

Patterns of Infant Dermatoses – A Cross Sectional Study in A Tertiary Care Centre.

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ABSTRACT

Background: The stage of infancy lasts from birth to 12 months of age (WHO). Infant Dermatoses is quite different from adult dermatosis. The objective of our study is to find out various patterns of infant dermatosis in eastern India. **Methods:** The cross sectional study was done in Nilratan sircar Medical college & Hospital for a period of one year (April 2015 to March 2016). The study was carried out on 600 infants. As per different patterns of skin manifestations, the infants were divided into two groups - neonatal and post neonatal. After studying the individual infants' history, the relevant clinical examinations and investigations (clinically doubtful cases) were carried out. Diseases were tabulated accordingly. **Results:** In neonatal group physiological conditions were predominant (65.3%) whereas infections were prevalent in post neonatal period (54.8%). Among the infectious conditions parasitic infections (25.3%) were most common followed by bacterial (12.2%), viral (10.2%), and fungal infections (7.1%). Sweat gland disorders (14.5%) were commonest after infections and prevalent in older age group. Seborrheic dermatitis was commonest among dermatitis and equally prevalent in both groups (10%). **Conclusion:** Infants are vulnerable to various types of infections (bacterial, viral, fungal). Infected family members may be source of chronicity of infections. Though various physiological conditions are very common in neonatal age group which needs proper explanation and counseling of parents. Infections and non infectious dermatitis are also prevalent which need proper treatment.

Keywords: Dermatoses , Eastern India, infant.

INTRODUCTION

The stage of infancy lasts from birth upto one year of age, which is further divided into neonatal period (first 28 days of life) and post neonatal period (28 th day to one year).^[1] During infancy, a great deal of initial learning occurs. Various factors (mother's level of education, environmental conditions and access to medical infrastructure) intermingle and necessary for upbringing a healthy baby. "Healthy skin is a reflection of total wellness" rightly said by Dr Howard murad. Any acute and chronic disease affecting infants may impair the process of learning.

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A significant percentage of patients attending the dermatology OPD belong to the pediatric age group. Dermatological conditions constitute at least 30% of all out patient visits to pediatrician and 30% of all visits to dermatologists involve children.^[2]

Skin diseases in the pediatric population are common all over the world with the reported incidence varying between 9% and 37%.^[3] But unfortunately, there is an inadequate data regarding pediatric health seeking behavior in our country.

The majority of skin conditions in newborns are transient and physiological but it is quite difficult to explain their benign nature to parents. Infant dermatosis requires a separate view from dermatosis occurring in older children and adults as there are important differences in clinical presentations, treatment, and prognosis.^[4]

The incidence of various dermatologic conditions in infants varies according to age, race, geographic locations, climate, nutrition, hygiene, socioeconomic conditions, and heredity.^[5] Multiple studies were done to know dermatosis pattern among older and school going children from different parts of india but very little data are available on infant dermatosis from Eastern India. To provide the optimal therapy to the patients and to counsel the parents for prevention, it is important to know the prevalence, clinical patterns and factors responsible for dermatosis.

This cross-sectional study was done to study the clinical pattern of the infant dermatosis and different clinical presentations of various dermatological

conditions in infants attending the opd at our tertiary care centre.

MATERIALS AND METHODS

A non-interventional, cross-sectional study was conducted with the patients aged from birth to 1yr age attending Nilratan Sircar Medical college &Hospital after fulfilling inclusion and exclusion criteria, were screened for the presence of skin diseases.

Study period:

One year (April 2015 to March 2016). A total of 600 patients from dermatology OPD and gynecology and pediatrics both OPD and IPD with skin manifestations were included in the study.

Data collection

Patients were divided into two groups (due to different pattern of skin manifestations):

Neonatal group (from birth to one month of age group)

Older children (from one month to one year age group)

Data collection was done in three parts. A detailed history including the patient identification details, birth weight, history of prematurity, detailed maternal history(drug intake) ,intranatal history, developmental history, history of other siblings ,presenting complaints, onset and duration of the disease, any history of external applications, family history of any dermatosis were included in the first part. In the second part detailed clinical examination, examination of oral cavity was done.Third part consists of assimilation of results of laboratory investigations including gram stain, KOH examination, histopathological examination were done in clinically doubtful cases. A direct interview technique was used to collect the history and other socio-demographic information of the patient. Data was tabulated based on etiology, age, sex distribution, incidence in different age groups and seasonal variation.

Written informed consent was taken from all the patients who want to participate in the study. Proper precautions were taken prior to the specimen collection to minimize the pain and any complications arising during to biopsy procedure. The area of specimen collection was infiltrated using one percent lignocaine for minimizing the pain due to the procedure.

