent uterine atony and accelerate placental release. Uterotonics are oxytocin, methylergometrin, misoprostol and carbetocin. Until now, the superiority of uterotonic use, oxytocin due to its rapid effects after intramuscular injections of 2-3 minutes and oxytocin had low side effects, oxytocin was able to maintain 40 uterine contractions in 500 ml of crystalloid solution given at a speed of 125ml / hour . While ergometrin is able to produce uterine contractions which are 5 minutes after administration of ergometrin intramuscularly, ergometrin has side effects of an increase in blood pressure, so ergometrin cannot be given to pregnant women with hypertension. Furthermore, misoprostol which is the work of prostaglandin E1, misoprostol is one that is superior to prostaglandins compared to the others, because it has stable properties in accordance with room temperature, is cheap and easy to use. Research has been carried out on women who do not respond to oxytocin and ergometrin, then 1000 mg of misoprostol is given, so that bleeding stops in 3 minutes and does not require additional uterotonica. But misoprostol has side effects such as fever and chills. So that misoprostol is the second choice with an initial dose of 600µg orally or sublingually if oxytocin is not available. In addition there is the administration of carbetocin which is a work equation of oxytocin with uterotonic work activity 4 times longer than oxytocin with a 40-minute half-life [11].

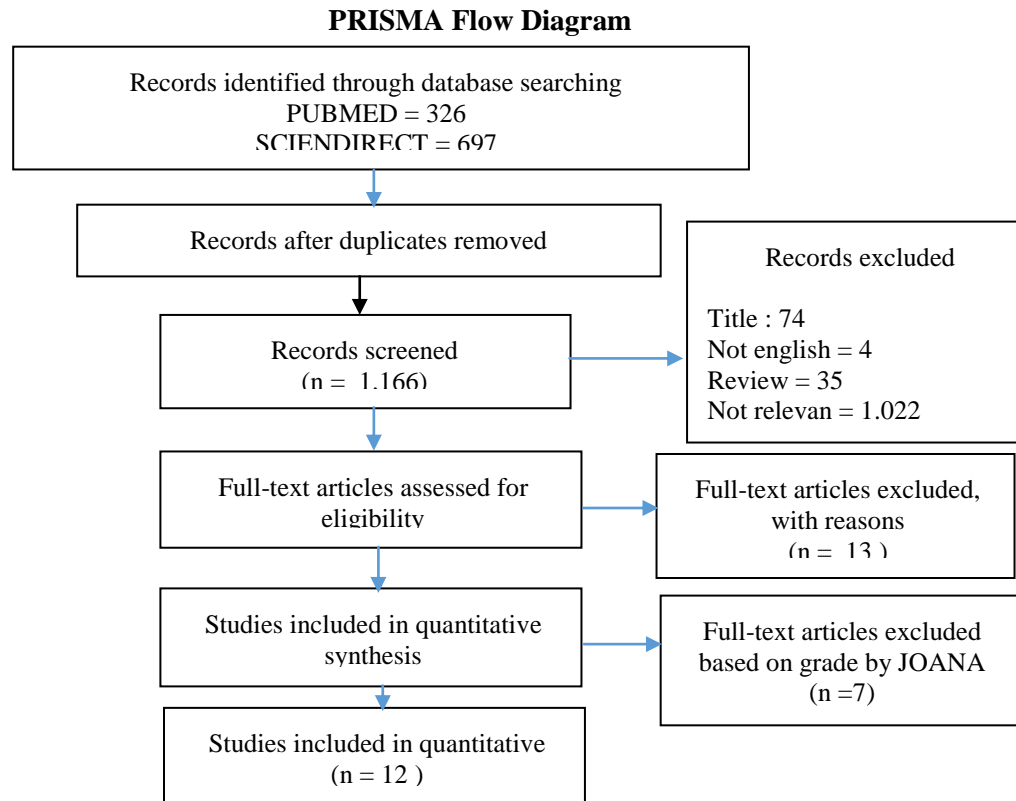
Step 2: Priority of Problems and Research Questions

In the review of this research review aims to find out: 1) what are the implementation of postpartum hemorrhage, 2) how effective the management of postpartum hemorrhage is.

