

Pattern and Variation of Umbilical Stump Fall in Newborns Who Received Antibiotics for Sepsis

Tudu MN, Asit Kumar Mishra*, Srivastava P and Uddin MW

Unit of Neonatology, Department of Pediatrics, Tata Main Hospital, Jamshedpur, India

*Corresponding author: Asit Kumar Mishra, Specialist and In-Charge, Unit of Neonatology, Department of Pediatrics, Tata Main Hospital, Jamshedpur, India; Email: drasitmishra@gmail.com

Received date: Apr 25, 2015; Accepted date: June 04, 2015; Published date: June 12, 2015

Copyright: © 2015 Tudu MN et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Objective: To study the variation of separation of umbilical stump in newborns who received intravenous antibiotics and compare it with healthy newborns.

Method: Two groups of newborns were taken, each comprising of 100 newborns. One group had received intravenous antibiotics for sepsis and the other group comprised of healthy newborns. On follow ups, the day of separation of umbilical stump was asked to the mothers and was noted and analyzed.

Results: Newborns who received antibiotics had a delay in separation of umbilical stump (mean=18.26 days), whereas the healthy newborns had early cord separation (mean of 8.68 days).

Conclusion: Delay in umbilical stump separation in antibiotics received newborns is due to decreased infiltration by bacteria and thus leucocytes and delayed digestion by bacteria. The family members can be counselled accordingly to allay their anxiety.

Keywords: Newborn; Umbilical stump; Antibiotics

Introduction

Falling of umbilical stump is a matter of concern for the mother & family. Many a times it takes longer to fall, which is a cause of worry for the family. The stump separation depends on various factors as gestational age of the baby [1], application of rectified spirit or gentian violet [2], sponge bathed or head bathed [3,4] or any application of salicylic sugar powder [1,4] or topical breast milk [1,5]. This study is undertaken to find out the variability of day of falling of umbilical stump in a newborn who has received intravenous antibiotics for sepsis and compare it with normal healthy newborns.

Subjects and Methods

The study was an observational study which was conducted in a level-II nursery and the follow-up clinic in Pediatric OPD of Tata Main Hospital, Jamshedpur over a period of 3 months, from August 2014 to October 2014. Two groups of newborns were formed. One group consisted of one hundred consecutive newborns admitted in nursery and given intravenous antibiotics for sepsis. The other group consisted of one hundred consecutive healthy neonates who received only routine care. The babies who were admitted in nursery were given sponge baths. After discharge, mothers were instructed to give sponge baths only, until the umbilical stump fell. They were also instructed not to apply anything over the umbilical stump and maintain hygiene of the stump (e.g. putting baby diaper below the umbilical stump). The

day of fall of umbilical stump was asked to mothers from both groups when they visited the well-baby clinic subsequently.

- Inclusion Criteria- One hundred consecutive newborns who received intravenous antibiotics for sepsis and one hundred consecutive healthy neonates who were either kept in nursery for routine care or 'roomed in' newborns from the maternity ward were included in first and second group respectively.
- Exclusion Criteria- Newborns having morbid conditions like congenital anomaly, perinatal asphyxia, preterm babies, umbilical sepsis & babies having umbilical catheterization were excluded from the study.

Results

In the group of newborns who didn't receive any antibiotics, majority had their stump fall within 10 days (n=77) and the mean day of umbilical stump fall was 8.68 days with a range of 3-21 days (Table 1). One baby had stump fall on 21st day.

The other group of newborns, who received IV antibiotics for sepsis, had a delayed separation of umbilical stump. Most of them had their stump separated during the 3rd week (n=41) followed by 4th week (n=37). On evaluation, mean day of stump separation in those babies was found to be 18.26 days. Two babies had their stump separation on 32nd day of life (Table 1). Graph was plotted as seen in (Figure 1).