RESULTS

A total of 600 infants with skin diseases were included in the study. Patients included in our study mostly came from Kolkata and surrounding rural districts. Few cases also came from Bihar, Orissa and Bangladesh. Among them 150 (25%) were in neonatal age group and 450 (75%) were within one

month to one year age group. 65% were boys and 35% were girls with a male : female ratio 1.8:1. [Table 1].

Table 1: Age and Sex distributions of Infants

| Age group | Boys no (%) | Girls no (%) | Total no (%) |
|--------------------|-------------|--------------|--------------|
| <1 month(neonate) | 107 (71.3) | 43(28.6) | 150(25) |
| >1 month to 1 year | 283 (62.8) | 167(37.1) | 450(75) |
| Total | 390 (65) | 210 (35) | 600 |

In our study,older children had more incidence of skin conditions than younger children. Overall infectious diseases were most common dermatoses in infants followed by sweat gland disorder and comprised 43% and 14.3% respectively [Table 2].

Table 2: Comparative analysis of etiological distribution of various dermatosis in different age groups.

| Etiology | Percentage < 1 month age group | Percentage >1month age group | Percentage (Total) n=600 |
|-----------------------|--------------------------------|------------------------------|--------------------------|
| Sweat gland disorders | 8.6(13) | 16.4(74) | 14.5(87) |
| Pigmentary disorders | 33.3(50) | 4.2(19) | 11.5(69) |
| Infectious disorders | 7.3(11) | 54.8(247) | 43(258) |
| Dermatitis | 14(21) | 22.28(101) | 20.3(122) |

Table 3: Pattern of various dermatosis in neonates.

| Dermatosis | No of cases | Percentage (N=150) |
|------------------------------|-------------|--------------------|
| Sweat gland disorders | | |
| Milia | 10 | 6.6 |
| Miliaria | 13 | 8.6 |
| Erythema toxicum | 23 | 15.3 |
| Exfoliation of skin | 15 | 10 |
| Pigmentary disorders | | |
| Mongolian spots | 50 | 33.3 |
| Infectious disorders | | |
| Bacterial | 3 | 2 |
| Parasitic | 5 | 3.3 |
| Fungal | 3 | 2 |
| Dermatitis | | |
| Seborrheic dermatitis | 15 | 10 |
| Intertrigo | 6 | 4 |
| Miscellaneous | | |
| Subcutaneous fat | 1 | .66 |
| necrosis | 1 | .66 |
| Neonatal lupus | 2 | 1.3 |
| Epidermolysis bullosa | | |
| Incontinentia pigmenti | 1 | |
| Spongy nevus | 1 | 2 |
| Bullous aplasia cutis | 1 | |

Dermatoses encountered in neonates:

- The majority of skin conditions in newborns are physiological (milia, erythema toxicum neonatorum, exfoliation of skin of palms and soles, Mongolian spots) and constituted 65.3%. The percentage of congenital pigmentary disorders in neonates was 33.3%. Mongolian spots were the most common pigmentary disorder in the neonate. Dermatitis is common in neonates (14%). Prolonged

use of diaper, shorter necks, and flexed posture make them susceptible to intertrigo (4%) [Table 3].

Infectious diseases are less common in neonates as compared to older children (7.3%). Parasitic infections (scabies) were most common (5 cases) followed by 3 cases of bacterial and 3 cases of tinea corporis infections. Out of the three patients with pyoderma, two cases were due to secondary infection of scabies and one case of furuncle was found.

- Dermatoses encountered in older children (one month to one year)

Table 4: Pattern of various dermatitis in >1 month age group.

| Dermatosis | No of cases | Percentage (N=450) |
|---|-------------|--------------------|
| Sweat gland disorders Miliaria | 74 | 16.4 |
| Pigmentary disorders Congenital melanocytic nevus | 3 | |
| Hemangioma | 4 | |
| Post inflammatory hypo and hyperpigmentation | 8 | 4.2 |
| Mongolian spots | 4 | |
| Ichthyosis (Lamellar) | 1 | |
| Allergic disorder Drug rash | 1 | .22 |
| Acute urticaria | 1 | |
| Erythema multiforme (infectious etiology) | 1 | .66 |
| Dermatitis Atopic dermatitis | 22 | 4.8 |
| Seborrheic dermatitis | 46 | 10.2 |
| Poplar urticaria | 20 | 4.44 |
| Eczema | 4 | .88 |
| Contact dermatitis(meconium) | 6 | 1.3 |
| Pityriasis alba | 3 | .66 |
| Infectious disorders Bacterial | 55 | 12.2 |
| Parasitic(scabies) | 114 | 25.3 |
| Fungal | 32 | 7.1 |
| Viral | 46 | 10.2 |
| Appendageal tumor | 1 | 0.22 |
| Manifestations due to protein energy malnutrition | 4 | .88 |

The most common dermatoses found were of infectious etiology [Table 4], which was 54.8% of the study population. Scabies was the most common infectious disease and comprised 25.3% of the population. The incidence of bacterial and fungal infection was 12.2% and 7.1%, respectively. Pyoderma secondary to other dermatoses is more common than primary impetigo. Tinea, candidiasis and pityriasis versicolor are common among fungal infection. Close family members are found to be infected in maximum cases of tinea infections. Among viral infections molluscum contagiosum are commoner than hand foot mouth disease. We did not find any cases of viral wart. Sweat gland disorders were common and we observed 16.4% in our study.

