

# A Study to Assess Knowledge on Active Management of Third Stage of Labour (AMTSL) among Nurses in Labour/Delivery and Postnatal Units

Veronika Jones B<sup>1</sup>, Padma B<sup>2</sup>, Gigi Chacko<sup>3</sup>, Shaik Shaffi Ahamed<sup>4</sup>

<sup>1,3</sup> Senior Specialist  
King Saud University Medical City  
Riyadh, Saudi Arabia.

<sup>2</sup> Principal  
CAIMS College of Nursing  
Professor Department of OBG  
Chalmeda Anand Rao  
Institute of Medical Sciences  
Karimnagar – 505001.  
Telengana, India.

<sup>4</sup> Associate Professor & Consultant  
Biostatistician  
College of Medicine  
King Saud University Medical City  
Riyadh, Saudi Arabia.

## CORRESPONDENCE:

<sup>1</sup> B. Veronika Jones, RN, MSN,  
Senior Specialist  
King Khalid University Hospital  
King Saud University Medical City  
Riyadh, Saudi Arabia.  
E-mail: bollu.jones@gmail.com

## ABSTRACT

**Aim:** The aim of this study is to assess the knowledge of Labour/Delivery and Postnatal nurses on active management of third stage of labour and identify the gaps for the effective implementation of this quality improvement initiative.

**Materials and Methods:** The overall aim of this study is to achieve effective implementation of active management of third stage of labour and to reinforce the nurses' role in assisting for optimal management of obstetrical hemorrhage. The research design was quasi experimental one group pretest posttest survey method using purposive sampling technique. A total of 91 nurses working in Labour/Delivery and Postnatal units of King Khalid University Hospital were selected. To test the statistical significance paired sample t-test was used and to test the relation between the demographic variables and the test scores, one way ANOVA was used.

**Results:** 75 nurses participated in the study, while 16 nurses dropped out of the study after the pretest. The mean pretest score was 9.42 (n=75), and the post test score after teaching and intervention is 13.65. Standard Deviation of pre and post test scores is 1.706 and 2.640 respectively. There is a significant difference in the means of pre and posttest scores on knowledge of nurses (9.42 vs. 13.65) with the mean difference of 4.23 in the scores. The 't' value in the paired sample 't' test is 13.645 (P < 0.001). Relationship between demographic variables and test scores by one way ANOVA showed statistically insignificant results. The results were compared with the latest scientific evidences to identify gaps in the nurses' knowledge and in the effective implementation of the active management of the third stage of labour across the maternity units.

**Conclusion:** With the existing percentage (1- 1.5%) of postpartum hemorrhage in our maternity services, the knowledge on active management of third stage of labour (AMTSL) is imperative among nurses to reduce the rate of postpartum haemorrhage by 60 – 70%.

**Keywords:** Active Management, third stage of labor, postpartum hemorrhage.

## INTRODUCTION

Postpartum hemorrhage is the leading cause of maternal death worldwide with an estimated mortality rate of 14,000 per year or 1 maternal death every 4 minutes.<sup>[1]</sup> PPH occurs in 5% of all deliveries and is responsible for a major part of maternal mortality.<sup>[2]</sup>

The majority of these deaths occur within 4 hours of delivery, which indicates that they are a consequence of the third stage of labour. One respected author states: this indeed is the unforgiving stage of labour, and in it there lurks more unheralded treachery than in both the other

stages combined. The normal case can, within a minute, become abnormal and successful delivery can turn swiftly to disaster.<sup>[4]</sup>

The third stage of labour is managed differently around the world. Over the years two management packages known as 'Active Management' and 'Expectant management' emerged. In active management (AMTSL), a number of interventions are applied in combination while the expectant management represents a more hands-off style with those interventions used in AMTSL withheld.<sup>[5]</sup>

AMTSL has been defined in various ways and current international definition comprises three components: Administration of an uterotonic soon after delivery of the baby; controlled cord traction; and uterine massage after delivery of the placenta.<sup>[5]</sup> Guidelines from around the world have varied widely in their selection of oxytocic agent, early cord clamping, cord traction, uterine massage and cord drainage.<sup>[6]</sup>

