



ISSN : 2350-0743

www.ijramr.com



International Journal of Recent Advances in Multidisciplinary Research

Vol. 07, Issue 09, pp. 6202-6207, September, 2020

## RESEARCH ARTICLE

### COMPARATIVE STUDY BETWEEN ACTIVE MANAGEMENT OF THE THIRD PERIOD OF CHILDBIRTH WITH OR WITHOUT UTERINE MASSAGE AT THE HOSPITAL-UNIVERSITY CENTER (H.U.C) POINT G. BAMAKO / MALI

Kanté Ibrahim Ousmane<sup>1</sup>, Traoré Mamadou Salia<sup>1</sup>, Coulibaly Ahmadou<sup>1</sup>, Sima Mamadou<sup>1</sup>, Théra Tioukani Augustin<sup>1</sup>, Bocoum Amadou<sup>2</sup>, Kouma Aminata<sup>3</sup>, Traoré Youssouf<sup>2</sup>, and Teguété Ibrahima<sup>2</sup>

<sup>1</sup>Obstetric Gynecology Service of H.U.C Point "G", Bamako/ Mali

<sup>2</sup>Obstetric Gynecology Service of H.U.C Gabriel TOURE Bamako/Mali

<sup>3</sup>Obstetric Gynecology Service of H.U. CKATI, Bamako/Mali

#### ARTICLE INFO

##### Article History:

Received 20<sup>th</sup> June, 2020

Received in revised form

06<sup>th</sup> July, 2020

Accepted 27<sup>th</sup> August, 2020

Published online 30<sup>th</sup> September, 2020

##### Keywords:

Postpartum Hemorrhage (PPH), Active Management of the Third Delivery Period (AMTPC), Uterine Massage, Anemia, Transfusion, Utero Tonic, Delivery.

#### ABSTRACT

**Aim:** To compare the Active Management of the Third Period of Childbirth (AMTPC) with or without uterine massage in the obstetrics department of the C.H.U at Point "G" Bamako / Mali. **Patients and methods:** this was a randomized, open and controlled test which took place from May 1 to September 01, 2019 (4 months). Parturients in good health (without pathologies related to pregnancy with Glasgow 15 out of 15), consenting, carrying a pregnancy of at least 37 weeks of amenorrhea in presentation of the summit, coming to give birth were included. Data analysis and processing was done on Word 2013 and SPSS 12.0. Tests used: chi-square,  $P < 0.05$  (was considered significant). During our study, we identified 891 parturients for 4 months, either 7.4 deliveries per day. Out of 891 parturients we selected 200 parturients including 100 for each arm according to the inclusion and exclusion criteria. The risk factors were represented by primipara in 42% of cases and 45% of witnesses (patients). Postpartum hemorrhage (PPH) was found in 8% of witnesses, however we did not observe PPH in cases with  $P < 0.001$ . We noted 9% severe anemia in the postpartum period in witnesses, however there was no severe anemia in the cases with  $P < 0.001$ . We had 5% uterine atony in the witnesses, however there was no case of uterine atony in the cases,  $P < 0.05$ . We had 9 witnesses parturients were transfused with  $P < 0.005$ . 5 witnesses received an additional administration of oxytocin with  $P < 0.05$ . We did not note any maternal deaths during our study. **Conclusion:** Active management of the third period of childbirth without uterine massage is more effective than active management of the third period of childbirth with uterine massage in combating postpartum hemorrhage as it results in less postpartum hemorrhage, less transfusion, less use of uterotonic.

#### INTRODUCTION

Post-partum hemorrhage is defined as any loss of blood higher than 500 ml of genital origin after vaginal childbirth or higher than 1000 ml in the case of cesarean and leading to modification of the general state (1; 2). According to the World Health Organization (WHO), 529,000 women die each year worldwide from complications of pregnancy, childbirth and postpartum (3; 4). Almost half of these deaths occur in Sub-Saharan Africa, a region that is home to only 13.5% of the world's population and where 23.5% of global births occur (4). With an estimated ratio of 1,000 maternal deaths per 100,000 live births, the African region has the highest maternal mortality rate in the world. Postpartum hemorrhage is the most common cause of maternal death. It is responsible for almost 25% of all maternal deaths (5).

