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RESEARCH ARTICLE

A CROSS-SECTIONAL DESCRIPTIVE STUDY OF THE NEONATAL SKIN FINDINGS IN POSTNATAL WARD IN A TERTIARY CARE CENTRE

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ABSTRACT

Background: Neonates show presence of number of lesions which may be physiological or pathological. It is important to know the different lesions and their characteristics and their incidence
Aim: Aim of the study was to identify the skin findings in neonatal life and epidemiological prevalence of various neonatal skin findings in tertiary care hospital in Mumbai,
Method: A total of 300 neonates from post natal ward, PICU, NICU were included in the study over a period of 6 months after taking proper consent from parents.
Results: Out of 300 neonates, the commonest skin condition were being transient neonatal dermatoses 255 cases (85%), physiological changes were seen in 226 newborns (75.3%), nevi were seen in 69 cases (23%), genodermatoses were seen in 10 cases (3.33), infections were seen in 33 cases (11%), dermatitis were seen in 46 cases (15.33%), and 11 (3.67%) cases of various mixed conditions were studied. Limitations - Limitations of our studies were involvement of single tertiary centre however further studies are required with adequate sample size for further correlation.
Conclusions: Our study represents a better prevalence of neonatal skin findings with significant association and adequate representation according to gestational age i.e. preterm, term and post term

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INTRODUCTION

The neonatal or newborn period is generally taken as the first four weeks of extra uterine life. Neonatal dermatology may be a daunting discipline, which with advancing medical knowledge, therapeutics and diagnostics; has gained importance in recent years. The importance of studying the neonatal skin disorders are to recognize those skin lesions that necessitate an early intervention from benign commonly seen skin lesions as some conditions that initially appear to be serious turn out to be trivial, whereas in others, the opposite is true. The skin of the newborn plays a pivotal role in the transition from aqueous intrauterine environment to the dry extra uterine terrestrial life. The newborn skin can present with a vast range of conditions, Skin findings are quite frequent in the population, they are present from 96% up to 99.3% of all newborn babies. The wide variation in the dermatological conditions in neonates is reflected in this study.

METHODS AND MATERIALS

Aim of the study was to identify the skin findings in neonatal life and epidemiological prevalence of various neonatal skin findings in tertiary care hospital in Mumbai.

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About 300 neonates from post natal ward, Paediatric Intensive Care Unit(PICU), Neonatal Intensive Care Unit (NICU)were included in the study over a period of 6 months after taking proper consent from parents and clearance from institutional review board(IRB). The dermatological examination was carried out twice a week (any time from birth to 28 days of extrauterine life), in the morning, under natural sun light, including examination of the genitals, oral cavity, hair scalp, and nails. The statistical analysis will be performed by the Chi-square (χ^2) test and the criteria of significance adopted will be of level 5%. Only those more frequent dermatoses (over 10 cases) was submitted to the statistical testing.

Inclusion criteria

- All newborn till 28 days after birth admitted in Neonatal Intensive Care unit of KEM hospital, PICU, Wadia NICU
- Those who have signed informed consent document.

Exclusion Criteria

- IUGR (Intra Uterine Growth Retardation) neonates.
- Neonates born to mother with history of drug and alcohol abuse.
- Neonates with gross congenital malformations.
- Neonates of parents who refused permission for examination.

RESULTS

The mean age of the neonates in the study was 3.78 days with a mean birth weight of 2.62 kg. 50.67% (152) were males while 49.33% (148) were females. Among the 300 neonates, 94 (31.3%) were preterm, 172 (57.3%) were term and 34 (11.3%) were post term delivered. The skin findings among the neonates were classified according to the etiology like Physiological, Transient, Infections, Nevi, Genodermatoses, Dermatitis and Miscellaneous. The commonest skin conditions seen were transient neonatal dermatoses comprising of 255 cases (85%), physiological changes were seen in 226 newborns (75.3%), nevi were seen in 69 cases (23%), dermatitis were seen in 46 cases (15.33%), infections were seen in 33 cases (11%), genodermatoses were seen in 10 cases (3.33), and 11 (3.67%) cases of various mixed conditions were studied. Out of 226(75.33%) cases of physiological neonatal dermatoses, icterus was found to be present in 75(25%) neonates, acrocyanosis was present in 66(22%) neonates, and desquamation in 44 (14.67%) neonates, genital pigmentation in the present study was seen in 31 (10.33%) neonates.