Step 3: Prism Flow Diagram

In this review after searching the three databases, a number of 1,299 journals were obtained. after combining duplication identification, there were found 63 similar articles, leaving 1,166 articles left. After that, 1,166 are filtered according to existing filters, 105 of

them are found after the filter is found. Then the screening was carried out again by looking at the abstract and wasted 74 articles, so the remaining 31 articles. After 31 articles were filtered back in accordance with the inclusion criteria and the exclusion found included there were 19 articles. After include critical appraisal is done. The results of the critical are the findings which will then be extracted and arranged accordingly for discussion. The following is an overview of the PRISMA Flow Diagram.



Gambar 2.1. Flow Chard of Scoping Review

Step 4: Critical Appraisal

In this review a critical appraisal will be conducted which is a step to assess the quality of an article that will be used. The tool chosen to assess the quality of articles is the checklist of the Joana Brigs Institute. At this stage critical appraisal is carried out in 19 journals that are in accordance with the topic of management of postpartum hemorrhage. Most articles on the research method used Cohort, Case Series, Randomized Controlled Trial, Restrospective Cohort and Prospective. Each method will be conducted with a Critical Appraisal with a checklist that varies according to the research method. After the selected critical appraisal is carried out there are 12 articles based on the author's assessment that have good quality indexed scopus with the standards Q1 and Q2.

Step 5: Data Extraction Analysis

Data from 12 articles were extracted to include key criteria such as research location, research population, research objectives, methodology and significant findings or recommendations. The author independently records information and then compares the extracted data. after getting good quality articles, the next step is data extraction.

Step 6: Mapping Literature

Based on 12 articles that have been selected and are in accordance with good quality, then data extraction is carried out to classify some points or parts of articles such as research objectives, research design, number of samples and results or findings of the study. a number of 11 articles were selected using a quantitative research method with a randomized controlled trial (RCT) study design of 10 articles and a prospective cohort of 2 articles. In this article, this research was conducted in developing countries, namely 4 articles from India, 3 articles from Egypt, 2 articles from Turkey, 1 article from Uganda, 1 article from Nigeria, Iran. In this mapping step the authors classify the intervention or treatment given to the study sample into several groups, namely: 1) Giving carbetocin, 2) Giving oxcitosin intramuscularly, as well as intravenously, 3) Giving misoprostol by sublingual method, 4) Giving bakri ballon, 5) Giving catheter condoms

