

Umbilical Cord Clamping Timing At Birth By Obstetricians: A Cohort Study

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Abstract: Background: Delayed umbilical cord clamping is associated with significant benefits to preterm and term new-borns and is recommended for all the infants by the World Health Organization. Little is known about the cord management practices among the obstetricians. Objective: The objective of this study was to describe current cord clamping practices. Material And Methods: A cross-sectional physical survey was sent to 278 Obstetricians and gynaecologists. Umbilical cord practices were assessed, and the barriers related to delaying cord clamping were examined. Result: The overall response rate was 50%. 100 percent of respondents reported delayed cord clamping (DCC) one minute or more after the vaginal births and Lower segment caesarean section (LSCS) during term birth. In preterm birth, after vaginal births 65%, and in LSCS birth 43% practitioners waited at least 30 seconds before clamping the cord. Additional analysis revealed that need for neonatal resuscitation and risk of neonatal hypothermia were clinical barriers to DCC. Conclusion: In this study, most respondents reported delaying cord clamping. Neonatal resuscitation, risk of neonatal hypothermia and absence of written protocols were identified as major barriers for DCC. Future studies should focus on developing strategies to implement intact cord neonatal resuscitation. [Sai K Natl J Integr Res Med, 2020; 11(4):01-04]

Key Words: Cord clamping, Delivery, Neonate.

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Introduction: Cord clamping practice is unique to human births. Animal birth by nature does not involve the practice of immediate cord clamping. Due to the fear of postpartum haemorrhage in mother, physiological practice of delayed cord clamping was reversed to early cord clamping. Delayed cord clamping (DCC) refers to clamping cord from any point after 30sec of birth to the time when cord pulsations stops¹.

Delayed cord clamping at birth allows time for the placental transfusion to new-born resulting in increased neonatal blood volume at birth. Other factors such as gravity, uterine contractions, lung aeration, spontaneous inspirations, and crying may also impact placental transfusion. Procedure of delayed cord clamping is safe and increased initial blood volume to the neonate favours high haemoglobin levels, better cardiopulmonary adaptation, higher cerebral blood flow, improved iron stores and decreased risk of anaemia².

Recent systematic reviews provide high quality evidence that delayed clamping reduced hospital mortality in preterm infants and no increase in number of women with postpartum hemorrhage or receiving blood transfusions³. Various professional bodies have recommended different definitions for delayed cord clamping. Currently there exists no consensus definition for delayed versus early cord clamping and recommendations vary between sources. In general, intervals of one

minute or more for term infants and greater than 30 seconds for premature infants are commonly used in studies^{4,5}. Despite the published benefits of delayed cord clamping, there are no studies regarding current cord clamping practice among obstetricians in India.

Material & Methods: This survey was done among the registered obstetricians practicing in the academic or teaching medical institutes in Hyderabad, India. The study was conducted after obtaining institutional ethics committee clearance and an informed consent was obtained from all the participants before enrolment into the study. Nurses and Midwives were excluded from the survey. Aim of the study was to assess the current practice of the timing of cord clamping in preterm and term infant birth. To ascertain barriers if any to the practice of delayed cord clamping. The data collection tool was a physical questionnaire form distributed among the eligible obstetricians.

Assessing the current practice of cord clamping timing in term and preterm normal and Lower segment caesarean section (LSCS) birth. Considering the lack of consensus on the optimal timing for waiting to clamp the cord, our operational definition for delayed cord clamping for term births was based on the recommendation by WHO of waiting at least one minute or greater. For preterm births, delayed

clamping was defined as at least 30 seconds per the 2012 recommendation from American College of Obstetricians and Gynaecologists distribution, forms were collected back. Only completed responses were included in the study.

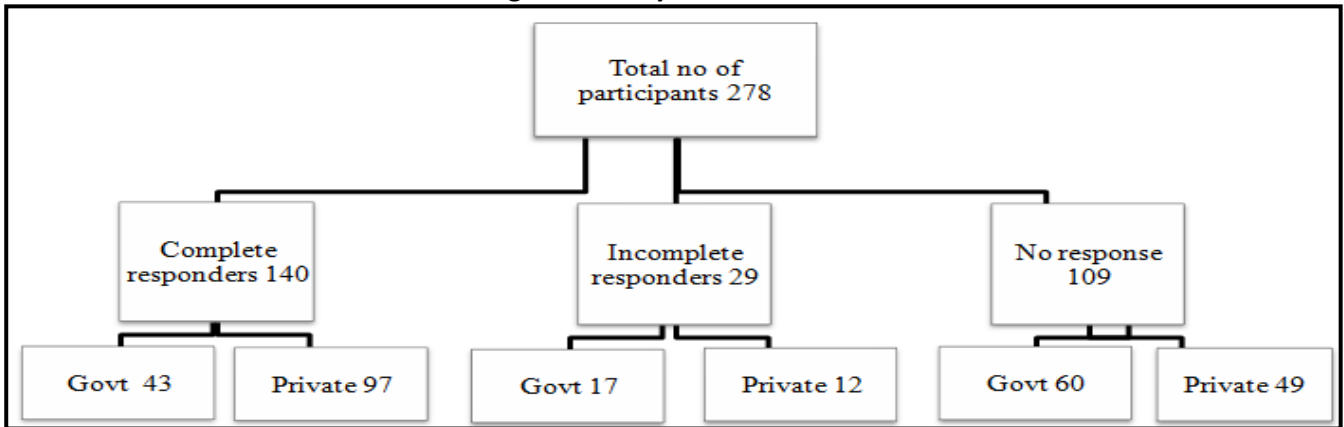
Statistics: Based on the convenient population size of 1000 registered obstetrician practitioners in Hyderabad city. With a confidence interval of 95 percent and margin of error 20 percent, a sample size of 278 completed responses was calculated.