In a systematic review of randomized controlled trials, active management of third stage of labour was more effective than physiological management in preventing blood loss, severe postpartum hemorrhage (> 500ml) and in prolonging the third stage of labour.<sup>[7]</sup> Routine use of active management of third stage of labour for all vaginal singleton births in health facilities is recommended by Federation of Gynecologists and Obstetricians (FIGO) and the International Confederation of Midwives (ICM), as well as by WHO.<sup>[7, 13]</sup>

Oxytocin is the first choice agent due to its high efficacy and low incidence of adverse side effects.<sup>[3]</sup> Controlled cord traction is intended to facilitate placental separation and delivery. It involves manual application of gentle downward tension on the umbilical cord while maintaining counter pressure on the uterus, and is administered in conjunction with uterine contractions.<sup>[3]</sup> Uterine massage is believed to stimulate uterine contractions through prompting the release of prostaglandins.<sup>[3]</sup>

While maternal mortality rates have declined dramatically in the developed world, PPH still remains a leading cause of maternal mortality.<sup>[4]</sup> Most complications of the third stage occur in low risk women; therefore, caregivers and institutions must have management strategies in place to deal with these problems promptly when they arise.<sup>[4]</sup>

The objective of our study is to assess the knowledge of our nurses and midwives, working in Labour/Delivery and Postnatal units of King Khalid University Hospital on Active Management of the Third stage of labour. Introduce the best evidences through literature review, and to achieve highest standard of care in the third stage management of labour with the empowerment of nurses' knowledge.

## MATERIALS AND METHODS

The study design was quasi experimental one group pretest posttest design. All the female staff nurses and midwives, with different levels of nursing qualifications and experience ranging from Diploma to Masters and having past maternity experience of 1 to 20 years while currently working in the Labour/Delivery and Postnatal units of the King Khalid University Hospital, King Saud

University Medical City were included in the study. A total of 91 sample (n=91) answered the validated structured questionnaire with five key areas namely scientific evidences, review on uterotonic drugs, prevention of PPH, active management of the third stage of labour, and monitoring during the immediate postpartum period.

A total of 20 questions in pretest was administered on January 5th 2016. Structured teaching of 1 hour 30 minutes with the reference material were provided to the participants on five consecutive days i.e., 15th to 18th and 22nd February 2016. Posttest for the same group was conducted from 15th to 22nd February 2016.

Same questionnaire was administered for both pre and posttest. A total of 75 sample (n=75) participated both in pretest and posttest, as 16 nurses dropped out after the pre test.

The data was analyzed using descriptive and inferential statistics from SPSS package. To test the statistical significance paired sample 't' test was used and to test the relation between the demographic variables and the test scores one way ANOVA test was applied. A standardized checklist was prepared in order to assess the compliance of nurses' to the practice of

## RESULTS

The pre test scores on knowledge assessment are with the mean scores of 9.42 and standard deviation of 1.706, while the minimum and maximum scores are 5 and 13 respectively. The post test score on knowledge assessment are with the mean scores of 13.65 and the standard deviation of 2.640 with the same structured questionnaire and after teaching and intervention for the total number of participants (n=75). The minimum and maximum scores on posttest are 7 and 19 respectively.

Table 2 has the values of paired sample 't' test. There is significant difference in the pre and post test scores on knowledge of nurses with a mean difference of 4.23 in scores.

The mean difference of pre and posttest scores is 4.230 and the corresponding 't' value by paired sample 't' test is 13.645, which is highly significant, and the 'p' value for the same is < 0.001. Hence the null hypothesis is rejected, showing there is significant difference in pre and posttest knowledge assessment scores on active management of third stage of labour among nurses in Labour/ delivery and Postnatal units.