Tabel 2.2. Extration Data

NO	TITLE/AUTHOR/ YEAR/LEVEL/ JOURNAL	COUNTRY	AIM	RESEARCH DESIGN	SAMPLE/SIZE	RESULTS
1	Sublingual misoprostol versus intramuscular oxytocin for prevention of postpartum hemorrhage in low-risk women By Picklu Chaudhuri, Jhuma Biswas, Apurba Mandal/2011/Q2/International Journal of Gynecology and Obstetrics [12]	India	The aim of this study was to compare sublingual misoprostol with intramuscular oxytocin for the prevention of postpartum hemorrhage (PPH) in low-risk vaginal patients	RCT- Double blind Prospective	530 women without PPH risk were allocated to receive 400 µg sublingual misoprostol or 10 IU oxytocin intramuscularly in 1 minute. Outcome measures are the incidence of PPH, blood loss after childbirth, decreased hemoglobin level in 24 hours, the need for additional uterotonics, the incidence of side effects and the need for blood transfusion.	In the results it was found that a dose of 400 µg of sublingual misoprostol became a safe and effective alternative in addition to active management of labor in the prevention of postpartum hemorrhage among women at low risk of bleeding. An WHO expert said that a dose of 600 µg of oral misoprostol at important times has recommended misoprostol if in situations where oxytocin is not available, then misoprostol can be used to prevent and treat postpartum bleeding due to uterine atony.
2	Intramuscular versus intravenous prophylactic oxytocin for postpartum hemorrhage after vaginal delivery: a randomized controlled study By Hediye dagdeviren, Huseyin cengiz, Ulkar heydarova, Sema suzen caypinar, Ammar kanawati, Ender guven, Murat ekin/2016/Q2/Journal Maternal-Fetal Medicine [13]	Turki	The purpose of this study was to compare whether oxytocin, intravenous and intramuscular oxytocin, had the same effect, potential benefits and side effects.	RCT	Inclusion criteria for women aged 18-45 years with a single pregnancy, gestational age 37-42 weeks, normal blood pressure. Criteria for grandemultipara exclusion, anemia, labor induction, history, uterine myoma, heart, liver disease, ginjalkoagulapati, anticoagulation, diabetes, preeclampsia, polyhydramnios, macrosomia.	When administered intravenously oxytocin can reduce bleeding with a concentration of time after 30 minutes after administration of oxytocin. Conversely, intramuscular produces slower work but produces a more lasting clinical effect. But there are some difficulties in administering oxytocin intravenously, especially in areas that lack equipment and materials. Therefore most oxytocin maternity homes are given intramuscularly, because they are faster to manage and require relatively low skills compared to intravenous injection.
3	A randomized trial of sublingual misoprostol to augment routine third-stage management among women at risk of posrpartum hemorrhage	India	The aim of this study was to assess whether the combination of misoprostol and oxytocin was more beneficial than oxytocin	RCT-Prospective Doble blind	The study involved 288 women, ages 18 and over who gave birth vaginally, by having one or more risk factors such as multiple pregnancies,	From the study it was found that compared to oxytocin alone, misoprostol with oxytocin was more effective in reducing blood loss after vaginal delivery among women at risk for postpartum hemorrhage by adding 400µg of

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	By picklu chaudhuri, arindam majumdar/2015/Q2/India/International Journal of Gynecology and Obstetrics [14]		alone in reducing blood loss after vaginal delivery spelled by women with risk factors for postpartum bleeding (PPH)		polyhydramnios, induction, prolonged labor, obesity, grandemulti, preeclampsia, anemia. This study did not involve women giving birth, hypersensitivity of misoprostol and oxytocin, heart, liver or hematological disorders, intrauterine fetal death or stillbirth	sublingual misoprostol and 10 IU of intramuscular oxytocin for active management in women with high risk factors. postpartum hemorrhage seems to be more effective than oxytocin alone in reducing moderate postpartum hemorrhage, which is 500-999 ml.
4	Bakri balloon versus condom-loaded foley's catheter for treatment of atonic postpartum hemorrhage secondary to vaginal delivery: a randomized controlled trial By atef m.darwish, mohamed m.abdallah, omar m.shaaban, mohammed k.ali, mohamed khalaf and ali mohamed a.sabra/2017/Q2/ Mesir/ The Journal of Maternal-Fetal and Neonatal Medicine [15]	Mesir	The aim of this study was to assess the efficacy and safety of foley catheters versus balloon bakri in the management of primary postpartum bleeding (PPH) and secondary to vaginal delivery	RCT- Single blinded	66 women who gave birth normally and had primary postpartum haemorrhage bleeding were initially managed according to hospital protocol by massage the uterus and 40 IU oxytocin infused in 500 ml of 5% glucose and 1000 µg per rectal misoprostol. Excluded for women who are traumatic PPH, women who deliver by birth, women, placenta abruption or placenta previa, chorioamnionitis, preeclampsia, anemia, diabetes, heart disease, or women who have coagulation.	Foley catheter condoms are as effective as bakri balloons in the management of postpartum hemorrhage due to uterine atony after vaginal delivery but require a little longer to stop. Reasonable and very low success rates will encourage wider use in low resources in countries where the use of disposable baked balloon is more expensive and rarely available in all countries.
5	Management of postpartum hemorrhage with intrauterine balloon tamponade using a condom catheter in an egyptian setting By mohamed kandeel, zakaria sanad, hamed ellakwa, alaa el	Mesir	The aim of this study was to evaluate uterine balloon tamponade using a catheter condom to manage postpartum hemorrhage (PPH)	Prospective observational	Women who experience primary postpartum hemorrhage (PPH) the first 24 hours after giving birth. Unexplored respondents were patients with traumatic PPH, placental retention, coagulopathy, and severe	The intrauterine balloon condom catheter was found to be more effective in reducing the occurrence of postpartum hemorrhage arising from uterine atony and placenta previa. Can reduce the occurrence of surgery or hysterectomy and save women from death. because of its ease of use, low cost, easy availability,