Table 1. Commonly found skin conditions according to gestational age-(in brackets percentage)

Conditions	Number (%)	Preterm	Term	Post term
Mongolian spots	185(61.6)	47(15.6)	118(39.3)	20(6.6)
Icterus	75(25)	39(13)	19(6.3)	17(6.3)
Acrocynosis	66(22)	32(10.6)	32(10.3)	2(0.6)
ETN	64(21.3)	10(3.3)	45(15)	9(3)
Epstein pearl	63(21)	23(7.6)	32(10.6)	8(2.6)
Milia	56(18.6)	23(7.6)	28(9.3)	5(1.6)
Salmon patch	54(18)	17(5.6)	34(11.3)	3(1)
Sebaceous hyperplasia	47(15.6)	19(6.3)	24(8)	4(1.3)
Desquamation	44(14.6)	1(0.3)	24(8)	19(3.3)
Miliaria	39(13)	14(3.6)	25(8.3)	0
Genital pigmentation	31(10.3)	2(0.6)	12(4)	17(5.6)

Table 2. Less common conditions distributed according to gestation

Conditions	Number (%)	Preterm (%)	Term (%)	Post term
Bacterial infections	16(5.3)	9(3)	7(2.3)	0
Fungal infections	15(5)	9(3)	5(1.6)	1(0.3)
Seborrhoeic dermatitis	13(4.3)	1(0.3)	12(4)	0
Intertrigo	12(4)	0	5(1.6)	7(2.3)
Superficial strawberry hemangioma	11(3.6)	6(2)	5(1.6)	0
Perianal dermatitis	10(3.3)	4(1.3)	5(1.6)	1(0.3)
Cradle cap	8(2.6)	3(1)	5(1.6)	0
Caput succedaneum	6(2)	0	4(1.3)	2(0.6)
Neonatal acne	5(1.6)	2(0.6)	2(0.6)	1(0.3)
TNPM	5(1.6)	0	4(1.3)	1(0.3)
Occipital alopecia	5(1.6)	1(0.3)	1(0.3)	3(1)
Cutis marmorata	4(1.3)	4(1.3)	0	0
Port wine stain	4(1.3)	0	4(1.3)	0
Collodion baby	3(1)	3(1)	0	0
Incontinentiapigmenti	3(1)	0	3(1)	0
Irritant dermatitis	3(1)	3(1)	0	0
Injection hematoma	3(1)	2(0.6)	1(0.3)	0
Viral infections	2(0.6)	1(1)	1(0.3)	0
Cleft lip & palate	2(0.6)	0	2(0.6)	0
Oculocutaneous albinism	2(0.6)	0	2(0.6)	0
Epidermolysis bullosa	2(0.6)	1(0.3)	1(0.3)	0

In the our study transient lesions were found to be present in 255(85%) neonates, out of which Mongolian spots were present in 61.6% of the neonates (lumbosacral region in 57.6% and other sites in 4%), Epstein pearls were found to be present in 63(21%), erythema toxicumneonatorum was found to be present in 64 (21.33%), miliaria was present in 39 (13%), milia were found to be present in 56 (18.67%) while 47(15.67%) neonates had sebaceous hyperplasia, acne was present in 5 (1.7%) neonates and cutis marmorata was present in 4(1.3%) neonates. Out of 300 neonates, 33(11%) had infections out of which 15(5%) had fungal, 16 (5.3%) had bacterial and 2 (0.66%) had viral infections. Naevi was found to be present in 69(23%) neonates, out of which salmon patch was found to be present in 54 (18%) neonates ,11(3.66%) had superficial strawberry hemangioma and 4(1.33) had port wine stain. Out of 300 neonates, genodermatoses was found to be present in 10 (3.33%) of the neonates. epidermolysis bullosa was present in 2(0.67%) neonates, collodion baby was present in 3(1%) neonates, oculocutaneous albinism was present in 2(0.67%) neonates and incontinentiapigmenti was present in 3 (1%) neonates.

In our study the incidence of dermatitis in the neonates was 15.33% (46 neonates), perianal dermatitis was present in 10 (3.33%) neonates, cradle cap was present in 8 (2.67%) neonates and seborrheic dermatitis, irritant dermatitis and intertrigo were present in 13(4.33%), 3(1%) and 12(4%) neonates, respectively. Miscellaneous conditions was present in 11 (3.67%), which includes injection hematoma 3(1%), caput succedaneum 6 (2%) and cleft lip & palate 2(0.67%). In our study, out of 64 neonates who had erythema toxicumneonatorum, (ETN) 17.18% (11) neonates had ETN from birth, 76.56% (50)developed ETN in 24-72 hours of birth and 6.25%(4) developed more than 10 days of birth. Among the neonates in our study, 50.67% were males while 49.33% were females in the study by Kulkarni et al, 53.7% were males while 46.3% were females (Kulkarni and Singh, 1996) In the current study, 57.3% were term newborns, 31.3% were preterm newborns and 11.3% were post term newborns. In the study by Kulkarni et al, 88.5% neonates were full term while 11.5% were preterm (Kulkarni and Singh, 1996), There were 90.2% term newborns and 9.8% preterm newborns in the study by Sachdeva et al. There was no representation of the post term neonates in these studies.

