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Active Versus Expectant Management for Women in the Third Stage of Labor

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ABSTRACT

Background: The third stage of labor is a normal physiological progression of birth that may be compounded by serious complications. The most common complication is postpartum hemorrhage. Clinical guidelines to prevent postpartum haemorrhage widely recommend the provision of package intervention known collectively as active management of the third stage of labor. Although there is some variation across AMTSL guideline, the intervention commonly includes prophylactic administration of a uterotonic agent, cord clumping & controlled cord traction. Aim of the study: This study is designed to evaluate the effectiveness of active versus expectant management of the third stage of labor in minimizing the amount of blood loss, the incidence of post-platinum hemorrhage, postpaitum Hemoglobin reduction & sh01tening the duration of this stage. Study setting and design: This study was conducted in Baghdad Teaching Hospital at the Department of Obstetrics and Gynecology. It is a prospective study applied on a randomized sample of women who expected a vaginal birth at 24 weeks gestation or later. Patient & Method: Two hundred women in the 3rd stage of labor after vaginal delivery were grouped into two groups the physiological management II group & active management group, where the amount of blood loss &the incidence of PPH, HP: S9g/dl 24to72hours postpartum& duration of 3rd stage was compared as the study outcome.

Results: In 200 cases, 100 cases were assigned to active management.

Group & 100 were assigned to the physiological management group. The average blood loss in the third stage of labor in the active management group was 157.7 ± 100.1 ml Vs396.82 ± 169.6 ml in the physiological management group, so there was a significant reduction in postpartum blood loos in the active management group. The incidence of post-partum hemorrhage was 2.2% in the active management group vs 10.0% in the physiological management group, so there was a significant reduction in the incidence of PPH in the active management group. The active management group was unlikely to have Hb: S9gm/dl24to48hr Postpartum as it occurs in 2.0%, while in the physiological management group 9.0%. The duration of 3rd stage of labor was significantly shorter in the active management group. It was3.8± 0.98min. vs7.46± 1.74 min. in the physiological management group. Conclusion: Active management of the third stage of labor decreases the amount of blood loss, decreases the incidence of postpa1tum Hb: S9gm/dl & shmten the duration of 3rd stage of labor, so reduces postpartum hemorrhage & its complications.

Introduction

Labor defined Is as the process by which the product of conception is passed from the uterus to the outside world. Which consists of 3 Stages of labor: stage 1 refers to the interval between the onset of labor and full cervical dilatation, 2nd stage refers to the interval between full cervical dilation and delivery of the fetus. **3rd** stage refers to delivery of the placenta and fetal membranes and usually lasts less than 10 min. But up to 30 min. Maybe allowed in the absence of excessive bleeding. [1]

The placenta is a non-contractile organ, and its separation from the uterine wall occurs primarily due to decreased surface area within the uterine cavity, which results in the placenta detaching from the deciduous bed after delivery of the fetus. In addition, bleeding of the capillaries behind the placenta due to interruption of flow from the umbilical cord leads to further separation. The sign of separation is the flow or flow of blood, depending on the location. [2,3]

The retro placental location is more common and is announced by blood flow, while the diameter usually indicates that separation has occurred at the margin. [4]

Penetrating the intrauterine network of smooth muscle fibers, spiral arterioles pump blood to the low-resistance placental bed at a rate of 500 to 800 ml/min during labor, accounting for 10% to 15% of the maternal cardiac output. [5]

The powerful uterine contractions that follow placental abruption compress the maternal spinal arteries within the network of muscle fibers to connect with living ligaments. [6]

This obstruction of blood flow into the placental bed helps to control blood loss at the placental site and achieves homeostasis through rapid clot formation and fibrin deposition. The first, or latent phase, consists of strong uterine contractions, which lead to the thickening of the uterine muscle, thus causing a shearing force to occur between the elastic uterine wall and the more rigid placenta. Continued contractions lead to gradual separation of the placenta, commencing at one of the poles (most commonly the lower) and spreading slowly during the contraction or detachment phase until full separation occurs. This is followed by the delivery of the placenta in the expulsion phase. There is always some blood loss during the third stage of labor as the placenta separates and is delivered.

Nevertheless, some women can suffer from considerable blood loss during or after the third

stage of labor. This can be a primary hemorrhage (within the first 24 hours). Postpartum hemorrhage (PPR) is commonly defined as a blood loss of more than 500 mL, with severe hemorrhage being a loss of 1000 mL or more and very severe hemorrhage being a loss of 2500 mL or more. [8-10]

However, the impact of blood loss at bi1ih on an individual woman can vary considerably and will depend not only on the volume of blood lost but also on her general state of health, the speed of the loss, her hemoglobin (Hb) levels at the time and her coagulation system [11]. It is well documented that blood loss is consistently under- or over-estimated by clinicians. In well-nourished women, some consider that, in general, there is little impact from a blood loss of 500 mL, this being equivalent to a routine blood donation, but in women in low-income countries who may be poorly nourished and anemic, this loss can cause considerable morbidity or mortality [12-14]. It has been estimated that at least 25% of maternal deaths in a number of countries are due to hemorrhage, most due to PPH. This study is designed to evaluate the effectiveness of active versus expectant management of the third stage of labor in minimizing the amount of blood loss, the incidence of post-partum haemorrhage, postpa1tum Haemoglobin reduction & shortening the duration of this stage. [15]

Patients and methods:

This study was conducted as a case-controlled trial carried out between the 1st of April 2022 and the 1st of August 2023 at the Department of Obstetrics & gynecology in Baghdad Teaching Hospital. The study involves 200 pregnant women admitted to the labor world & expected vaginal birth.

