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"TO ASSESS THE DEVELOPMENT DELAY IN MILESTONE AT 15-18 MONTHS OF LIFE IN BABIES WITH HISTORY OF DELAYED CRY AT BIRTH"

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Abstract

Introduction:

Development is the process of growing and gaining skills needed to function well in society. When a child doesn't reach certain growth milestones at the right age, it is called developmental delay. Developmental delays present a major concern in pediatric health, affecting motor, cognitive, and language domains. A delayed cry at birth, often associated with perinatal distress, has been proposed as a potential predictor of later developmental issues

Aim and objective:

To determine the prevalence of developmental delay in milestones at 15 to 18 months of babies attending well baby clinic and antecedent history of delayed cry at the time of birth.

Material and methods:

The present observational study was conducted in Paediatric outpatient department of Acharya Shri Chander College of Medical Sciences and Hospitals and included a total of 200 study subjects. The data was collected with the help of a structured clinical pro-forma. The collected data was recorded in Microsoft Excel sheet and statistical analysis was done with the help of SPSS version 21.0.

Result:

In our study out of 200 study subjects aged between 15months to 18months who attended well baby clinic and immunisation, the majority of the study subjects were aged between 15 to 16 months (48%) and 18 study subjects were found to have developmental delay on the basis of screening chart (TDSC). Out of 18 subjects 10 (55.6%) were male and 8 (44.4%) were females with male to female ratio was 1.25:1 and out of these 18 subjects, 15 (83.3%) were reported with delayed cry at the time of birth as compared to immediate cry which is seen in 3 (16.7%).

Conclusion:

It is concluded that delayed cry at the time of birth is a risk factor for developmental delay in milestones.

Keywords: Developmental delay, Delayed cry, Milestones, Antecedent

Introduction

Development is the process of growing and gaining skills needed to function well in society. The developmental trajectory of children can be significantly influenced by a confluence of socioeconomic, environmental, and nutritional determinants during gestation and early childhood (1). Extant literature underscores the profound impact of nutrition on children's cognitive faculties. Notably, empirical evidence reveals that undernutrition correlates with heightened developmental deficits encompassing compromised cognition, communication, and motor proficiency in offspring. Conversely, children afflicted by severe obesity exhibit an elevated propensity for diminished non-verbal intelligence quotient. Moreover, various studies have delineated the role of sociodemographic parameters such as child gender, ethnicity, and economic status in shaping neuropsychological development (2).

In addition to biological influences, familial contexts profoundly forecast cognitive and socioemotional aptitudes in young children (3). Prompt recognition and timely intervention within high-risk populations can significantly enhance their functional capabilities over the long term.

Developmental delay refers to a condition wherein a child does not attain developmental milestones— such as motor skills, language acquisition, or social abilities—within the expected age ranges. Developmental delays present a major concern in pediatric health, affecting motor, cognitive, social and language domains (4). A delayed cry at birth, often associated with perinatal distress, has been proposed as a potential predictor of later developmental issues ie delayed cry at birth may be an early indicator of potential developmental challenges. This phenomenon is often observed in cases where the newborn's transition from intrauterine to extrauterine life is compromised, potentially signalling underlying issues such as birth asphyxia or neurological impairment (5),(6).

The connection between developmental delay and delayed cry can be significant. A delayed cry may reflect an initial abnormality in the newborn’s neurological status or overall health, which could predispose the child to subsequent developmental delays(7),(8).. Thus, a delayed cry may serve as an early warning sign prompting further evaluation and monitoring for developmental concern.

Aim and objective

To determine the prevalence of developmental delay in milestones at 15 to 18 months of babies attending well baby clinic and antecedent history of delayed cry at the time of birth.

Material and Methods

The present observational study was carried out in outpatient department in department of pediatrics at Acharya Shri Chander college of medical sciences and hospitals after obtaining Ethical permission from Institution with ref no. ASCOMS/ IEC/24/Meeting- I/FM/18, over a period of three months, w.e.f. 1st April, 2024 to 31st June, 2024. A total of 200 study subjects visited to Paediatric Outpatient department / Emergency room were included in the study after obtaining the informed consent from their parents / guardians.

Inclusion criteria:

15 months to 18 months are group children

Exclusion criteria:

1. Study subjects whose parents / guardians refused to participate.
2. Study subjects with comorbidities / other illnesses / infection and congenital defects.

A detailed history including antenatal, natal and postnatal history, date of birth, gender, birthweight, length, gestational weeks (<37 weeks, 37–42 weeks, and ≥ 42 weeks), normal delivery or cesarean delivery, maternal age ≥ 35 years (yes or no), neonatal injury (yes or no), immediate cry or delayed cry, multiple birth (yes or no) was collected and a thorough physical examination including general examination, anthropometric measurements includes head circumference, height/length and weight

and systemic findings of all the study subjects were collected with the help of a structured clinical pro forma.

