

Time of Passage of First Stool in Newborns in a Tertiary Health Facility in Southern Nigeria

Philemon E Okoro, Cosmos E Enyindah¹

Departments of Surgery, and ¹Obstetrics and Gynaecology, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria

ABSTRACT

Introduction: The first stool passed by the newborn, the meconium, is different from the ordinary stool both in its nature and its implication. Delayed or non-passage of the meconium may represent a number of clinical conditions. In this study, we sought to identify what should be considered delayed passage of meconium in our babies. **Aims and Objectives:** To investigate the timing of passage of first stool in Nigerian neonates and whether it is influenced by gender, birth weight, maternal age, and parity. **Materials and Methods:** A proforma was designed to obtain the following data: Maternal age, parity, mode of delivery, Apgar score at 1 min, birth weight, gender, and interval between delivery and passage of first stool among normal newborn babies delivered at the obstetrics department of our center in August and September 2010. **Results:** One hundred babies out of 393 delivered during the period of the study were included in the study. There were 63 (63%) males and 37 (37%) females. The interval between delivery and passage of meconium ranged from 0.5 to 54 h; mean, 16.2 (SD = 10.57). This was not influenced by gender, weight, maternal age, and parity. **Conclusion:** Non-passage of meconium beyond 48 h of life could be considered delayed. We therefore, recommend that clinicians should re-evaluate newborns, for hitherto unrecognized conditions, if after 48 h they have not passed first stool.

KEYWORDS: First stool, meconium, nigerian newborns, timing

INTRODUCTION

The meconium is an accumulation of desquamated gut epithelium, residues from swallowed amniotic fluid, lanugo hair, mucus, and bile in the fetal gut.^[1,2] It constitutes the first stool passed by the newborn. Both the characteristics of the meconium and the timing of its passage have been of interest to researchers worldwide.^[3-5] Delayed or non-passage of the meconium may represent a number of clinical conditions from anorectal malformations, intestinal atresia, Hirschsprung's disease, meconium ileus to neonatal sepsis, asphyxia, hypothyroidism, etc.^[6,7] Some of these conditions may not be apparent on simple examination. Passage of first stool, therefore, becomes an important event for neonatologists and indeed all clinicians who care for babies. Several researchers have investigated the timing of

Address for correspondence:

Dr. Philemon E Okoro,
Department of Surgery, University of Port Harcourt Teaching Hospital,
Port Harcourt, Rivers State, Nigeria.
E-mail: phileokoro@yahoo.com

Access this article online

Quick Response Code:



Website: www.nigerianjsurg.com

DOI:

10.4103/1117-6806.111503

passage of first stool by normal babies with a view to identifying what can be considered delayed.^[3,8] However, reports of timing of passage of first stool by Nigerian babies are scanty. The few studies on this subject from Nigeria show conflicting results and some relied on the mothers' ability to recall this event.^[9-11] We therefore embarked on this prospective study to evaluate the time of passage of first stool in normal babies delivered in our center.

AIMS AND OBJECTIVES

To investigate the timing of passage of first stool in normal Nigerian neonates and whether it is influenced by gender, birth weight, maternal age, and parity.

MATERIALS AND METHODS

Term, clinically normal babies delivered at the obstetrics Department of the University of Port Harcourt Teaching Hospital (UPTH) in August and September 2010 were randomly recruited in this study. A proforma was designed to obtain the following data: Maternal age, parity, mode of delivery, Apgar score at 1 min, birth weight, gender, interval between delivery and passage of first stool, and stooling pattern in the first 6 weeks. Data were obtained by the resident doctor and/or mid-wife in-charge of patient. Babies were checked 2 h by inspecting their diapers. For babies who had not passed stool at discharge, the mobile phone number of the parents was used to contact the parents 6 h until they reported passage of first stool. All babies

were followed up for 6 weeks through phone contacts of their parents. The exclusion criteria were: Clinically detected medical or surgical condition in the baby, babies delivered by emergency caesarian section, serious associated maternal condition: Preeclampsia, eclampsia or diabetes mellitus, complicated labor and incomplete data. Data were analyzed using the SPSS 17.0 and test of significance was with the Chi-square.

