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Research Article

Neonatal Presentation to Pediatric Emergency

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Abstract

Emergency departments (PED) visiting for consultation and medical care was increased in the last few years, especially for newborns in most developed countries. To have good medical care and continue to deliver high-quality services, we need to study and identify factors influencing PED attendance, including medical, demographic, and community support data.

Methodology: A descriptive, retrospective study was conducted for neonates aged one to 28 who presented to the pediatric emergency department between 01/10/2021 and 31/03/2022. Data were collected from the hospital's electronic database.

Result: Total number of patients were 111 neonates, mean age of 15.5676 (St. Deviation 6.99561), 15(13.5%) neonate less than seven days old, 96(86.5%) neonates between 7 and 28 days old., 45(40.5%) neonates with difficult breathing, 17(15.3%) neonates with Jaundice, 16(14.4%) neonates with fever, 12(10.8%) neonates with vomiting, 55(49.5%) neonates discharge without ED intervention.

Conclusion: Most neonates attending the emergency department were self-referral and discharged home.

Keywords: Neonate; Emergency; Pediatric.

Introduction

In most developed countries, newborns visiting emergency departments (PED) have increased in the last few years [1,2]. To have good medical care and continue delivering high-quality services, although increasing demand, relies on identifying factors influencing PED attendance, including medical, demographic, and community support [3]. Most studies showed that many children attending ED were self-referral and had minor illnesses or injuries [4,5]. The few studies explicitly focusing on neonatal treating ED also identified high numbers of neonates with non-acute diseases and had a

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relatively low admission rate [6]. In Europe [6-9] and North America [10], up to one-third of neonates attending EDs were healthy babies. Most of them had minimal acute problems that required no medical investigation or treatment. Studies have also shown that some parents preferred to bring their children to either general [11] or pediatric [12] EDs, even with non-urgent problems. Neonates were at high risk, with no specific symptoms or signs, even if they had severe infections or illnesses, so their clinical evaluation was needed once it was indicated [13]. Neonatal morbidity and mortality rates are affected by a country's socioeconomic status and the efficiency and effectiveness of its healthcare deliveries. Also, planning to improve healthcare services for neonates is related to the country's economic status [14].

Method

A descriptive, retrospective study was conducted and data for neonates aged one to 28 days who presented to the pediatric emergency department between 01/10/2021 and 31/03/2022 from the hospital electronic database were collected. Our hospital is a tertiary hospital in Riyadh-Saudi Arabia that care for interior ministry employees. We collected the following data on the ED episode: sex, age, gestational age, mode of delivery, place of delivery, mode of feeding, Neonatal Intensive Care admission, mother age and parity, source of referral to ED, cause of coming to ED, interventions done (e.g: labs, fluid), and disposition of patients for ED. We excluded neonates who registered in the system but were not seen by physicians and those more than 28 days old.

Result

The study was conducted in SFH pediatric emergency department from October 2021 to March 2022. The total number of patients was 111 neonates, mean age of 15.5676 (St. Deviation 6.99561), minimum neonatal age of two days, and an elder neonate seen was 28 days old. The minimum age of mothers is 18 years old, Maximum age is 46 years old with a mean age of 31.01 (St. Deviation 5.46889).

Neonates' demographic data table 1

Regarding age distribution of neonates, 15(13.5%) neonates less than 7 days old, 96(86.5%) neonates between 7 and 28 days old. Regarding gender distribution of the neonates, 56(50.5%) were males, and 55(49.5%) were females. Gestational age of patients showed 97(87.4%) term neonates, and 14(12.6%) preterm neonates. Regarding the place of delivery, 79(71.2%) neonates were delivered at SFH, and 32(28.8%) neonates were delivered outside SFH. Regarding mode of delivery, 76(68.5%) neonates were delivered by Spontaneous Vaginal Delivery (SVD), and 35(31.5%) neonates were delivered by Cesarean section. Neonates who needed intensive care admission were 23(20.7%) neonates. Regarding mode of feeding, 50(45%) neonates on formula feeding, 24(21.6%) neonates on both formula and breastfeeding, five (4.5%) neonates on breastfeeding, and 32(28.8%) neonates the mode of feeding was not documented.

Mothers' demographic data table 2

Mother age distribution showed,72(64.9%) mothers 25-35 years old, 30(27%) mothers more than 35 years old, and Nine (8.1%) mothers less than 25 years old.

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Demographic		no	%
Gender	Male	56	50.5
	Female	55	49.5
Gestational Age	Term	97	87.4
	Preterm	14	12.6
Mode of delivery	SVD	76	68.5
	Cesarean section	35	31.5
Place of delivery	SFH	79	71.2
	Out SFH	32	28.8

Table 1: Neonate Demographic Data(n=111).