In the context of high maternal mortality and limited resources, especially in Sub-Saharan Africa, the introduction of low-cost practices can help prevent Postpartum hemorrhage (PPH) and can significantly improve the survival of the mother and newborn baby. AMTPC is one of the low-cost and effective interventions for preventing PPH. (6). Active management of the third phase of childbirth (AMTPC) is recognized by the international scientific community as a high-impact clinical intervention for the prevention of postpartum hemorrhage (PPH) and the reduction of maternal mortality (7, 8). It is for this reason that it has been recommended by the World Health Organization (WHO) since 2002, for any vaginal delivery (9), the objectives of which are: to accelerate the placental abruption; decrease blood loss by reducing physiological retro-placental hematoma; promote uterine retraction. It should be done by injecting an utero tonic immediately after the child is discharged and after ensuring the absence of another fetus, inject 10 units of oxytocin intramuscularly; Controlled cord traction: Wait 1-3 minutes and clamp the cord with clips. Stabilize the uterus by exerting slight upward pressure.

\*Corresponding author: Kanté Ibrahim Ousmane,  
Obstetric Gynecology Service of H.U.C Point "G", Bamako/ Mali.

Wait for a contraction of the uterus. Very gently pull the cord down while pushing the uterus upwards. Collect the placenta with both hands and place it in a tray. Make sure the uterus is properly retracted by feeling it; if the uterus is not or poorly retracted, massage the uterus. Immediately massage the fundus through the abdominal wall until the uterus contracts. Make sure that the uterus remains well retracted by feeling it from time to time, if the uterus is well retracted, do not massage the uterus. Some complementary measures to AMTPC are mandatory: Examine the placenta, check the genital tract for tears, repair any lesions, and ensure strict monitoring in the postpartum period: Constant (pulse, blood pressure), uterine globe, bleeding vaginal state of the parturient. Recommendations for the clinical practice of emergency obstetric and neonatal care (RCPE /EONC). In fact, a study in 15 benchmark university obstetric structures (accredited university) in developed and developing countries finds a clear variation in the practice of AMTPC both within the same hospital and between hospitals: in overall, only 25% of the childbirths observed involved the practice of AMTPC, the three components of AMTPC full were applied consistently in only one hospital (10). Furthermore, prophylactic use of oxytocin varied from 0% to 100%; controlled cord traction varied from 13% to 100% and finally the number of women who received additional doses of oxytocin during the third period of childbirth varied from 5% to 100%. This suggests a low use of AMTPC (10). In Mali, the maternal mortality rate is very high, 373 maternal deaths per 100,000 live births, the large share of PPH and with a low income of the population motivated us to initiate this study (11).

**Purpose: To compare AMTPC with uterine massage and AMTPC without uterine massage**

**Patients and methods:** This is a randomized test, open and controlled which took place over 4 months from May 1 to September 01, 2019. All pregnant women admitted to H.U.C Point G maternity for childbirth.

**Inclusion criteria:** parturients in good general condition (without pathologies associated with pregnancy with Glasgow 15 of 15), consenting, pregnant women at the end of pregnancy (37 weeks of amenorrhea gone) in presentation of the summit, who came to give birth in said maternity. Not retained, all parturients who gave birth by caesarean, other presentations, women with risk factors for hemorrhage (history of PPH, placenta previa, retro-placental hematoma, uterine rupture, large multiparous, uterine fibroid, coagulopathy) and those who did not consent. Sample size: was calculated on the basis that PPH occurred in 50% in GATPA cases with uterine massage (10, 12, 13) which permitted us to calculate the sample size, in setting the alpha risk at 5% and the potency at 80%, assuming a difference in the PPH rate of 12% (PPH rate of 13% in the population of parturients who had given birth (vaginal childbirth) when AMTPC without uterine massage was performed in Chile), 100 parturients for each group were required (14). With an estimated 10% data attrition or dropout rate during the study, we needed a total of 100 parturients per group.