## DISCUSSION

The mean pretest and posttest scores as per table 1 are 9.42 and 13.65 respectively, the data shows the scores

**Table 1: Pre Test and Post Test scores on knowledge assessment**

	Number (N)	Minimum	Maximum	Mean	Standard Deviation
Pre Test Scores	75	5	13	9.42	1.706
Post Test Scores	75	7	19	13.65	2.640

improved by 4.230 as per table 2. Since the 't' value is 13.645 with a corresponding 'p' value of < 0.001, we can conclude that there is a statistically significant difference between pretest scores and posttest scores.

't' value of 13.645 indicates the teaching and intervention improved the scores, but the 95% confidence intervals are between 4.848 and 3.612, this conforms that though the numbers are statistically significant, they are relatively small, so we need to consider that this difference in scores is practically important, not just statistically significant. In conclusion the difference between the pre and post test scores are not likely due to chance and are due to the teaching and the information provided to the participants.

The relationship between demographic variables like job title/designation, years of maternity experience, qualification and area of work on test scores by one way ANOVA are statistically insignificant. Hence forth the selected independent variables have no statistically significant effect on pre and posttest performances of the subjects in the study.

As per Health facility based Active Management of the Third stage of labour findings in Tanzania April 2009, the knowledge and practice of AMTSL is very low and Standard Treatment Guidelines are not updated on correct AMTSL practice.<sup>[9]</sup> Another related study on Active management of third stage of labor: evidence versus practice in November 2009 in Nigeria, concluded that the use of AMTSL varied widely with the definition

	Differences				
	Mean	Std. Deviation	Std. Error of mean Paired	95% confidence interval of the difference	
				Lower	Upper
Pre Test Scores - Post Test Scores	-4.230	2.667	.310	4.848	-3.612

**Table 3: Paired Sample 't' Test**

	Differences				
	Mean Difference	't' value	'p' value	95% confidence interval of the difference	
				Lower	Upper
Post Test - Pre test	4.230	13.645	<0.001	4.848	3.612

**Table 4: Competency - based checklist for the Active Management of the Third stage of Labour (AMTSL)**

TASK/ACTIVITY	PERFORMED		REMARKS
	YES	NO	
<b>PREPARATION FOR BIRTH &amp; BIRTH</b>			
Prepares equipment and the area			
Instructs the woman to empty bladder as the second stage begins			
Provides emotional support			
Assists woman to comfortable position			
Encourages the woman to bear down during contractions			
Wears PPE and follow strict asepsis			
Delivers baby as per standard of practice			
<b>IMMEDIATE NEWBORN CARE</b>			
Dries the baby, assess for breathing and crying			
If no breathing and crying in 30 sec begins resuscitation			
Initiates rooming in and Breast feeding			
<b>ADMINISTRATION OF UTEROTONIC DRUG</b>			
Within one minute of delivery rules out additional baby(s) and administers uterotonic			
Follows hospital protocol and patient condition for the choice of uterotonic			
Informs the possible side effects of medication			

**Table 5: Competency - based checklist for the Active Management of the Third stage of Labour (AMTSL)**

TASK/ACTIVITY	PERFORMED		REMARKS
	YES	NO	
<b>CONTROLLED CORD TRACTION</b>			
Clamps and cut the cord between two clamps under strict asepsis			
Stabilizes the uterus and apply cord traction and counter traction			
Encourages the woman to bear down while applying traction on the cord			
Delivers the placenta completely			
Inspects the placenta and membranes for completeness			
<b>UTERINE MESSAGE</b>			
Massages the fundus until the uterus is well contracted			
Ensures that the uterus does not become relaxed			
Encourages Bladder emptying			
<b>IMMEDIATE POSTPARTUM CARE</b>			
Inspects for lacerations and tears in the cervix and perineum			
Repairs episiotomy if one was performed			
Quantifies the blood loss			
Makes the woman comfortable and inform all the events during the delivery			
Provides support and reassurance through out			
Documents all the findings and pertinent information			

applied and tended to decrease with the increasing strictness of the criteria.

The survey reveals substantial definition-dependent variation in the provider's adherence to recommended AMTSL practices. An International survey in January 2003 on variations in practice of the management of the third stage of labour, identified significant intra country and inter country variation in the practice of the active management of the third stage of labour, which confirmed the existence of a large gap between knowledge and practice.