Results: A total of 278 questionnaires were distributed among the obstetricians working in 15

(ACOG)⁶. After distribution of the physical form, a text reminder was given to the participant after one week and after two weeks of the major hospitals. Out of them, 169 forms were submitted back, 29 of them were excluded due to incomplete information. The remaining 140 completed responses (50%, N=278) were analysed. Majority of the study participant, 69.2% (n=97, N=140) were from private hospitals.

All the respondents were females. Nearly 30% (50) of the participants had work experience of more than 15 years. All the participants felt that timing of cord clamping was very important for the neonatal outcomes.

Figure 1: Study Flow Chart



All the participants in our study practiced delayed cord clamping during term infant birth. During preterm infant vaginal birth 65% (n=90, N=140) and during preterm LSCS only 43% (n=60) of the

respondents practiced delayed cord clamping beyond 30 seconds. Table 1 shows the distribution of cord clamping timing ranges both in the term and preterm births.

Table 1: Cord Clamping Timing

		0-30 Sec %	30s-59 Sec %	60-120 Sec %	120-180 Sec %	>180 Sec%	Cord Pulsation Stops %
Term Vaginal Birth	N=140	0	0	35	42	13	10
Term Cesarean Birth	N=140	0	0	75	25	0	0
Preterm Vaginal Birth	N=140	35	60	5	0	0	0
Preterm Cesarean Birth	N=140	57	30	13	0	0	0

Study participants highlighted the need for infant resuscitation and preventing hypothermia at birth as the most common reason for not practicing delayed cord clamping: Table 2 shows the various common clinical barriers to DCC as recognized by the participants. Numbers are mutually exclusive (Participants could select more than one option). Among the survey participants no institute had written clinical protocol for the delayed cord clamping.

Table 2: Clinical Barriers To DCC

Sr. No	Barrier	Number	Percentage (%)
1	Need for neonatal resuscitation	126	90
2	Hypothermia risk in preterm	120	85
3	Absence of written protocol	82	59

4	Use of general anesthesia	52	30
5	Placental retraction	12	8

Discussion: This study explored practices of umbilical cord clamping amongst the obstetricians. We could not find a similar study from our country. Our study results are suggestive that there is a high degree of awareness amongst obstetric practitioners regarding benefits of delayed cord clamping. In the term infant births almost all the respondents practiced delayed cord clamping, in preterm infant vaginal birth approximately 65% respondents and in the preterm infant LSCS births only 43% practiced delayed cord clamping.

In the preterm subgroups there is huge variation among the obstetricians regarding practice of delayed cord clamping. This individual variation in practice can be explained by the absence of any written protocol in most of the institutes surveyed and the high-risk nature of the preterm deliveries requiring resuscitation. In similar studies from the western countries there were significant variation in cord clamping timing among the preterm and high risk deliveries and the practice was variable among the institutes with no written guidelines^{7,8,9}.

The clinical situations faced by obstetricians are complex and variable. Most important barriers for delayed cord clamping as identified by more than 90% of obstetricians is the need for infant resuscitation at birth. Neonatal resuscitation with an intact cord is an exciting possibility.

Several important clinical trials in both term and preterm infants will help answer the question. There are a number of logistical issues that will need to be improved before this becomes standard practice like maintaining a sterile field and providing adequate temperature¹⁰.

Recent innovations like a multipurpose neonatal resuscitator available by the delivery table could solve this clinical conundrum¹¹. Other potential solutions for implementing delayed cord clamping strategy should involve mitigating risk of delivery room hypothermia in preterm birth with the help of carefully planned quality improvement measures like use of occlusive wraps, warm blankets, and caps; the delivery

room temperature maintained above 23.0°C, and a check-list¹².

Limitations: Study is limited by a lower than optimal traditional response rate which can decrease the external validity of the results. Preferential responses by few may represent a higher interest on the topic of the timing of cord clamping which could bias the results.

Conclusion: The study describes how obstetricians manage the umbilical cord after birth. In this study, most respondents reported delaying cord clamping. Neonatal resuscitation, risk of neonatal hypothermia and absence of written protocols were identified as major barriers for DCC. Future studies should focus on developing strategies to implement intact cord neonatal resuscitation. Individual practitioners and institutions should consider developing written protocols to implement delayed cord clamping.

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Conflict of interest: None
Funding: None
Cite this Article as: Deshabhotla S, P H. Umbilical Cord Clamping Timing At Birth By Obstetricians: A Cohort Study. <i>Natl J Integr Res Med</i> 2020; Vol.11(4): 01-04