**Randomization and processing:** The block randomization list was produced using a computer. Each random treatment allocation number was put in an envelope which was sealed afterward. The envelope was numbered according to the random number generated by the computer.

For the AMTPC arm without uterine massage: monitoring of childbirth, intramuscular injection 10 IU (International Unit) and postpartum monitoring were performed at C.H.U Point "G" in the childbirth room and rest room according to the current protocols by qualified personnel. AMTPC arm with uterine massage: monitoring of childbirth, uterine massage and postpartum monitoring were also carried out at C.H.U Point G according to current protocols by qualified personnel. Subjects were randomly assigned to one of the study arms, according to their order of inclusion and the randomization list. The randomization envelope was only opened if the volunteer was ready to take part in the study. Interventions: After obtaining voluntary consent from the parturient or with the consent of the adolescent's legal tutor, the closed envelope was drawn in random order and then opened. The parturient was informed of the contents of the envelope and was subject to AMTPC with uterine massage or AMTPC without uterine massage. Postpartum parameters were monitored up to six (6) hours after childbirth. Common protocol to both groups: The parturient was monitored since the entry on: Partograph, hemodynamic constants before and after childbirth, hemorrhage after childbirth, and administration of oxytocin. AMTPC protocol with uterine massage: Administration of utero-tonic, controlled cord traction, uterine massage. AMTPC protocol without uterine massage: Administration of utero-tonic, controlled cord traction; the outcome was based on the definition of postpartum hemorrhage.

The Course of the study: after expulsion of the fetus, after the section of the cord, 10 IU of oxytocin was administered intramuscularly. Each newborn was installed on a bed basin and kept in this position until twenty minutes after childbirth, this in order to collect and record the blood losses. After this period, the basin was replaced by a clean lining, held in place for 5 hours 40 minutes of observation. The quantity of blood contained in the linings was obtained by the difference in weight of the lining before and after use, the total amount of blood was obtained by adding the quantities collected in the basin to those of the lining. The conversion of blood masses in quantity was carried out using the coefficient 1 corresponding to the density of water. For clots, this coefficient was 1.6. Before discharge, each patient was aware that she should return to the maternity as soon as she felt that the vulvar hemorrhage was abnormal. Data collection: was done on: An individual survey form, Informed consent form, Partograph, Birthing register and obstetric records. Variables: Identity, Age, job, educational level, marital status, ethnic, history, mode of admission, history of pregnancy, childbirth work, postpartum monitoring, hemoglobin level before and after childbirth, hematocrit level before and after childbirth, amount of blood. Anemia is defined by a drop in the hemoglobin level in pregnant women, that is to say: 3rd trimester:  $\leq 11$  g / l. Data analysis and processing was done on Word 2013, and SPSS 12.0.

**The tests used:** khi2, and  $P < 0.05$  (was considered significant).

**Ethical aspects:** This is an unfunded research study. The records were anonymous.

## RESULTS

During our study "randomized test, open and controlled" which took place for 4 months, from May 1 to September 01,

2019, according to the calculation of the sample size, we identified 200 parturients including 100 parturients for the group of AMTPC without uterine massage (case) and 100 parturients for the group with uterine massage (witness). During our study, we identified 891 parturients during 4 months or 7.4 deliveries per day.

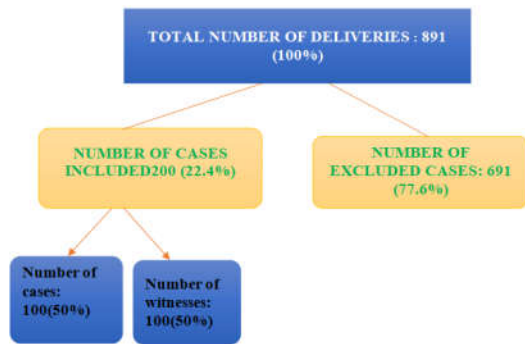


Figure 1.

