

Nurse's Knowledge Aspects of Enhancing Haemoglobin Level and Safety through Delayed Cord Clamping Time in a Semi-urban Hospital in South Rift Region, Kenya

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Abstract

The clamping of the umbilical cord can be done at different times after delivery, although delaying the clamping of the cord for ≥ 1 minute after birth improves the haemoglobin levels for newborn and variation may lead to safety issues and influence of the haemoglobin status of the infants. There is limited literature on the knowledge of health care providers on the optimal time to clamp the umbilical cord after delivery. The objective was to assess the nurse's knowledge aspect on enhancing haemoglobin levels through delayed cord clamping in a Semi Urban Hospital in South Rift Region, Kenya. The Participants nurses in the study were enrolled through simple random sampling in maternity and delivery rooms and the aspect of knowledge was assessed using Pre-test questionnaire. Half of the nurses (50%) had knowledge that delayed clamping is recommended. However, 69% had knowledge that delayed cord clamping should be performed for those infants requiring essential care under maximum safety conditions while 94% reported that delayed cord clamping is beneficial to the infant and does not interfere assessment of the baby and administration of uterotonic drugs. About 31% had incorrect knowledge that delayed umbilical cord clamping increases the infant's risk of acquiring HIV. Half of the nurses (50%) of nurses had knowledge that the World Health Organization (WHO) 2014 guidelines recommended delayed cord clamping for all infants without medical complications including infants of women who are HIV positive. The nurse's knowledge on the optimal time to clamp the umbilical cord after delivery was not uniform. Majority of the nurses had knowledge that delayed cord clamping increases the risk of mother to child HIV transmission and aspect of knowledge affected the safety level of infant haemoglobin levels. Relevant stakeholders should consider developing national guideline and standard operational procedures on Umbilical Cord Clamping after delivery.

Key Words: Nurses, Knowledge, Safety, Haemoglobin, Cord Clamping and Time

Introduction

Health worker's knowledge may be influenced by the level of training and the availability of national guidelines and the policies guiding their practice. The practice may be influenced by setup. Knowledge is one of the crucial aspects of health system's adherence to essential of immediate newborn care practices as first step for the prevention of further complication at hospital based level (Taha, 2011). In the study by Taha in 2011, the observation showed that the knowledge of health workers in obstetric practice during delivery accounts for 50% while the skills towards the immediate care of the newborn was 40.1%. The difference in knowledge and practice scores was attributed to lack of direct supervision or lack of hospital's protocols that guide newborn care practice at birth (Taha, 2011). Many health care workers in developing countries have slight or no access to the basic elementary practical information (Godlee, Pakenham-walsh, Ncayiyana, Cohen, & Packer, 2015).

A study in Kenya identified insufficient national guidelines as a potential source of deficient knowledge and practice with most of the respondents demonstrating that they had acquired their knowledge on the cord care in pre service training (Obimbo, Musoke, & Were, 1999). Downey

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and Bewley in 2012, in their study illustrated that only 53% of the health workers practice delayed cord clamping and concluded that there may be gaps and errors in practitioners knowledge which is may have been compounded by the lack of specific national guidelines and explicit definitions of ‘early and “delayed” cord clamping (Downey & Bewley, 2012).

World Health Organization in 2014 released a guideline with the recommendation for the health workers to delay cord clamping following delivery. Even though WHO guideline is available on cord clamping, Kenya is yet to implement the principle in public and private health facilities. The availability of the guideline may not necessarily mean that the health workers are holding on to the guideline recommendation when offering services (Fadare, Enwere, Afolabi, Chedi, & Musa, 2011) . The knowledge and practice requirements of health personnel in many developing countries are diverse and are continually under the influence of numerous aspects which may include cultural, infrastructural, professional, and institutional (Pakenham-Walsh & Bukachi, 2009). Indeed, many of the health workers may depend on their observation and the information from their training colleges and peers to improve their knowledge and skills, nonetheless, little improvement has been attained in meeting the information requirements of the healthcare providers in the developing world. There is limited literature on the knowledge of health workers on the umbilical cord clamping particularly in Bomet County Kenya.

Methodology

A total of n=16 Nurses were randomly enrolled into the study. The health workers technical knowledge on the umbilical cord clamping time was assessed using a validated questionnaire which was administer before the commencement of the study (WHO, 2014). The pre–test questionnaire of this study was administered to the nurses who were providing health services at the time of study in the labour ward, delivery rooms, maternity and the mother child health clinics.

Results

The results of this study presented in Table 1 showed that half of the nurses (50%) were able to respond correctly that delaying the umbilical cord clamping for three minutes or more after delivery is recommended for all infants irrespective of their medical condition at the time of delivery. However, sixty nine percent (69%) accepted that delayed umbilical cord clamping should be performed during the provision of essential infant care.