Mother parity distribution showed that 28(25.2%) mothers are the first baby, and 83(74.3%) mothers were multipara.

Regarding sources of referral to the emergency department (ED) as shown in Table 3, 102(91.9%) neonates were self-referral, five (4.5%) neonates had other hospital referrals, and four (3.6%) neonates came for follow-up as requested by ED staff. Regarding clinical presentation to ED (Table 4), 45(40.5%) neonates with difficulty breathing, 17(15.3%) neonates with Jaundice, 16(14.4%) neonates with fever, 12(10.8%) neonates with vomiting, seven (6.3%) neonates with others (e.g. loose motion, colic, and umbilical granuloma), six(5.4%) neonates with cyanosis, four (3.6%) neonates with feeding difficulties, two(1.8%)neonates with Lethargy, and one (0.9%) neonate with post circumcision and skin lesion respectively.

Regarding disposition from ED as shown in Table 5, 55(49.5%) neonates discharge without ED intervention, 28(25.2%) neonates discharge home with ED intervention, and 28(25.2%) neonates were admitted to the pediatric ward for further management and care.

		No	%
Age	Less than 25 years old	9	8.1
	25-35 years old	72	64.9
	More than 35 years old	30	27
Mother parity	First baby	28	25.2
	Multipara	83	74.8

Table 2: Mothers Demographic Data (n=111).

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		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Self-referral	102	91.9	91.9	91.9
	Other Hospital referral	5	4.5	4.5	96.4
	Follow up by emergency staff	4	3.6	3.6	100
	Total	111	100	100	

Table 3: Source of Neonate Referral to ED (n=111).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Jaundice**	17	15.3	15.3	15.3
	Post circumcision	1	0.9	0.9	16.2
	Others (CHD, Colic…etc.)	7	6.3	6.3	22.5
	Difficult in breath	45	40.5	40.5	63.1
	Feeding problem	4	3.6	3.6	66.7
	Lethargy	2	1.8	1.8	68.5
	Fever	16	14.4	14.4	82.9
	Vomiting	12	10.8	10.8	93.7
	Cyanosis	6	5.4	5.4	99.1
	Skin lesion	1	0.9	0.9	100
	Total	111	100	100	

Table 4: Clinical Presentation of Neonates to ED (n=111).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Discharge without ED intervention**	**55**	**49.5**	**49.5**	**49.5**
	Discharge home with ED Intervention	28	25.2	25.2	74.8
	Admission to pediatrics Ward	28	25.2	25.2	100
	Total	111	100	100	

Table 5: Disposition of Neonates from ED (n=111).

Discussion

Our study was conducted for six months; a total of 111 neonates were seen in the ED, with a mean age of 15.5 days; most of our neonates were between 7 and 28 days old. The majority were term and delivered at SFH. Male was 50.5% [15] reported mean age of 15 days, and males were 56%. Studies also showed term neonates were the most neonates who

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attended the ED with a slight privilege of male [16].

Most of their neonates were term and delivered at the hospital [17,1].

In our study, most mothers were between 25 to 35 years old and were multipara. Study showed that most mothers were more than 25 years old and multipara [17]. Also, old mothers attend the ED most with their neonates [18].

Most of our neonates' source was self-referral. In their study [1], most of their patients were self-referral to the ED, which is almost like our finding.

The self-referral finding to ED is also similar to many studies and literature reviews in neonatal studies [10,19].

The presentation to ED of our patients is mainly breathing difficulty, jaundice, fever, and vomiting, respectively [17]. The most frequent diagnoses were normal newborn, neonatal jaundice, and infantile colic.

Flanagan and Stewart [3] reported that parent's main complaint during ED visiting was feeding difficulties, respiratory tract infection, and jaundice were the most frequent diagnoses in their study on neonates in the first two weeks of life.

Kennedy et al. [8] reported that gastrointestinal system problems, minor infections, and well and normal newborns were the most common diagnoses among neonates and infants attending the ED.

In study the most common presenting symptoms and complaints at the ED were breathing difficulties, feeding problems, crying, and jaundice, and fever respectively [18].

Most of our study population's neonates were discharged home without investigation, and some neonates were discharged after lab works and reported that most of their neonates were discharged home without intervention [1].

Our hospital admission rate was 25%, almost like or near to which showed (32.9%), and (26%) respectively [1,20]. Hospital admission and ED presentation is high among neonates as they had a higher risk for serious bacterial infections, a typical of signs and symptoms, and higher unpredictable of diseases among them.

Conclusion

Most of neonates attended PED were self-referral with breathing difficulties and after assessment in PED discharged home.

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