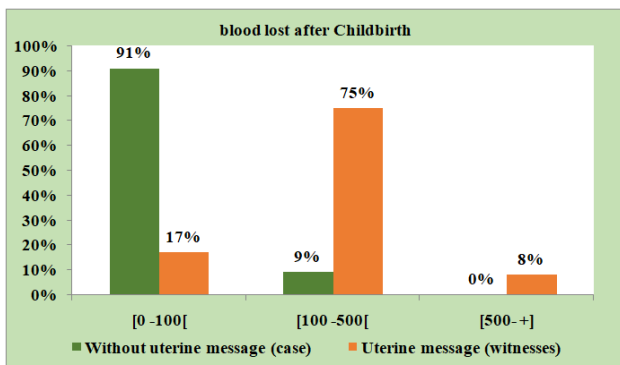


Figure 2: The amount of blood lost in women giving birth

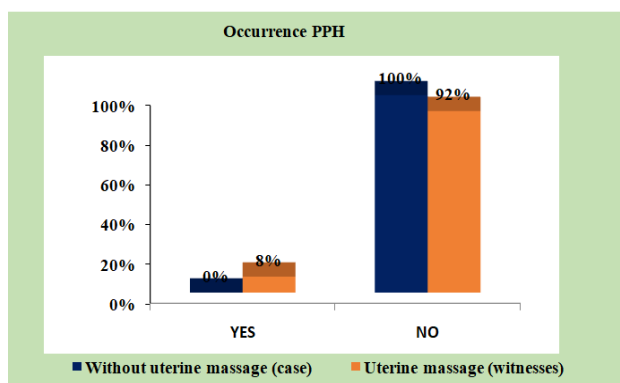


Figure 3. The occurrence or not of postpartum hemorrhage in cases and witnesses

**Risk factors:** During our study we found 42% (42/100) of the cases as well as 45% (45/100) of the witnesses were primiparous. In our study 4% or 4/100 of the cases against 2% or 2/100 of the witnesses were evacuated in emergency. The water bag was intact on arrival in 68% (68/100) of the cases compared to 90% (90/100) of the witnesses. We found that 18% or 18/100 of the cases against 10% or 10/100 of witnesses were not followed during their entire pregnancy. 4% (4/100) of the newborns of the cases were macrosomes, there was no newborn macrosome in the witnesses. The childbirth work time from 8 AM to 12 PM was highest in the cases 68% or 68/100 and 57% or 57/100 to the witnesses.