Inclusion criteria included:

- Term pregnancy
- Singleton pregnancy.
- With ve1iex presentation
- Alive baby

Exclusion criteria included:

- HB less than ten g\dl.
- Over-distended utems (polyhydramnios, multiple pregnancy, large baby).
- Ante paiium hemoI Thage .
- Induced labor.
- Instmmental delive1y.
- Caesarian section.
- Known maternal medical disease.

Those women either attended the hospital directly, or they were referred from antenatal care centers, primary health centers & private clinics. After a detailed history taking, which includes age, parity, and gestational age, was assessed either by last menstrual period & or by. U\S Performed in 1st trimester, detail of previous birth & size of previous babies, the frequency and duration of the contraction. General physical examination, which includes the vital signs (pulse, blood pressure & temperature). Abdominal examination after initial inspection for scars indicating of previous surgery.

It is important to determine the lie of the fetus (longitudinal) & the nature of the presenting part if the cephalic presentation, and the degree of engagement. an assessment of the contraction,

this takes time (at less than 10 minutes & is done by palpation, which provided information on the frequency & duration of contractions).

After a full explanation of the purpose & technique of vaginal examination is given to each women & their consent is obtained, we look for cervical dilatation, effacement, application of the presenting part, position_, state of the membrane, wither rupture or not, colure of liquor & adequacy of the pelvis. All the information of each woman was recorded on the partograph, which allows an instant visual assessment of the progress of labor, the state of the fetus & the state of the woman. Once the woman is delivered vaginally without any instrumentation, we put the patient either in active management or expectant management group.

a) Active management of the third stage of labor comprising:

I. Administration of 10 IU of exogenous immediately after the birth of the fetus.
II. Clamping and cutting the umbilical cord within 3 minutes after the fetus is born.
III. Gentle, controlled cord traction (CCT) following uterine contraction and separation of the placenta &uterine massage immediately after placental delivery.

b) Expectant management of the third stage of labor comprising:

I. No prophylactic administration of an uterotonic.
II. The umbilical cord is neither clamped nor cut until the placenta has been delivered or until cord pulsation has ceased.
III. The placenta is delivered spontaneously with the aid of gravity and sometimes by maternal effort, or none of the components of active management described above are employed routinely.

Duration of the 3rd stage was counted from the complete delivery of the fetus till the placenta delivery. Estimation of blood loss is categorized into visual estimation, direct measurement, gravimetric, photometry, and a variety of miscellaneous methods are presented, but none is practical. Our methods of estimating blood loss were categorized into visual estimation & direct measurement methods as other methods not available in our hospital. The amount of blood loss is measured by collecting all the blood & clots into a sterile container (which measures the volume of blood in ml). All gauze & pads were collected an hour after the delivery of the placenta. Post-partum Hb concentrations were measured & reported. The patients were observed for monitor the vital signs and presence of post-partum complications.

Results:

Table 1: Socio-demographic characteristics in the active & physiological management group.

		Active management group		Physiological management group		P value
		No.	%	No.	%	
Age	<20	12	13-5	4	4.7	P=0.310
	20-24	32	36.0	30	35.3	
	25-29	22	24.7	24	28.2	
	30-34	14	15.7	14	16.5	
	35 and more	9	10.1	13	15.3	
Gestational age	Mean ±SD (range)	25.35±5.36	(19-40)	26.82±6.16	(9-40)	P=0.560
	37	24	27.0	17	20.0	
	38	19	21.3	25	29.4	
	39	34	38.2	31	36.5	
	40	12	13.5	12	14.1	
Parity	P1	27	30.3	26	30.6	P=0.486
	2-3	52	58.4	43	50.6	
	≥4	10	11.2	16	18.8	
	Mean ±SD (range)	2.16±1.04	(1-6)	2.45±1.44	(1-6)	

Table 2: Duration of the third stage of labor in the active & physiological management group.

Duration of third stage(minutes)	Active management group		Physiological management group		P-value
	No.	%	No.	%	
<5	67	75.3	-	-	P=0.0001
5-9	22	24.7	62	73.0	
≥10	-	-	23	27.0	
Mean ±SD(Range)	3.80±0.98	(2.0-7.0)	7.46±1.74	(5.0-10.0)	

Table 3: Amount of postpartum blood loss in both groups.