RESULTS

One hundred babies out of 393 delivered during the period of the study were included in the study. The mean maternal age was 30.1 (SD = 3.98) and parity ranged from 0 to 7. There were 63 (63%) males and 37 (37%) females. Delivery was by C/S in 26 (26%) and spontaneous vertex in 74 (74%). The Apgar score of the babies at 1 min was more than 6 in over 85% [Table 1]. The mean birth weight was 3.28 (SD = 0.47); range, 2.5 g to 4.4 kg [Table 2]. The interval between delivery and passage of meconium ranged from 0.5 to 54 h; mean, 16.2 (SD = 10.57) [Table 3]. This was not influenced by the gender ($P = 0.31$), birth weight ($P = 0.19$), maternal age ($P = 0.98$), and parity ($P = 0.56$). The frequency of stooling per day ranged from 1 to 4 in all the babies followed up.

DISCUSSION

Passage of first stool is a significant event in the 1st few days of life. It is recognized that various clinical conditions can lead to delay of passage of first stool.^[6,12] Delayed passage of the stools therefore is a useful clinical feature that should alert the clinician

Table 1: Distribution of patients by Apgar score at 1 min

Apgar score (1 min)	Subjects	Percentage
<4	1	1
4-6	13	13
7-9	85	85
>9	1	1

Table 2: Distribution of patients by birth weight

Birth weight (Kg)	Subjects	Percentage
≤2.5	6	6
2.6-3.5	72	72
3.6-4.5	22	22

Table 3: Distribution by interval between birth and passage of first stool

Duration (h)	Subjects	Percentage
0-12	47	47
12-24	34	34
24-36	14	14
36-48	4	4
>48	1	1

to look out for some hitherto unrecognized abnormality. The earliest report on the passage of first stool from Nigeria and Africa indicated that 96.2% of the babies passed their first stool within 24 h and 99.8% in 48 h.^[10] This was similar to reports from other parts of the world.^[3,8,13] This suggested that non-passage of meconium after 24 h could be considered delayed passage even in Nigerian newborns. However, two later reports from Nigeria showed that only 76% and 88% (respectively) of normal newborn passed meconium in 24 h.^[9,11] These later reports suggested that 12-24% of normal Nigerian babies may pass first stool after 24 h. This puts to question therefore, the applicability to Nigerian babies of the duration of 24 h as cut-off for delayed passage of meconium. From our present results, only 81% of our subjects passed their first stool in 24 h and an additional 18% in 48 h. These findings are similar to the findings of Ameh^[9] but at variance with the findings of Ogala^[10] both from Nigeria. In those previous reports however, data on timing of passage of first meconium relied on the mothers' ability to recall the event. This created chances for error. The prospective nature of this study and the close follow-up of patients through their phone contacts enhanced the accuracy of our findings. Given that we excluded babies who had other associated confounding factors, the results in this study may be more accurate reflection of the timing of passage of first stool in normal Nigerian babies compared to previous studies in this environment. It appears, therefore, that babies in our environment should only be considered to have delayed passage of meconium after 48 h of life rather than 24 h as suggested by reports from other races.^[3,4,14] Such a baby may then deserve to be screened for conditions like Hirschsprung's disease and other gut motility disorders. The awareness of these newer findings will help to allay the worries of parents and the care givers if after 24 h a newborn has not passed meconium. It may also save the babies from unnecessary stressful and invasive investigations.^[15-17] On the other hand, it will help to raise the index of suspicion among clinicians and enhance earlier recognition and intervention for those who do not pass stool after 48 h. Our study also shows that in normal babies, gender, parity, and maternal age had no impact on the time these babies passed their first stool. Although prematurity has been recognized as a factor in delayed passage of first stool, this study shows that the birth weight in normal term babies does not influence the timing of first stool.^[18,19] We recognize though that the size of our study population is relatively smaller than those of other studies in this subject. The results, however, will be a guide and spring board for subsequent larger scale studies in this subject in our environment.

CONCLUSION

This study has demonstrated that normal Nigerian babies could pass their first stool after 24 h. Delayed passage of meconium in babies in our environment should therefore be considered after 48 h of life. The birth weight, gender, maternal age, and parity do not impart on the timing of passage of first stool. Clinicians may reassure parents if their newborn has not passed meconium 24 h after birth, but they need to investigate such

babies if the delay is beyond 48 h. We recommend that a digital rectal examination should be performed in all newborns who have not passed meconium after 48 h.