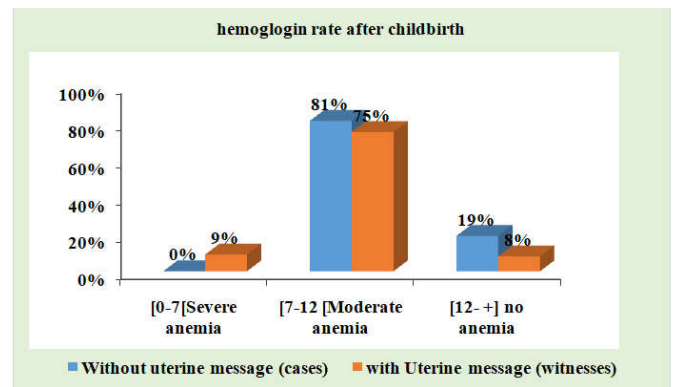


Figure 4: hemoglobin level of women giving birth after childbirth

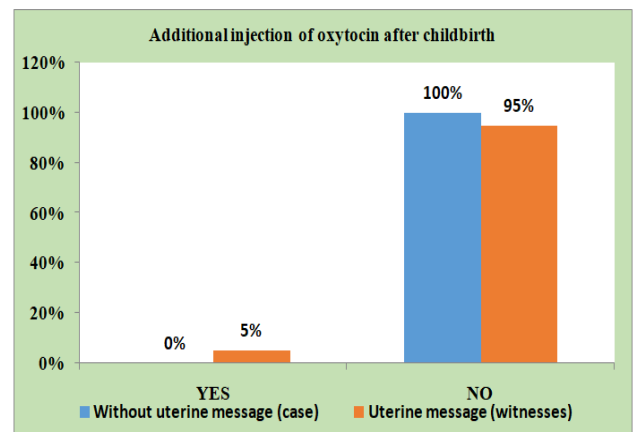
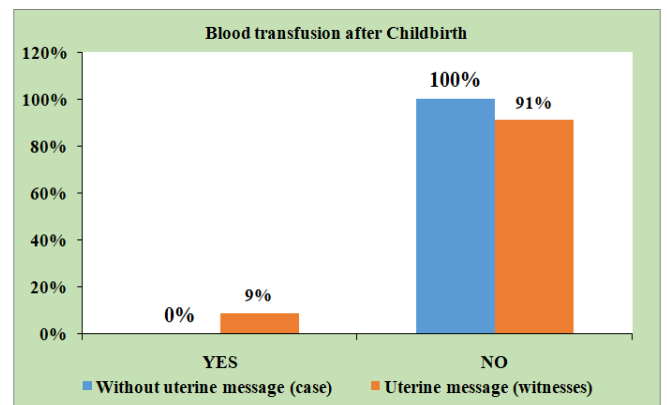


Figure 6. Further injection of oxytocin after delivery

**Clinic (Hospital):** In our study there was no case of severe anemia in both cases before childbirth; the average hemoglobin level before childbirth was 10.49 without uterine massage (case) and 10.40 with uterine massage (witnesses);

Postpartum hemorrhage was found in 8% of witnesses, or 8 women who had recently given birth, however we did not observe postpartum hemorrhage in the cases. Chi<sup>2</sup> test = 110.23; P <0.001. There were no cases of postpartum hemorrhage in cases, however we diagnosed 8% of postpartum hemorrhage in witnesses with P <0.001. In our study we noticed 9% of severe anemia in the postpartum to the witnesses, on the other hand there was no severe anemia in the cases; the difference was significant. P <0.001. The average hemoglobin level after childbirth was 10.315 g / dl without uterine massage and 9.4 g / dl with uterine massage; Chi<sup>2</sup>: 22.841 and P <0.001 therefore highly significant.

Tableau 1. Sociodemographic characteristics of the cohorts:

	Without uterine massage (case)		Uterine massage (witness)		
	Number	(%)	Number	(%)	
Age					
14 – 19	18	(18)	18	(18)	P: 0.89
20 – 29	48	(48)	51	(51)	
30 – 39	33	(33)	30	(30)	
40 et +	1	(1)	1	(1)	
Job					
Housewives	69	(69)	63	(63)	P: 6.491
Students/Pupils	21	(21)	24	(24)	
Civil servants	9	(9)	8	(8)	
Others	1	(1)	5	(5)	
Marital status					
Married	88	(88)	82	(82)	P: 0.219
Single	10	(10)	11	(11)	
Divorced	1	(1)	5	(5)	
Widow	1	(1)	2	(2)	
Educational level					
Illiterate	42	(42)	42	(42)	P: 0.945
Primary level	32	(32)	28	(28)	
Secondary level	18	(18)	21	(21)	
Higher level	4	(4)	3	(3)	
Koranic school	4	(4)	5	(5)	
Others	-	(-)	1	(1)	
Ethnic group					
Bambara	34	(34)	38	(38)	P: 0.6
Soninke	14	(14)	7	(7)	
Peulh	11	(11)	10	(10)	
Sonrhäi	9	(9)	9	(9)	
Malinke	9	(9)	8	(8)	
Others	8	(8)	17	(17)	
Senoufo	5	(5)	1	(1)	
Bobo	5	(5)	3	(3)	
Bozo	4	(4)	4	(4)	
Minianka	1	(1)	3	(3)	

**Etiologies of postpartum hemorrhage:** We had 5% uterine atony in the witnesses (with uterine massage) however there were no cases of uterine atony in the cases (without uterine massage). The significant statistical test with  $\text{Khi}^2: 22, 84; P: 0.05$ .

**Management of postpartum hemorrhage:** 9 witnessed women giving births were transfused but we did not transfuse the cases. The statistical difference was significant.  $\text{Khi}^2: 44.8$  and  $P < 0.003$ . All 5 women received an additional administration of oxytocin in the witnesses.  $P < 0.05$ . We did not perform any surgical procedures for management.