	Day of fall of umbilical stump						Range	Mean	SD
	3-10	11-15	16-20	21-25	26-30	31-35			
Healthy Babies	77	15	7	1	0	0	3-21	8.68	2.75
Baby receiving iv antibiotics	1	15	41	37	4	2	9-32	18.26	4.32

Table1: Day of fall of umbilical stump

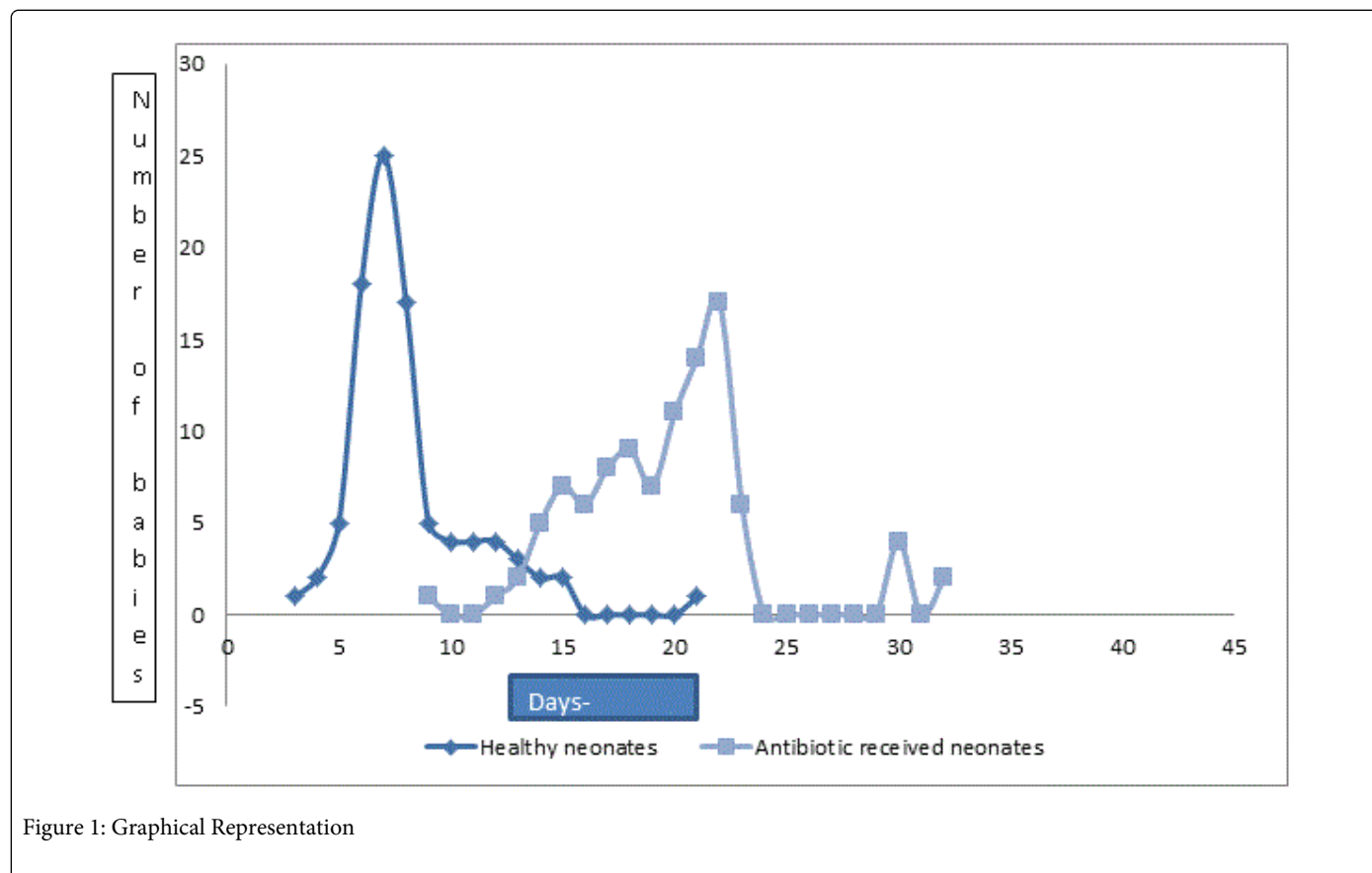


Figure 1: Graphical Representation

Discussion and conclusion

In this study it was found that majority of healthy babies had their stump fallen before 9th day (Mean=8.68 days).The babies who received intravenous antibiotics had majority of their stump fallen by 3rd week (Mean= 18.26 days), followed by 4th week. This delay of stump fall in newborns who received antibiotics can be explained by decreased infiltration of umbilical stump by bacteria and decreased infiltration by leukocytes resulting in delayed digestion of the umbilical stump and thereby delayed stump separation.