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	halaby, mohamed rezk, ibrahim saif/2016/Q2/Mesir/International Journal of Gynecology and Obstetrics [16]				systemic disease	and high success rates. Catheter condoms effectively help reduce maternal morbidity and mortality associated with postpartum bleeding
6	Ballon tamponade for the management of postpartum uterine hemorrhage By baris kaya, abdullah tuten, korkut daglar, mesut misirlioglu, mesut polat, yusuf yildirim, orhan unal, gokhan sami kilic and onur guralp/2014/Q2/Turkey/Journal of Perinatal Medicine [17]	Turki	The purpose of this study to evaluate the use of balloon bakri in postpartum hemorrhage (PPH) is resistant to medical treatment	Prospective study	Bakri balloon was applied to 45 women with PPH after initial management failure.	Bakri balloon is very effective to use, easy to do with methods that require minimal training. It can be done as the first choice in reducing postpartum hemorrhage due to uterine atony with resistance to uterotonic agents. Bakri balloon fluid volume can be adjusted for the incidence of postpartum hemorrhage, and is capable of exceeding 500 ml needed in the case of uterine atony. Bakri balloon can be released immediately if the bleeding has stopped without the need for additional uterotica or enter oxytocin by infusion
7	Carbetocin versus oxytocin in the management of atonic postpartum haemorrhage (PPH) after vaginal delivery: a randomised controlled trial By ahmed mohamed maged, abdelgany M.A.hasan, nesreen A.A.Shehata/2015/Q2/Kairo-Mesir/Journal of Maternal-Fetal Medicine [18]	Mesir	The aim of this study was to compare the effectiveness and safety of carbetocin versus oxytocin in the management of postpartum hemorrhage (PPH) after vaginal delivery	RCT-Prospective Double Blind	100 women who experienced postpartum hemorrhage (500 ml after delivery) were randomly divided into 2 groups. Exceptions to women with pregnancies of less than 37 weeks, genital tract trauma, coagulation defects, hypertension, preeclampsia, heart, kidney, epilepsy and hypersensitivity to carbetocin and oxytocin	Based on the findings, it was found that carbetocin is a better alternative to oxytocin in the management of uterine atony postpartum hemorrhage after vaginal delivery because of a decrease in blood loss in postpartum hemorrhage and without the need for other uterotonic additives and minor side effects.
8	A randomized controlled trial of sublingual misoprostol and intramuscular oxytocin for prevention of postpartum hemorrhage	India	The aim of this study was to evaluate misoprostol from safety, effective, and easily administered non-parenteral drugs to	RCT	Low risk women aged 20-35 years, with 0-4 spontaneous labor parity, at 37-42 weeks' gestation, in a single pregnancy at the time of treatment for vaginal	Sublingual prophylaxis of misoprostol in the active management of the third stage of labor has the same results as IM oxytocin. However, postpartum blood loss was significantly reduced in the misoprostol group compared to the