### Maternal prognosis

**Maternal morbidity:** Analysis of hemoglobin levels in the laboratory, clinical examination and the amount of blood lost after childbirth allowed us to diagnose 9 cases of severe anemia due to postpartum hemorrhage, including 5 cases of uterine atony witnesses that we quickly took care of

**Maternal mortality:** We did not register any cases of maternal death and perinatal death during our study.

**Comments and discussion:** This study, the first of its kind in our country, is a randomized open and controlled clinical test with 2 arms, therefore with less bias. Despite the difficulties encountered in particular the refusal of certain parturients, the control of the hemoglobin level, the measurement of the amount of blood, it clearly appears that uterine massage was correlated with postpartum hemorrhage, certainly the number of the sample may be increased. During our study we identified 891 parturients of which 200 parturients were included and 691 parturients were excluded (Figure 1).

During our work, we identified 200 parturients with 100 parturients for cases and 100 for witnesses. The 20 to 29 age group was 48% and 51% respectively for the cases and the witnesses. They were housewives in 69% for the cases and 63% for the witnesses, married in 88% in the cases and 82% in the witnesses, non-literate in 42% in the 2 groups and Bambaras in 34% and 38% respectively in the cases and among witnesses (Tableau 1). *Selon J. SAIZONOU et al. L'âge moyen était 26.5 ± 06 ans, elles étaient mariées dans 82.8%, non alphabétisées dans 51.7%, femmes au foyer dans 58.0% et nullipares 32.8%(15)*. According to the WHO, the risk factors for postpartum hemorrhage are poverty, malnutrition, lack of freedom for reproductive health (human rights) etc. (16). Rogers and all also did not find a significant difference with socio-demographic characteristics (14).

Risk factors such as parity, mode of admission, prenatal visit, weight of newborns, hours of childbirth work were not significant in our study with 42% for cases against 45% for witnesses respectively. Primiparous; 4% for cases against 2% for witnesses were evacuated; 18% for cases against 10% for witnesses did not have prenatal follow-up; 68% of cases against 57% of witnesses had a working time between 8 a.m. and 12 p.m. Parity as a risk factor for postpartum hemorrhage has also been described in the same WHO (12). The explanation is the gradual decrease in the capacity for retraction after each childbirth. Among the risk factors for postpartum hemorrhage is the mode of admission (inadequate transport system, the three delays)(16). Monitoring the pregnancy makes it possible to detect pregnant women who have risk factors but cannot prevent postpartum hemorrhage. Rogers did not find a statistically significant difference between postpartum hemorrhage and prenatal visit and the weight of the newborn (14).

According to the Demographic Health Survey in Mali (DHSM), it is recognized that the longer the parturient lasts at work, the more she is at risk of postpartum hemorrhage (11). 68% of cases against 90% of witnesses had their pockets of water intact on arrival. According to Curtis and all, among the causes of secondary postpartum hemorrhage: we have endometritis, retained placenta, poor uterine involution, therefore without influence in the first 6 hours of postpartum (17). In our study, postpartum hemorrhage occurred in 8 controls versus 0 in cases (figure 3) On the other hand, in the postpartum period, we had 9 cases of severe anemia in controls, 0 cases in case (figure 4) with  $\chi^2$  test = 110.23;  $P < 0.001$ . This led us to transfuse the 9 cases of postpartum hemorrhage (figure 5). We had 5% uterine atony in controls (with uterine massage) but there were no cases of uterine atony in the cases (without uterine massage). The statistically significant test with  $\chi^2$ : 22, 84;  $P: 0.05$  which led us to the additional use of oxytocin in the 5 controls who had uterine atony (figure 6). All the statistical tests were significant. According to F. Goffinet et al uterine atony accounted for 58% of the causes of postpartum hemorrhage. (18). The Cochrane collaboration review in its study found: that the quantity of blood lost in the uterine massage group is lower than in the non-uterine massage group (witnesses) which led them to make 8 transfusions in non-massages (witnesses) and the use of additional oxytocin in non-massages; The test was not significant.