REFERENCES

- Kiely EM. Meconium ileus. In: Puri P, editor. Newborn surgery. Oxford: Butterworth-Heinemann; 1996. p. 324-7.
- Aziz S, Anjum S, Rehman AU, Akram DS, Naqvi SA, Rizvi SA. Bilirubin pigments in the first meconium of newborn infants. *J Pak Med Assoc* 2005;55:188-92.
- Sherry SN, Kramer I. The time of passage of the first stool and first urine by the newborn infant. *J Pediatr* 1955;46:158-9.
- Chan D, Knie B, Boskovic R, Koren G. Placental handling of fatty acid ethyl esters: Perfusion and subcellular studies. *J Pharmacol Exp Ther* 2004;310:75-82.
- Tunc VT, Camurdan AD, Ilhan MN, Sahin F, Beyazova U. Factors associated with defecation patterns in 0-24-month-old children. *Eur J Pediatr* 2008;167:1357-62.
- Loening-Baucke V, Kimura K. Failure to pass meconium: Diagnosing neonatal intestinal obstruction. *Am Fam Physician* 1999;60:2043-50.
- Khanna V, Poddar U, Yachha SK. Etiology and clinical spectrum of constipation in Indian children. *Indian Pediatr* 2010;47:1025-30.
- Clark DA. Times of first void and first stool in 500 newborns. *Pediatrics* 1977;60:457-9.
- Ameh N, Ameh EA. Timing of passage of first meconium and stooling pattern in normal Nigerian newborns. *Ann Trop Paediatr* 2009;29:129-33.
- Ogala WN, Amiebenomo CS. The time of passage of the first urine and stool by Nigerian neonates. *Trop Geogr Med* 1986;38:415-7.
- Omoigberale AI, Okolo AA. Time of passage of first stools (meconium) and serum levels of calcium and magnesium in Nigerian neonates (African neonates). *Niger J Clin Pract* 2009;12:54-7.
- Fitzgerald JF. Constipation in children. *Pediatr Rev* 1987;8:299-302.
- Metaj M, Laroia N, Lawrence RA, Ryan RM. Comparison of breast- and formula-fed normal newborns in time to first stool and urine. *J Perinatol* 2003;23:624-8.
- De Lorijn F, Voskuyl WP, Omari TI, Kok JH, Taminiau JA, Benninga MA. Assessment of the rectoanal inhibitory reflex in preterm infants with delayed meconium passage. *J Pediatr Gastroenterol Nutr* 2005;40:434-7.
- Loening-Baucke V, Pringle KC, Ekwo EE. Anorectal manometry for the exclusion of Hirschsprung's disease in neonates. *J Pediatr Gastroenterol Nutr* 1985;4:596-603.
- Ameh EA, Chom ND. Colorectal perforation following barium examination in children. *Niger Postgrad Med J* 2003;10:64-6.
- Rees BI, Azmy A, Nigam M, Lake BD. Complications of rectal suction biopsy. *J Pediatr Surg* 1983;18:273-5.
- Baldassarre M, Fanelli M, Laneve AM, Grosso R, Varsalone F, Falcone MR, *et al.* Bowel habit in preterm newborns: Effect of new formulas. *Endocr Metab Immune Disord Drug Targets* 2010;10:175-8.
- Bekkali N, Hamers SL, Schipperus MR, Reitsma JB, Valerio PG, van Toledo L, *et al.* Duration of meconium passage in preterm and term infants. *Arch Dis Child Fetal Neonatal Ed* 2008;93:F376-9.

How to cite this article: Okoro PE, Enyindah CE. Time of passage of first stool in newborns in a tertiary health facility in Southern Nigeria. *Niger J Surg* 2013;19:20-2.

Source of Support: Nil. **Conflict of Interest:** None declared.

Announcement

iPhone App



Download
iPhone, iPad
application

FREE

A free application to browse and search the journal's content is now available for iPhone/iPad. The application provides "Table of Contents" of the latest issues, which are stored on the device for future offline browsing. Internet connection is required to access the back issues and search facility. The application is Compatible with iPhone, iPod touch, and iPad and Requires iOS 3.1 or later. The application can be downloaded from <http://itunes.apple.com/us/app/medknow-journals/id458064375?ls=1&mt=8>. For suggestions and comments do write back to us.