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	By G.Prema priya, P.Veena, Latha chatuvedula, L.Subtha/2015/Q2/India/ Journal of Maternal-Fetal Medicine [19]		prevent postpartum bleeding		delivery. 500 women were randomized to two groups, either receiving 400 mcg of sublingual misoprostol or 10 units of intramuscular oxytocin in the anterior shoulder. Exceptions to respondents in labor induction, women with uterine scarring, multiple pregnancies, polyhydramnios, macrosomia, mal presentation, anemia, hypertension, preeclampsia, diabetes	oxytocin group. Although side effects such as shivering and fever are more likely to lead to misoprostol. So it can be concluded that sublingual misoprostol is as effective as intramuscular oxytocin as an oxytocic prophylactic in the active management of the three stages of labor
9	Randomized controlled trial comparing 200 µg and 400 µg sublingual misoprostol for prevention of primary postpartum hemorrhage By innocent A.ugwu, timothy A.oluwasola, Obehi O.Enabor, Ngozi N.Aanayochukwu-urwu abolaji B.adeyemi, oladopa O.olayemi/2015/Q2/Nigeria/ International Journal of Gynecology and Obstetric [20]	Nigeria	The aim of this study was to compare the efficacy and adverse effects of 200 µg and 400 µg misoprostol for the prevention of postpartum hemorrhage (PPH)	RCT	Women in the active stage of labor, single pregnancy. Exceptions to respondents contraindicated misoprostol, disorders of coagulopathy, the need for birth, hypertension, anemia, grandemultipara, polyhydramnios	Based on the results it was found that it was determined that 200µg of suboplyol misoprostol was well tolerated and safe, and was as effective as 400µg in active management of the third stage of labor, with a dose of 200 µg associated with a reduction in excessive side effects. So that a further comparison of oxytocin with 200 µg of misoprostol in active management at the third time would be worthy of further consideration
10	Sublingual misoprostol versus intramuscular oxytosin for prevention of postpartum hemorrhage in uganda: A double-blind randomized non-inferiority trial By esther c.atukunda, mark	Uganda	The aim of this study was to compare the effectiveness of the use of sublingual misoprostol with intramuscular oxytocin	RCT – double blind	Women aged 18 or over, gestational age 38-41 weeks, there were no problems in vaginal delivery. Exceptions to respondents were fetal death, heart disease, infection or malaria, grandemultipara	600 µg of Misoprostol is lower than 10 IU oxytocin for prevention of primary postpartum hemorrhage in active labor management. This data supports the use of oxytocin. Although not supported, but from the study found no significant difference in the rate of decrease in severe postpartum hemorrhage leading to

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	j.siedner, celestino obua, godfrey r.mugnyenyi, marc twagirumukiza amon g.agaba/2014/Q1/Uganda/ PLOS Medicine [21]					the need for blood transfusion, postpartum hemoglobin, hemoglobin changes or additional uterotonic use.
11	Sublingual misoprostol versus intravenous oxytocin in prevention of post-partum hemorrhage By Renu tewatia, Shikha rani, Usha srivastav, Bela makhija/2013/Q2/Journal Maternal Fetal Medicine [22]	India	The aim of this study was to compare the effectiveness of sublingual misoprostol to intravenous oxytocin in preventing postpartum hemorrhage at the birth of a low-cucumber vagina	RCT- Prospective	100 patients with a single pregnancy, without PPP risk factors. exceptions are patients with grandemulti, anemia, malpresentation, polyhydramnios, antepartum hemorrhage, history of liver, kidney, heart disease, history, contraindications to misoprostol and oxytocin. Respondents 50 were given 10 IU of intravenous oxytocin in an infusion immediately after giving birth to a baby and misoprostol and oxytocin after labor	After comparison 600 µg of sublingual misoprostol with 10 IU of intravenous oxytocin for the prevention of low risk postpartum haemorrhage. Oxytocin is more effective in reducing the amount of blood loss. But the difference in efficacy can be ignored. The conclusion is that oxytocin administered intravenously by infusion is more effective than sublingual misoprostol in reducing blood loss. But in southeast Asia 89.9% of low socioeconomic women give birth at home where 54% of births are unattended. So that misoprostol can be used to prevent postpartum hemorrhage in this setting can contribute to the achievement of the millennium development goals.
12	Carbetocin vs Syntrometrine in prevention of postpartum haemorrhage :a double blind randomized controlled trial By Mansoureh samimi, Azam Imani-harsini, Masomeh abedzadeh- kalahroudi/2013/Q3/Iranian Red Crescent Medical Journal [23]	Iran	The aim of this study was to compare the efficacy between carbetocin and syntrometrine in the prevention of postpartum bleeding	RCT- Double blind	This study selected 200 women from March 2011 to June 2011. Exclusion criteria included chronic hypertension, preeclampsia, uterine or cervical rupture, asthma, cardiovascular disease, kidney and liver, general and history of PPH.	The results showed that carbetocin was more effective than syntrometrine in the prevention of postpartum hemorrhage. Additional uterotonic requirements were lower in women who received carbetocin, and with low side effects. So that it can be seen that IM carbetocin is a better alternative to syntrometrine IM in women at low risk.