This can be explained by the fact that he did the uterine massage every 10 min for 30 min, in their sample; therefore spaced uterine massage. In the non-massage group (witnesses) there were caesareans which is a risk factor for postpartum hemorrhage, in addition postpartum monitoring was done for two hours. (13). In our study in relation to the duration of the third period of childbirth, 10 IU of oxytocin was administered immediately to all the women who gave birth, which did not allow us to have a long delay of childbirth. And there were no cases of retained placenta in either the witnesses or the cases. The Cochrane collaboration review study found two placental retentions after a delay of 30 minutes in non-uterine massages. This can be explained by the fact that in their sample there was a history of cesarean section which can bias their result. (13). we have not had any maternal deaths. However, we have not analyzed the side effects of uterine massage such as pain and potential discomfort for the mother. In addition, it is of paramount importance to explore the experience of women in this procedure, which is uterine massage.

## Conclusion

We conclude that the active management of the third period of labor with uterine massage was marked by complications such as postpartum hemorrhage, anemia and uterine atony; which led to us having transfusions and using more oxytocics.

## Bibliographical references

- Abalos E. 2009. Active vs. Expectative Management During Deliverance: RHL Commentary. WHO Reproductive Health Library: Geneva.
- Abdel-A. and all.. Uterine massage and postpartum blood loss. *International Journal of Gynecology & Obstetrics* 2006; 93 (3):238–9.

- Bartlett L. and all. Where giving birth is a forecast of death: maternal mortality in four districts of Afghanistan, 1999–2002. *Lancet* 2005;365:864–70;
- Burke C. 2010. Active versus expectant management of the third stage of labor and implementation of a protocol. *J. Perinat. Neonatal Nurs.* 24(3): 215-228.
- Coombs CA, and all. Factors associated with postpartum haemorrhage with vaginal birth. *ObstetGynecol* 2017; 77:69–76.
- Curtis L. and all. Clinical Trials: Design, Conduct, and Analysis. Oxford University Press, Incorporated March 27, 2017; Hardcover, 496 pages.
- Deeks and all. Statistical methods for examining heterogeneity and combining results from several studies in meta-analysis. In: Egger M, Davey Smith G, Altman DG editor(s). *Systematic reviews in health care: meta-analysis in context*. London: BMJ Books, 2001.
- EDSV. Mali Demographic Health Survey, is an organ of the world health organization which measures the maternal mortality rate in African countries every 5 years. 2018.
- F. Goffinet, F. and all. Antepartum and postpartum haemorrhage. In Murray CJL, Lopez AD, eds. *Health Dimensions of Sex and Reproduction*. Boston: Harvard University Press, 2018:172–81;
- Fawcus S. and all. Maternal mortality study group. Community based investigation of causes of maternal mortality in rural and urban Zimbabwe. *Central African Journal of Medicine* 1995; 41:105–13.
- Festin M. and all. International Survey on Variations in Practice of the Management of the Third Stage of Labour. *Bulletin of the World Health Organization* 81: 286–291. 2003.
- Fuchs A. and all. Oxytocin secretion and human parturition: pulse frequency and duration increase during spontaneous labour in women. *ObstetGynecol* 2016; 165:1515–23.
- Gates S. and all. Methodological Guidelines. In: the Editorial Team. Pregnancy and Childbirth Group. About The Cochrane Collaboration (Collaborative Review Groups (CRGs)) 2005, Issue 2.
- Gibson L. and all. WHO puts abortifacients on its essential drug list. *Br Med J* 2005; 331:68.
- Higgins J, and all. Cochrane Handbook for Systematic Reviews of Interventions 4.2.4 (updated March 2005). In: The Cochrane Library, Issue 2, 2005. Chichester, UK: John Wiley & Sons, Ltd.
- Hirst J and all. Role of oxytocin in the regulation of uterine activity during pregnancy and in the initiation of labour. *SeminReprodEndocrinol* 2015; 11:219–33.
- Hofmeyr GJ, and all. The COCHRANE collaboration review: Uterine massage for preventing post-partum haemorrhage (Review).
- Hogberg U. and all. The decline in maternal mortality in Sweden: the role of community midwifery. *Am J Pub Health* 2004; 94:1312–19.
- [http://www.indianchild.com/taj\\_mahal.htm](http://www.indianchild.com/taj_mahal.htm): Taj Mahal History and Pictures.
- ICM and FIGO. *Joint Statement: Management of the Third Stage of Labour to Prevent Postpartum Haemorrhage*. Washington: ICM/FIGO. 2003.
- ICM/FIGO International Confederation of Midwives (ICM), International Federation of Gynaecologists and Obstetricians (FIGO). Joint statement: management of the third stage of labour to prevent postpartum haemorrhage. *Journal of Midwifery and Women's Health* 2004; 49:76–7.