Hence forth we based our study on the previous research findings of variations in the knowledge and practice of providers, and tried to improve our nurses knowledge base and there by to influence their practice in terms of application and standardization of AMTSL in the third stage of labour in the given areas.

This study has definitely contributed in its own limited way to the nurses' knowledge in the specific field of labour management.

## CONCLUSION

The study helped to improve the nurses knowledge in the specified area of practice, the active management of the third stage of labour (AMTSL), and has a future implication of standardizing the practice of the management of third stage of labour among nurses and midwives in the setting.

## RECOMMENDATIONS:

'Benefits and harms' of both physiological and active management of third stage of labour have been identified (Begley et al., 2011)<sup>[10]</sup> and midwives need to be aware of these when discussing management choice with women and applying clinical decision making.

- Standardized institutional policies and protocols to promote the efficiency of nurses in performing the care of women in third stage of labour
- Ongoing quality audits to verify the confirmation of practices to the standards of care in the clinical area, thereby to reduce the incidence of Obstetric haemorrhage.
- Interdisciplinary team training to implement the practice in the area.
- A future randomized control study can be taken to assess the nurses' compliance to evidence based latest practices on Active management of third stage of labour

## ETHICAL CLEARANCE:

Approval sought from hospital ethics committee for the conduction of study.

## CONFLICT OF INTEREST :

The authors declared no conflict of interest.

## FUNDING : None

## REFERENCES

1. Amy Maclver. Blood loss measurement. Technology opportunity assessment, Program for appropriate technology in Health. PATH. Seattle, WA, USA. 2012. [www.path.org](http://www.path.org)
2. Leduc Dean, SenikasVyta. Active management of the third stage of the labour: Prevention and treatment of postpartum haemorrhage. SOGC Clinical Practice Guidelines. *JOG*. 2009; 235: 981-993.
3. Sheldonwendy W R, Durocher Jill, Trussell J. How effective are the components of active management of the third stage of labour. *BMC Pregnancy and Childbirth*. 2013;13:46.
4. Smith John R. Management of third stage of labour, *emedicine.medscape.com article*. 2015:275.
5. Gulmezoglu Metin A, Widmer Mariana, et.al. Active management of the third stage of labour without controlled cord traction: a randomized controlled non inferiority trial. *Lancet*.2012;372:1721-27.
6. Aflaifel N, Weeks AD. Active management of third stage of labour. *BMJ*. 2012; 6:e4546.
7. Stanton C, Armbruster D et.al. Use of active management of the third stage of labour in seven developing countries. Prevention of Postpartum haemorrhage. *Bull World Health Organ*. 2009; 87 : 207-215.
8. Soltani H, Hutchon et.al. Administration of uterotonic drugs before and after placental delivery as part of the management of the third stage of labour following vaginal birth. *PubMed Health Cochrane collaboration*. 2010; 8:CD006173.
9. Olufemi TO, Aninola OI, Fawole AO et.al. Active management of third stage of labour: Evidence versus practice. *Acta Obstetrcia et Gynecologica Scandinavica*. 2009; 88:1252-1260.
10. Begley CM, Gyte G, Devane D, Mcquire W, Weeks A. Delivering the placenta with active, expectant or mixed management in the third stage of labour. *Cochrane Database syst rev*.2015: 3:CD007412.
11. William NP, Herbert et al. ACOG Practice Bulletin. Clinical management guidelines for Obstetrician-Gynaecologists. *Obstetrics & Gynaecology*. 2006: 108:1039-47.
12. Arulkumaran S, Mavrides E, Penney GC, Aberdeen. Prevention and management of postpartum haemorrhage. RCOG Green-top guidelines. *Royal College of Obstetricians & Gynaecologists*. 2009; 52:1-24
13. Chu CS, Brhlikova P et al. Rethinking WHO guidance: Review of evidence for misoprostol use in the prevention of postpartum haemorrhage. *J R Soc Med*. 2012; 105: 454-455.