3. RESULTS

Administration of Carbetocin in Postpartum Perdarhan Management

The results show that when compared with oxytocin, carbetocin has a significant decrease in postpartum bleeding and the need for other uterotonics is lower without side effects. When giving carbetocin to respondents who received as much as 100 mg intramuscularly or intramuscularly administered oxytocin 5 IU, it was found that the amount of bleeding occurring in postpartum hemorrhage and additional uterotonic requirements was significantly lower in the carbetocin group. In addition, it was found that the use of carbetocin was more effective than syntometrin in the prevention of postpartum hemorrhage [24]. After various studies it was found that intramuscular carbetocin was more effective than syntometrine in the prevention of postpartum hemorrhage. Uterine contractions can occur from initial dosing in less than 2 minutes and will continue for two hours. But in giving carbetocin can [23].

Oxytocin administration in the management of postpartum hemorrhage

The average blood loss in the oxytocin group was 75 ml with a range of 100-550 ml, it was found that women with oxytocin had more blood loss compared to misoprostol. However, the misoprostol group with shivering side effects was greater than oxytocin ($p = 0.004$). But more nausea occurs in oxytocin compared to misoprostol ($p = 0.003$) [19]. However, after another study, it was found that the majority of 42 patients (84%) with oxytocin experienced 125 ml of blood loss whereas in misoprostol 41 patients (82%) experienced 126-200 ml blood loss. the amount of research that has been done by comparing the effectiveness of oxytocin and misoprostol in the prevention of postpartum hemorrhage, most conducted trials by comparing 600 µg with 10 IU of oxytocin, it is known that oxytocin is superior to misoprostol, if oxytocin is given intravenously more effectively than misoprostol [22].

Administration of Sublingual Misoprostol in the Management of Postpartum Bleeding

The findings were obtained when the study continued testing sublingual misoprostol in addition to management of postpartum hemorrhage, it was found that by adding 400µg of sublingual misoprostol with 10 IU of intramuscular oxytocin in women with high risk factors for postpartum haemorrhage appeared to be more effective than oxytocin alone in reducing moderate postpartum haemorrhage (500- 999 ml) [14]. The use of sublingual Misoprostol causes postpartum hemorrhage to occur lower than oxytocin in the prevention of 600 µg of postpartum primary postpartum haemorrhage with misoprostol equal to 10 IU of oxytocin. When a low dose comparison of 400 µg sublingual misoprostol with oxytocin 10 IU found that misoprostol was more effective in preventing postpartum hemorrhage at 2 h postpartum, this study used a sublingual misoprostol powder formulation [21].