- J. SAIZONOU et al. / *Int. J. Biol. Chem. Sci* 6(2): 726-737, 2012.
- Lansac, J., and G. Body. 1988. *Pratique de l'accouchement*.
- Lawn JE, Darmstadt GL, Organizing Guest Editors and RL Goldenberg, External Guest Editor. 2009. Intrapartum-related deaths: evidence for Action. *International Journal of Gynecology & Obstetrics*, 107(Supplement 1): 9-150.
- Lazarus J, and all. Reducing postpartum haemorrhage in Africa. *International Journal of Gynaecology & Obstetrics* 2005; 88:89–90.
- LiXF and all. The postpartum period: the key to maternal mortality. *Int J Gynaecol Obstet* 2016; 52:1–10.
- Merger R. et al, Paris Obstetrics Precis, Masson, 2001. ISBN: 2-294-00897-9. P 382-384.
- NCCEMD 2006 National Committee for the Confidential Enquiries into Maternal Deaths. *Saving Mothers. Third Report on Confidential Enquiries into Maternal Deaths in South Africa 2002-2004*. South Africa: Department of Health, 2006. (MEDLINE: ISBN 1-920031-26-X).
- OMS. *Prise en charge des Complications de la grossesse et de l'accouchement : Guide destiné à la sage-femme et au médecin*. 2002.
- Phaneuf S and all. Desensitisation of oxytocin receptors in human myometrium. *Hum Reprod Update* 2004; 4:625–33.
- Prata N and all. Using the kanga to measure postpartum blood loss. *Int J Gynaecol Obstet* 2005; 89:49–50.
- Prendiville W. and all. The Bristol Third Stage Trial: Active versus Physiological Management of the Third Stage of Labour. *British Medical Journal* 297: 1295–1300. 1988.
- Prendiville, W. and all. Active versus Expectant Management in the Third Stage of Labour (Cochrane review). The Cochrane Library. 2001.
- Prendiville, W. and all. Active versus Expectant Management in the Third Stage of Labour (Cochrane review). The Cochrane Library. 2001.
- Razvi K, and all. A comparison between visual estimation and laboratory determination of blood loss during the 3<sup>rd</sup> stage of labour. *Aust NZ J Obstet Gynaecol* 1996; 36:152-4.
- Rogers, J., and all. Active versus Expectant Management of Third Stage of Labour: The Hinchinbrooke randomized Controlled Trial. *Lancet* 351: 693–699. 1998.
- Rogers, J., and all. Active versus Expectant Management of Third Stage of Labour: The Hinchinbrooke Randomized Controlled Trial. *Lancet* 351: 693–699. 1998.
- WHO, UNICEF, UNFPA. Maternal Mortality in 2000: Estimates Developed by. Geneva: World Health Organization, 2004.
- World Health Organization (WHO) Regional Office for Africa (WHO / AFRO). Roadmap: The African Union is committed to fighting maternal mortality. Regional Reproductive Health Bulletin No. 2. Brazzaville: WHO / AFRO. 2004.
- World Health Organization (WHO). *Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF, and UNFPA*. Geneva: WHO. 2004.
- www.phrusa.org/research/afghanistan/maternal.Physicians for Human Rights. Maternal Mortality in Heart Province, Afghanistan, 2002 mortality.

\*\*\*\*\*