Also sweat gland disorders are more often observed in older children than in neonates [Table 4]. In the present study, the incidence of atopic dermatitis was 4.8% and seborrheic dermatitis was 10.2%. We also observed that seborrheic dermatitis was equally common in both age group(10%) and atopic dermatitis was more common in the infants of older age group [Table 4]. Other miscellaneous disorders found were papular urticaria (4.44%), contact dermatitis(1.3%), eczema (0.88%), pityriasis alba (0.66%), pigmentary disorders (4.2%), ichthyosis (0.22%), allergic reactions (0.66%), dermatoses due to protein energy malnutrition (0.88%) and appendageal tumor (0.22%) [Table 4]. Bacterial infections and sweat gland disorders (miliaria) peak in summer month (April to June) while cases of scabies were observed throughout the year. Scabies infections were common in both age group patients. Cases of crusted scabies were found due to inadvertent use of topical steroids.

DISCUSSION

There is a paucity of studies on dermatosis pattern among infants from Eastern India. We found different pattern of skin diseases among neonates and older children (one month to one year age group) in our study. Transient neonatal disorders represent very common situations characterized by a variety of clinical features and follows benign course.^[6] A thorough knowledge of these conditions is mandatory in order to properly differentiate between benign disorders and other important conditions such as infections or genodermatoses. Majority of skin conditions in newborns are physiological - 65.3%, similar to studies done by Nobbay and Chakrabarty (69%),^[7] Baruah and colleagues (93%),^[8] and Kulkarni and Singh(72%).^[9]

- Few conditions found in our study are discussed below:

Neonatal desquamation: Postmaturity in the neonate, and sometimes dysmaturity leads to increased desquamation at birth. Fifteen neonates (10%) had exfoliation of skin [Table 3].

Erythema toxicum neonatorum (ETN): Small erythematous macules with or without a central papule or pustule that contains mostly eosinophils. ETN arises between the first and fourth days of life and lasts 2 or 3 days. Twenty-three neonates (15.3%) had ETN.

Milia: They consist of 1-2 mm white papules on the nose, chin, cheeks and forehead. The nose is predominantly affected. We found ten cases of milia in our study (6.6%).

Mongolian spots: Mongolian spots (MS) are birthmarks that are present at birth and their most common location is sacrococcygeal or lumbar area. Fifty neonates and four cases of older children had Mongolian spots.(approximately 33.3%) which is

much lower than the incidence found by Cordova (80%).^[10]

- Overall infectious diseases are most common dermatoses in infants in our study (43%) which is higher than the study done among school students by Dogra and Kumar (11.4%).^[11] Scabies have been found as the most prevalent parasitic infection in our study. Due to poor care given by parents ,lack of proper health care facilities in rural area ,use of topical steroids, irritants prescribed by local quacks patients presented with extensive, crusted lesions with secondary infections. We found incidence of scabies in older children -25.3% compared to other studies (5.1% to 22.4%).^[12-16] We found 12.2% of infections in older children are of bacterial in etiology, higher than neonates (2%). Studies done with less than 12 year age group children from eastern part of India (1994) showed different result. They found pyoderma and impetigo as commonest skin diseases (35.3%).Also similar result found by Bhatia.^[17]

- Sweat gland disorders are second most common skin disease in infants in our study (14.5%). Due to hot and humid climate miliaria are common in infants. Another study, however, found the incidence of sweat gland disorders to be between 30% and 40%.^[18] Three cases of giant congenital melanocytic nevus were found in our study, while a study done in hong kong found 3.6%.^[19] Protein energy malnutrition was found in 4 infants (in 1 month to 1year age group infants) (.88%), which was less than the 17.5% found in a study by Negi and associates.^[12] Continuation of breast feeding as sole food,lack of knowledge about complementary feeding,worm infestations have been identified as factors associated with nutritional disorders.

Limitation:

We got very few patients in some etiological groups which restricted more detailed analysis.

CONCLUSION

There has been a recent upward trend in the number of pediatric patients with skin diseases. There is increasing awareness among the parents regarding pediatric dermatosis however still a large proportion of patients present in an advanced course of the disease due to lack of education, social backwardness, lack of health care facilities in the rural area, lack of sanitation, overcrowding, long waiting time in hospitals. The most common dermatological conditions seen in infants are infections (scabies, pyoderma), followed by the disorders of sweat gland and pigmentary disorders, seborrheic dermatitis. To gain more in depth insight into the myriad interplay of factors will require a larger study sample & time period.

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