In the current study, physiological lesions were present in 75.33% neonates. This incidence is higher than that in the study by Haveri et al. in which physiological skin lesions were present in 59.1% neonates (Haveri and Inamdar, 2014). However, in our study it was found that the physiological lesions were found significantly more in the preterm neonates than the term and post term neonates. This finding has been obtained for the first time and should be studied in more detail. Preterm neonates might show increased physiological lesions as the neonate is still in the developmental stage compared to the full term neonates. In our study, icterus was found to be present in 25% neonates. In the study by Kulkarni et al, icterus was present in 12.1% neonates (Kulkarni and Singh, 1996) Acrocyanosis was present in 22% neonates in the current study, which was higher than that in the study by Sachdeva M et al in which peripheral cyanosis was present in 9.4% neonates (Sachdeva et al., 2002) Our study reported desquamation in 14.67% neonates. In the study by Kulkarni et al, desquamation was present in 7.2% neonates (Kulkarni and Singh, 1996). In the current study, transient lesions were found to be present in 85% neonates which is much higher to the findings in the study by Haveri et al. which showed transient noninfective findings present in 26.3% neonates (Haveri, 2014). In our study Mongolian spots were present in 61.66% of the neonates. Mongolian spots were present in 72% neonates in the study by

Kulkarni et al. (Kulkarni, 1996). In our study, Mongolian spots were present in 47% preterm, 68.6% term and 58.82% post term neonates. Among the neonates in the study by Haveri et al, Mongolian spots were present in 90.31% full term, 8.02% preterm and 1.65% post term neonates (Haveri. 2014).

Figure 1. Epstein pearl

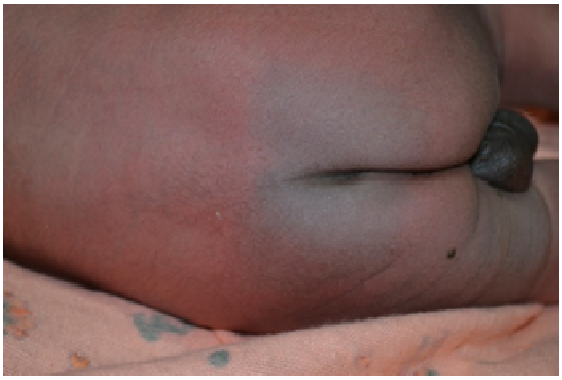

Figure 2. Mongolian spot

Figure 3. Multiple hemangioma

Figure 4. Collodion Baby

Figure 5. Physiological Desquamation

Figure 6. Cutis marmorata

Figure 7. Epidermolysis Bullosa

Epstein pearls in the current study were found to be present in 21% neonates. Among the neonates in the Dash et al study, Epstein pearls were present in 28% of the neonates (Dash, 2000). In the current study, erythema toxicum was present in 10.64% preterm, 26.16% term and 26.47% post term neonates. Previous studies have not studies the incidence of erythema toxicum according to gestational age. Our study demonstrated for the first time that the incidence of erythema toxicum in the term neonates is higher than the preterm and post term neonates. In the current study infections were present in 11% neonates which was higher than the incidence of infections in the study Dash et al which was 5% (Dash, 2000), In our study, it was found that the infection was significantly higher in the preterm neonates than the term and post term neonates. This validates the claim that the preterm neonates are at a higher risk of skin infection compared to the full term neonates. In the

present study, naevi was found to be present in 23% (69) neonates. In the study by Baruah et al, naevi were found in 0.8% neonates (Baruahv, 1991). Naevi were present in 2% neonates in the Sachdeva M et al study (Dash, 2000). Out of which salmon patch was found to be present in 54 (18%) neonates, 11(3.66%) had superficial strawberry hemangioma and 4(1.33) had port wine stain. In the present study, genodermatoses was found to be present in 3.33%, epidermolysis bullosa was present in 2(0.67%) neonates, Collodion baby was present in 3(1%), Oculocutaneous albinism was present in 2(0.67%) neonates. Incontinentiapigmenti was present in 3 (1%) neonate, all were term neonates and females. In our study the incidence of dermatitis in the neonates was 15.33% (46 neonates), perianal dermatitis was present in 10 (3.33%) neonates, Cradle cap was present in 8 (2.67%) neonates and Seborrheic dermatitis, irritant dermatitis and intertrigo were present in 13(4.33%), 3(1%) and 12(4%) neonates, respectively. Miscellaneous conditions was present in 11 (3.67%), which includes injection hematoma 3(1%), caput succedaneum 6 (2%) and cleft lip & palate 2(0.67%). Limitations of the study are small sample size and involvement of single tertiary care centre.

Conclusion

Most common findings were of transient lesions in order of frequency Mongolian spots, erythema toxicum, epstein pearl, milia, sebaceous hyperplasia, miliaria, neonatal acne, TNPM, occipital alopecia and cutis marmorata. We found higher prevalence of physiological conditions like icterus, acrocynosis in preterm and desquamation and genital pigmentation in post term. Erythema toxicumneonatorum was found in majority of neonates of age 24 to 72 hours and rarely in neonates with age more than 10 days. This Study also demonstrates higher incidence of infections in preterm neonates.

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