

# Role of Delay in Umbilical Cord Clamping in Reducing Frequency of Neonatal Anaemia

NAZISH KHALID, NABEELA SHAMI, MARYAM IJAZ

## ABSTRACT

**Aim:** To determine the effect of delayed umbilical cord clamping on hemoglobin (Hb) & bilirubin levels of neonates and to identify newborn babies with anaemia, in order to refer them for treatment.

**Study design:** Randomized Controlled Trial.

**Settings:** Department of Obstetrics and Gynaecology, Ghurki Trust Teaching Hospital.

**Duration:** 6 months i.e., 1<sup>st</sup> January to 30<sup>th</sup> June, 2013

**Subjects:** Pregnant patients admitted to the labour ward, selected according to the inclusion criteria of the study.

**Conclusions:** Delayed cord clamping at birth seems to be safe and can be expected to reduce the prevalence of anaemic newborn babies in our community.

**Keywords:** Umbilical cord, neonatal anaemia, clamping

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## INTRODUCTION

Active management of third stage of labour became part of clinical practice in the 1960's accompanying the widespread introduction of Syntometrine (oxytocin plus ergometrine). It is associated with a reduction in the risk of postpartum haemorrhage when compared with physiological care. Prophylactically uterotonic drugs are a key component in reduction. The importance of the other two components of active management: immediate cord clamping (usually within 20seconds of the birth) and controlled cord traction remain unclear<sup>1</sup>.

Immediate, rather than deferred, cord clamping is not universally accepted as part of the active management of the third stage of labour. A survey of policy at 1175 units in 14 European countries found that two-thirds clamp the cord immediately, after birth, although 90% routinely administer prophylactic uterotonics<sup>2</sup>.

Most studies defined immediate cord clamping as within the first 15 seconds, or immediate it. definition of delayed cord clamping have been more varied, being from 2 to 5 minutes, cessation of pulsation or presence of placenta in the vagina.

## MATERIALS AND METHODS

Pregnant patients admitted to the labour ward were selected according to the inclusion criteria of the study. They were randomly allocated to 2 groups. Group A included women in whom umbilical cord clamping was done immediately after delivery of the

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*Department of Obstetrics & Gynaecology/Lahore Medical & Dental College/Ghurki Trust Teaching Hospital and Surgimd Hospital, Lahore*

*Correspondence to Dr. Nazish Khalid, Senior Registrar*

baby. In group B, clamping was delayed until cessation of pulsation in the cord after cutting the cord, sample of blood were collected from the cut end of the umbilical cord of newborn for Hb and serum bilirubin. After 6 hrs of birth, another sample of blood was drawn from the antecubital vein for serum bilirubin. Samples were sent to the laboratory for estimation.

## RESULTS

One hundred and nine pregnant women met the inclusion criteria for the study, of whom 57 were in group A and 52 in group B. Mean Hb Of the mothers was 9.5 g/dl and 9.7g/dl in group A & B respectively. Mean Hb of newborns at birth was 14.3g/dl in group A & 15.3g/dl in group B. serum bilirubin values at birth and at 6 hours of birth were 1.72mg/dl & 2.37mg/dl for group A & 1.77mg/dl & 2.34mg/dl for group B, respectively. 45.6% newborns in group A & 36.5% In group B had Hb level below 14g/dl.

## DISCUSSION

For decades immediate cord clamping has been bundled into the package of care known as 'Active Management' and the potential consequences either ignored or forgotten. Prophylactic uterotonic drugs reduce the risk of postpartum haemorrhage but whether this should be routinely combined with immediate cord clamping is unclear<sup>3</sup>. As draining the placenta may encourage placental separation, it is possible that immediate clamping may prolong the third stage. Current guidance on the collection of umbilical cord blood for stem cell banks does not state when the cord should be clamped.

The suggestion that, for preterm babies, immediate clamping may increase the risk of intraventricular haemorrhage, is of particular concern and merits rigorous and prompt evaluation in randomized trials. Possible mechanisms for this increase are hypovolemic or increased fluctuations in the blood pressure during the abrupt transition from fetal to neonatal circulation.

Arterial and venous cord blood gases are influenced by timing of cord clamping<sup>4</sup>. These differences are small and unlikely to be of clinical importance, but reinforce the need to have timing of cord clamping recorded for all births to facilitate correct interpretation of cord blood gases and physiological and clinical assessment of the newborn<sup>5</sup>.

Infants who have immediate cord clamping have low iron stores for up to six months after birth. The potential implication of the reduced iron status in early childhood has not been adequately investigated. Iron deficiency in the first few months of life is associated with neurodevelopmental delay which may be irreversible. Whether increasing placental transfusion by deferring cord clamping will improve neurodevelopment in early childhood is not known<sup>6</sup>.

## CONCLUSION

Delayed cord clamping at birth seems to be safe and can be expected to reduce the prevalence of anaemic newborn babies in our community.

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