The test was conducted in a separate and quiet room with plenty of light. The room temperature was set at around 25 °C while the babies were awake and quiet. After informed consent, Developmental Assessment of all subjects is done using simple screening chart ie Trivandrum Development Screening Chart (TDSC) (10).
The collected data was recorded in Microsoft Excel sheet and statistical analysis was done with the help of SPSS version 21.0.

Results and observations
In our study out of 200 study subjects who attended well baby clinic and immunisation, 18 study subjects were found to have developmental delay on the basis of screening chart (TDSC). Out of 18 subjects, 10 (55.6%) were male and 8 (44.4%) were females with male to female ratio was 1.25:1 and out of these 18 subjects, 15 (83.3%) were reported with delayed cry at the time of birth as compared to immediate cry which is seen in 3 (16.7%).

Table 1. Age distribution

Age in months	No.	%age
15-16	96	48%
16-17	64	32%
17-18	40	20%

The majority of the study subjects were in the age group of 15-16 months (48%), followed by 16-17 months (32%), followed by 17-18 months (20%).

Table 1. Gender distribution

Gender	No.	%age
Male	10	55.6%
Female	8	44.4%

Table 1 and figure 1 showed that there was male predominance as the majority of the subjects were males (55.6%) followed by 44.4% females. The male to female ratio was 1.25:1

Table 3. Developmental delay babies **with history of delayed cry at birth**

History of cry	No.	%age
Delayed	15	83.3%
Immediate	3	16.7%

It was found that out of 18 subjects 83.3% were reported with delayed cry at the time of birth as shown in table 3 and figure 3.

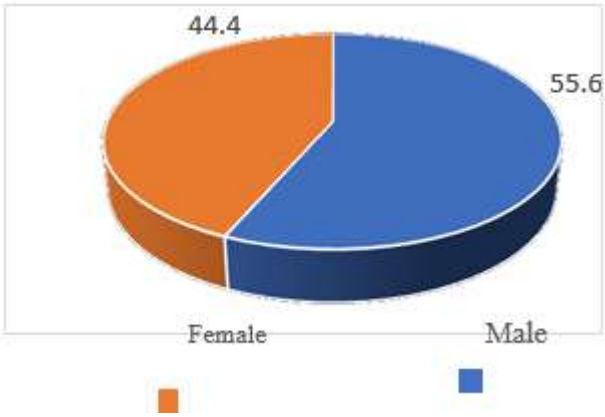

Figure 1. Gender distribution

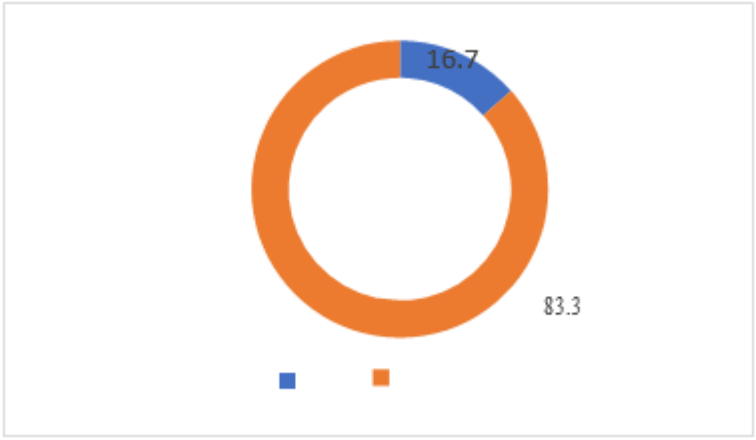

Figure 3. Developmental delay babies with history of delayed cry at birth

Table 2. Developmental delay babies with mode of delivery

Mode of Delivery	No.	%age
Normal Vaginal delivery	6	33.3%
Cesarean section	12	66.7%

It was found that out of 18 subjects 12 (66.7%) were reported to have been delivered by Cesarean section and 6 (33.3%) were born by normal vaginal delivery as shown in table 2.

Table 4. Developmental delay babies with their birth weight

Birth weight	No.	%age
<2.5kg	5	27.8%
>2.5kg	13	72.2%

It was found that out of 18 subjects 5 (27.8%) were reported to have low birth weight (<2.5kg) while 13 (72.2%) have weight more than 2.5kg as shown in table 4.

Discussion

The present observational study conducted on 200 study subjects who attended well baby clinic and immunisation, 18 study subjects were found to have developmental delay on the basis of screening chart (TDSC). Out of 18 subjects, 10 (55.6%) were male and 8 (44.4%) were females with male to female ratio was 1.25:1. In our study, male had a significant relationship with developmental delay. Like ours, there are more studies which shows that male is a risk factor for developmental delay In Schonhaut et al.'s study, being male showed a significant and strong correlation with developmental delay (11). In the study of Moura et al., the male sex was a risk factor for the developmental delay (12). The results of Warshafsky et al.'s research showed that boys had a higher risk of developmental delay than girls based on ASQ scores (13) but there is also a study which shows no correlation between sex and developmental delay like in Soleimani et al.'s (14). In our study, development status of the children was found to be significantly associated with the child's cry after birth as out of these 18 subjects, 15 (83.3%) were reported with delayed cry at the time of birth as compared to immediate cry which is seen in 3 (16.7%). Delayed cry after birth was also found to be associated with developmental delay in milestones. In the study conducted Sachdeva et al (2010), delayed cry an indicator of birth asphyxia is associated with developmental delay.