Blood loss (ml)	Active management group		Physiological management group	
	No.	%	No.	%
100--	86	96.6	-	-
200--	1	1.1	6	7.1
300--	-	-	48	56.5
400--	-	-	22	25.9
500--	-	-	1	1.2
600--	1	1.1	-	-
700--	-	-	1	1.2
800--	-	-	3	3.5
900--	1	1.1	4	4.7
Mean ± SD(Range)	157.70±100.14	(100-900)	396.82±169.69	(230-960)

Table 4: Incidence of PPH in both groups.

Blood loss (ml)	Active management group		Physiological group	
	No.	%	No.	%
< 500	87	97.8	76	89.4
≥ 500	2	2.2	9	10.6

Table 5: Maternal HB in 24 to 42 postpartum m between in both study groups.

Maternal Hb 24to72 hour postpartum	Active management group		Physiological group	
	No	%	No	%
Hb ≤ 9g/dl	2	2.0%	9	9.0%
Hb > b9g/dl	98	98.0	91	91%

Discussion:

The third stage of labor refers to the interval from the delivery of the fetus to the separation & expulsion of the placenta. Although the focus at delivery may naturally shift to infant transition, continued maternal vigilance during stage 3 is imperative to accomplish a safe outcome for the mother and her newborn. In labor, the normal case can, within a minute, become abnormal, and successful delivery can turn swiftly to disaster. Third stage of labor are usually uneventful, but significant complications can occur in this period. The third stage of labor carries the highest risk of mortality & morbidity for the mother because of the potential postpartum haemorrhage, which is the largest single medical cause of maternal death worldwide, accounting for about 25% [16]. Mortality due to haemorrhage could be used as an indicator of health quality as it reflects the appropriateness of obstetrical care. Evidence-based literature and the WHO support and recommend the active management of the third stage of labor approach, assetiing that blood loss and the risk of PPH are decreased by 68%. Many clinicians would argue that widespread application has reduced PPH but there are also those who have questioned the value of the routine package of active management during the third stage of labor. In this study, maternal age in the active management group was 25 .35 ± 5.36 &26.82±6.16 in the physiological management group, respectively, with a P = 0.310.

The mean of the parity in the active management group was 2.16 ± 1.04 compared with 2.45 in the physiological management group with P = 0.486. There is no statistical difference among both groups regarded maternal age, gestational age& parity. It is obvious that both groups were comparable in demographic assessment. [16]

It is unlikely for these factors to distort the effect of third-stage management, especially regarding parity, as significantly ‘effects the incidence of postpartum hemorrhage if grand multiparas (parity four or more) compared with a lesser parity one the effect of third stage management will be distorted by this factor (parity) & this was able because of small group size in compression with study done by Tan WM, 2008 at which preexisting differences between the groups present & Groups are non-equivalent because of large sample size. [17]

In this study, the average blood loss in the third stage of labor was 157.7ml ± 100.1 in the active management group compared to 396.82 ± 169.6 ml in the physiological management group, so the mean of postpartum blood loss was significantly less in the active management group as compared with physiological management group with a. P value=0.0001.

This agrees with the study done, which found that Mean blood loss was 535 ml in the actively

managed group and 680 ml in the expectantly managed group (P < 0.001), so the mean blood loss was significantly less in the active management group as compared with the physiological management group. In this study, the incidence of PPH was 2.2% in the active management group & 10.6% in the physiological management group, so the incidence of PPH was significantly reduced with a p-value P = 0.024. This agrees with a study that concludes that active management leads to several benefits. These results were all highly significant, as indicated by the 95% confidence interval (Cl), a significant reduction in the occurrence of PPH & for every 12 women receiving active rather than physiologic management, 1 PPH is prevented. In this study, the maternal haemoglobin 24 to 72 hours postpartum less than 9g/dl was significantly reduced in the active management group, where it was 2.0%, while 9.0% in the physiological management group with a P-value of 0.021. In this study, the mean duration of the third stage of labor in the Active management group was 3.80 ± 0.98 Vs. 7.46 ± 1.74 minutes in the physiological management group. The duration of 3rd stage of labor was significantly shorter in the active management group (p=0.001). This agree concludes that the mean duration of the third stage of labour was less in the active management group than in the physiological management [17,18]. This study summaries that the incidence of PPH with either management is not different & midwives and obstetricians uphold significantly different views on active versus expectant management of the third stage of labor according to a Canadian study [19]. Although the Society of Canada guideline recommends active management, most midwives reject it, believing that the guideline did not consider women's preferences and noted a lack of evidence to support all three components taken together. [20]

Conclusion

Active management of the third stage of labor reduces postpartum hemorrhage and its complications by:

I. Decrease the amount of blood loss.
II. Reduce the incidence of postpartum hemonhage.
III. Reduce the incidence of postpartum Hb<9g/dl.
IV. Shorten the duration of 3rd stage of labor.

Our study recommended that active management should be routine for all women in the third stage of labour as:

I. It is superior to expectant management in terms of the amount of blood loss, the incidence of postpartum haemorrhage, postpartum anaemia & duration of the third stage of labour.

II. This method appears to be safe &easy to perform method of great use in day-to-day obstetric practice, not requiring any extra effort, cost, or equipment. This is relevant in rural areas as well.

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