While advising on baby care and mother craft, the staff nurse may assure the mother about the possible delay in umbilical stump separation, when the baby has received antibiotics in nursery thus allaying unwarranted anxiety.

In another European study, it was also found that the duration of umbilical stump fall was delayed in newborns receiving antibiotics and also in preterm babies and caesarean section born babies [6]. In another Indonesian hospital based study it was found that the mean

separation day of umbilical stump was 10.9 days and factors like sex, birth weight, gestation and nutrition didn't have any impact on cord separation [7-15].

Our study, was, however done on a small number of patients. Further large studies are required to draw any conclusion.

Acknowledgement

The authors were grateful to GM (Medical Services), Tata steel, for permitting them to send this article for publication. They also acknowledge the contribution of parents of the babies and for their consent.

References

1. Pezzati M, Rossi S, Tronchin M, Dani C, Filippi L, et al. (2003) Umbilical cord care in premature infants: the effect of two different cord-care regimens (salicylic sugar powder vs chlorhexidine) on cord separation time and other outcomes. Pediatrics 112: e275.

2. Imdad A, Bautista RM, Senen KA, Uy ME, Mantaring JB 3rd, et al. (2013) Umbilical cord antiseptics for preventing sepsis and death among newborns. *Cochrane Database Syst Rev* 5: CD008635.
3. Erenel AS, Vural G, Efe SY, Ozkan S, Ozgen S, et al. (2010) Comparison of olive oil and dry-clean keeping methods in umbilical cord care as microbiological. *Matern Child Health J* 14: 999-1004.
4. Golshan M, Hossein N2 (2013) Impact of ethanol, dry care and human milk on the time for umbilical cord separation. *J Pak Med Assoc* 63: 1117-1119.
5. Mousa Ahmadpur- Kacho, Yadollah Zahedpasha, Karimollah Hajian, Ghasem Javadi, Hamid Talebian: The effect of topical application of human milk, ethyl alcohol 96%, and silver sulfadiazine on umbilical cord separation time in newborn infants
6. Oudesluys-Murphy AM, Eilers GA, de Groot CJ (1987) The time of separation of the umbilical cord. *Eur J Pediatr* 146: 387-389.
7. Sarwono E, Disse WS, Oudesluys-Murphy HM, Oosting H, De Groot CJ (1991) Umbilical cord: factors which influence the separation time. *Paediatr Indones* 31: 179-184.
8. Novack AH, Mueller B, Ochs H (1988) Umbilical cord separation in the normal newborn. *Am J Dis Child* 142: 220-223.
9. Wilson CB, Ochs HD, Almquist J, Dassel S, Mauseth R, et al. (1985) When is umbilical cord separation delayed? *J Pediatr* 107: 292-294.
10. Carlo WA (2011) The umbilicus In: Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds.,) *Nelson Textbook of Pediatrics*, Saunders Elsevier, Philadelphia, PA.
11. WHO/THT/MSM/98.4 (1998) Care of the umbilical cord: A review of evidence. Geneva, Switzerland: World Health Organisation.
12. Ronchera-Oms C, Hernández C, Jiménez NV (1994) Antiseptic cord care reduces bacterial colonization but delays cord detachment. *Arch Dis Child Fetal Neonatal* Ed 71: F70.
13. Bain J (1994) Midwifery: umbilical cord care in pre-term babies. *Nurs Stand* 8: 32-36.
14. Barret FF, Mason EO, Fleming D (1979) The effect of three cord- care regimens on bacterial colonization of normal newborn infants. *J Pediatr*, 94: 796-800
15. Hsu CF, Wang CC, Yuh YS, Chen YH, Chu ML (1999) The effectiveness of single and multiple applications of triple dye on umbilical cord separation time. *Eur J Pediatr* 158: 144-146.