In terms of the Nurses knowledge on other causes of anaemia among infants, 75% of the Nurses answered correctly that delayed cord clamping does not prevent all types of anaemia among the infants. For the question that tested Nurses knowledge on the benefits of delayed cord clamping, 94% of Nurses answered correctly that the delay in clamping of the umbilical cord is beneficial to the baby and the practice does not interfere with the active management of third stage labour.

The Nurses knowledge aspect of the risk of the infant acquiring HIV from the mother if the umbilical cord clamping is delayed, 69% of the Nurses did not answer the question correctly even though, 50% of Nurses staff had knowledge on the World Health Organisation guideline (WHO, 2014) that recommended delayed cord clamping as optimal practice for all infants who present without medical complication including infants of women who are HIV positive.

In addition, the aspect of knowledge that sought to test information whether at the time of birth and when clamping the cord, blood flow from the placenta to the new born baby is the same as during the pregnancy, 69% of the Nurses responded correctly that the blood flow is the same. Further, 69% of the Nurses were familiar with the information that delayed cord clamping provides the infant up to 75mg of iron which is needed in the first six months of the life.

This study similarly tested the aspect of knowledge on whether the Nurses staff had additional information on the lower limit of umbilical cord clamping time that is supported by published studies. The results exhibited that 75% of the Nurses answered correctly that clamping not earlier than one minute should be understood as the lower limit time supported by the published evidence.

Table 1: Nurses Knowledge on Umbilical Cord Clamping Time at Birth

Aspect of knowledge Based on revised Bloom's Taxonomy*	Expected Response	Correct Response	%
Delayed clamping of the umbilical cord for one-three minutes following birth is recommended for all infants irrespective of medical conditions	True	8	50
Delayed umbilical cord clamping should be performed during the provision of essential infant care	True	11	69
Early cord clamping (<60 seconds) should be performed only when the new born needs to be moved immediately for resuscitation	True	8	50
Delayed cord clamping prevents all the anaemia in children	False	12	75
Delayed cord clamping by one-three minutes is beneficial to the baby and does not interfere with the practice of active management of third stage labour	True	15	94
Delayed cord clamping increases an infant's risk of acquiring HIV from the mother if she has HIV or if her status is unknown	False	5	31
The WHO 2014 guideline recommends delayed cord clamping for all infants without medical complications including infants of women who are HIV positive	True	8	50
During the time between birth and when clamping the cord, blood flow from the placenta to the new born baby is the same as during the pregnancy	True	11	69
It is suggested that delayed cord clamping provides up to 75mg of iron in the infants first 6 months of life	True	11	69
Clamping not earlier than one minute should be understood as the lower limit time supported by the published evidence	True	12	75

*Revised blooms taxonomy (Hattie & Donoghue, 2018)

Discussion

The majority of the midwives in this study reported that delaying the umbilical cord clamping increases the risk of mother to child transmission of HIV, a finding that is not consistent with World Health Organization 2014 guideline recommendation. In addition, these results are not consistent with the findings from a study in Ethiopia which showed that higher proportion of the midwives enrolled in their study were aware that umbilical cord clamping time should be done within two to three (2 to 3) minutes following vaginal normal delivery (Care *et al.*, 2018). The difference in the results of the two studies could be attributed to sensitization trainings on national guidelines on umbilical cord clamping time and the attributed benefits as documented in the World Health Organisation guidelines.

Further, the findings from this study indicates that most of the health workers were not well-oriented toward the World Health Organisation 2014 guideline which recommended the optimal time to clamp the cord after delivery. In contrary with other research findings, the findings from this study agrees with the results published in a study by Wittmann *et al.* in 2017 which reported that majority of the health workers still practice the timing of the umbilical cord clamping which is below one (1) minutes after delivery which is referred as immediate clamping after delivery (Madhavanprabhakaran, Wittmann, Aldughaishi, & Thomas, 2017).

Further, this present study noted that even with the well documented benefits of delaying cord clamping time in World Health Organization (2014) guidelines, majority of the midwives are still practicing immediate cord clamping as routine exercise in their health facilities and thus this practice is likely going to increase infant anemia due to decrease haemoglobin. Some health professionals providing care for an HIV positive pregnant mothers and/or working in high HIV prevalent settings could be having knowledge that delayed cord clamping could increase the rate of mother to child transmission of HIV. These midwives are concerned that, during placental separation, a partially detached placenta could be exposed to maternal blood and this could lead to a micro-transfusion of maternal blood to the baby. Contrary, the evidence documented that the benefits of delaying cord clamping for greater than one minute outweighs the risks of mother to child HIV transmission during delivery (WHO, 2014).

Conclusion

The nurse's knowledge on the optimal time to clamp the umbilical cord after delivery was not uniform. Majority of the nurses had knowledge that delayed cord clamping increases the risk of mother to child HIV transmission and aspect of knowledge affected the safety level of infant haemoglobin levels.

Recommendation

It is recommended that relevant stakeholders in Kenya should consider developing national guideline on the optimal time to clamp the umbilical cord soon after delivery. The guideline implementation will ensure uniformity in the practice of umbilical cord clamping.

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