In our study cesarean section is seen significantly higher as compared to those who delivered by normal vaginal delivery in babies with developmental delay in milestones as it was found that out of 18 subjects, 12 (66.7%) were reported to have been delivered by Cesarean section and 6 (33.3%) were born by normal vaginal delivery. Also in the study conducted by Martínez-Nadal et al., cesarean delivery was associated with the risk of developmental delay (15) and In the study of Kerstjens et al., cesarean section had a significant correlation with developmental delay (16) but the study conducted by de.Moura et al., the type of delivery, cesarean section or natural did not have a significant relationship with the developmental delay of children (12).

Conclusion

The present study concluded that the prevalence of developmental delay in 9% of apparently healthy children and study subjects with developmental delay in milestones had significantly higher percentage of delayed cry after birth as compared to those with immediate cry after birth. Thus, Delayed cry is a antecedent factor for developmental delay in milestones.

Bibliography

1. Likhar A, Baghel P, Patil M. Early Childhood Development and Social Determinants. *Cureus*. 2022 Sep 23;14(9).
2. Kamath, Sanjana M et al. "Impact of Nutritional Status on Cognition in Institutionalized Orphans: A Pilot Study." *Journal of clinical and diagnostic research : JCDR* vol. 11,3 (2017): CC01-CC04.
3. Meenakshi, ; Pradhan, SK; Prasuna, JG. A Cross-Sectional Study of the Association of Postnatal Growth and Psychosocial Development of the Infants in an Urban Slum of Delhi. *Indian Journal of Community Medicine* 32(1):p 46-48, (2007).
4. Agarwal, D. , Chaudhary, S.S. , Sachdeva, S. , Misra, S.K. and Agarwal, P. 2018. Prevalence of Developmental Delay and Factors Affecting the Development Status among Under 5 Children in an Urban Slum of Agra City. *National Journal of Community Medicine*. 9, 07 (2018), 474–479
5. Meenai Z, Longia S A study on Prevalence & Antecedents of Developmental delay among Children less than 2 years attending Well Baby Clinic. *People's journal of Scientific Research.* Vol2.(1),(2009).
6. SachdevaS&AmirA&AlamS&KhanZ&KhaliqueN & Ansari M.A. . Global Developmental Delay and Its Deter- minants Among Urban Infants and Toddlers: A Cross Sec- tional Study(2009). *Indian J Pediatr* (2010) 77:975–980.

7. de Moura DR, Costa JC, Santos IS, Barros AJD, Matijasevich A, Halpern R, et al. Risk factors for suspected developmental delay at age 2 years in a Brazilian birth cohort. *Paediatr Perinat Epidemiol*. 2010;24(3):211–21.
8. Lewis R F, Judith S P: Infant or young child with developmental delay. *The New England Journal of Medicine*, 1994;330(7):478-483
9. Prechtl H : The Neurological examination of the full - term new born infant. 2nd Edn., Spastic International Medical Publication, London, 1977
10. Nair MKC, George B, Philps E, Lakshmi M A, Haran J C, Sathy N: Trivendrum Developing Screening Chart. *Indian Pediatrics*, 1991;28(8):869-872
11. Schonhaut L, Armijo I, Pérez M. Gestational age and developmental risk in moderately and late preterm and early term infants. *Pediatrics* (2015);135:e835-41.
12. de Moura DR, Costa JC, Santos IS, et al. Risk factors for suspected developmental delay at age 2 years in a Brazilian birth cohort. *Paediatr Perinat Epidemiol* (2010); 24: 211-21.
13. Warshafsky C, Pudwell J, Walker M, Wen SW, Smith GN. Prospective assessment of neurodevelopment in children following pregnancy complicated by severe pre- eclampsia.*BMJ* (2016); 6: e010884.
14. Soleimani F, Vameghi R, Biglarian A, Rahgozar M. Prevalence of motor developmental disorders in children in Alborz province, Iran in 2010. *Iran Red Crescent Med J* (2014); 16: e16711.
15. Martínez-Nadal S, Demestre X, Schonhaut L, Muñoz SR, Sala P. Impact of neonatal morbidity on the risk of developmental delay in late preterm infants. *Early Hum Dev* (2018); 116: 40-6.
16. Kerstjens JM, de Winter AF, Sollie KM, et al. Maternal and Pregnancy-Related Factors Associated With Developmental Delay in moderately Preterm-Born Children. *Obstet Gynecol* 2013; 121: 727-33.