Giving Bakri Balloon in the Management of Postpartum Bleeding

The findings said that the efficacy of balloon bakri was 91.0% compared to catheter condom tamponade in blood cessation secondary to uterine atony after vaginal delivery. Condoms have thin walls that can adapt to the uterine cavity better than bakri balloons. Moreover, it can accommodate > 500 cc of saline as needed. However, the katetetr condom is thinner than the bakoon balloon, making it vulnerable to breakdown in certain situations. In this case, it is known that ballon bakri is more effective to use, with only a short amount of time needed to stop the bleeding that occurs compared to the catheter koncom. But there are shortcomings in the balloon bakri, which are expensive prices so that in countries with low income, it is still rare to use balloon bakri and more use catheter condoms which the price is high [15].

Administration of Condom Catheter Tamponade in the Management of Postpartum Bleeding

The results of this study catheter condoms proved to be very effective in stopping postpartum bleeding with a success rate of 96%. Catheter condoms are able to stop postpartum haemorrhage in uterine atonia (100%) and placenta previa (91%) when the catheter is inserted and positioned correctly. The nervousness of using catheter condoms as a form of error puts it right. So that with proper installation can avoid excessive bleeding and reduce the way to do a hysterectomy. Catheter condoms are known to be effective in reducing postpartum hemorrhage caused by uterine atony and placenta previa. The use of a catheter condom is able to reduce surgery or hysterectomy and can save women from death. The advantages that can be known from catheter condoms are ease of use, low cost, easy access, availability and success rate in helping reduce maternal morbidity and mortality related to postpartum bleeding [16].

Results obtained from several articles relating to the management of postpartum hemorrhage to reduce maternal mortality state that administration of sublingual misoprostol given with powder is effective in postpartum hemorrhage, whereas carbetocin is more effective than oxytocin. If bleeding continues it can use Bakri ballon as an effective treatment to stop bleeding without additional uterotonic.

4. DISCUSSION

Review of this article identifies 12 relevant publications taken from the last 7 years of sources involving the management of various known stages of postpartum hemorrhage that are effective in treating the occurrence of postpartum hemorrhage. Postpartum hemorrhage is acute and the main cause of death is postnatal, postpartum hemorrhage can be prevented by active management of third stage of labor which is the initial preventive measure. These findings indicate that from the various management of postpartum hemorrhage, a comparison of each treatment between oxytocin and carbetocin and oxytocin with sublingual misoprostol was compared. Oxytocin is the first choice drug for prevention of postpartum hemorrhage, while misoprostol is the second stage. Treatment of postpartum hemorrhage can be done as a form of prevention and cessation of bleeding. Sublingual misoprostol is then more effective than oral, and administration of misoprostol is considered if there is no effect of oxytocin due to side effects such as chills, nausea and vomiting. After various initial treatments are carried out if there is no change and slowly bleeding continues to occur can be continued with a ballon tamponade.

5. CONCLUSION

Postpartum bleeding is bleeding that occurs after the third stage of labor whose bleeding exceeds 500 ml. Generally postpartum hemorrhage occurs due to uterine atony, which is not the case of uterine contractions after the baby is born. The cause of the occurrence of postpartum hemorrhage begins with predisposing factors that can be known from before pregnancy or during pregnancy, as a form of anticipating the occurrence of postpartum hemorrhage so as to increase millennium development.

Postpartum hemorrhage can generally be treated conservatively. Termination of bleeding can be done using various management methods that have been determined by the government, namely by providing uterotonic prophylaxis and using utero vaginal tampons. the effectiveness of each management of postpartum hemorrhage is able to make a reference for improvement in dealing with postpartum hemorrhage which is still the highest threat of maternal mortality in the world.

6. RECOMMENDATION

Based on evidence from 12 journals that have been reviewed, it is found that a more effective way to treat bleeding can be done by administering sublingual misoprostol using powder, carbetocin IV or IM and bakri balloon as a sustainable handler, so that new discoveries from the journal have been review is able to make changes or additions more focused on the effectiveness of management of postpartum hemorrhage and also the ability of each medical person who does it.

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