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A study of dermatoses in preschool children at a tertiary care hospital in Uttarakhand

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Abstract

Background: Skin diseases, in preschool children (children upto five years of age), are common all over the world. Their pattern and prevalence, however, varies within countries, and various regions of the same country, due to varying ecological factors. The pattern of dermatoses in preschool children, has been reported by various workers, from different regions of India. Information on the same, however, is sketchy from Uttarakhand state of India.

Aim: To study the pattern of dermatoses, in preschool pediatric patients, at a tertiary care hospital, located in the foothills of Garhwal region of Uttarakhand.

Material and Methods: This was a retrospective study, in which data of all new preschool children, presenting to outpatient department of dermatology, between 01 Oct 2012 to 30 Sept 2015, was analyzed. A total of 1712 patients, formed the study subjects. Diagnosis was made on clinical grounds, supported by relevant investigations, where ever required.

Results: Infective and parasitic dermatoses (50.29%) were the commonest dermatoses, in our study. This was followed by eczema-dermatitis (18.46%), pigmentary dermatoses (6.95%), disorders of skin appendages (6.14%), papulosquamous disorders (5.02%), keratinizing disorders (1.87%), naevi and developmental disorders (1.40%), nutritional disorders (0.93%) and bullous disorders (0.18%)

Conclusion: Infective and parasitic skin diseases, are responsible for nearly half the dermatoses, in preschool pediatric patients, in the foothills of Garhwal region of Uttarakhand. This group of diseases are largely preventable and can be effectively controlled by health education, improvement in personal hygiene and sanitation, and provision of efficient health care facilities, for early diagnosis and treatment of these disorders.

Keywords: Pediatric, Preschool, Dermatoses, Uttarakhand

1. Introduction

Skin diseases are a major cause of morbidity in pediatric population. They account for 30% of all outpatient visits to a pediatric clinic and 30% of all visits to a dermatologist. In pediatric age group, they can be transitory, or chronic and recurrent. They require a separate view from adult dermatoses due to important differences in clinical presentation, treatment and prognosis [1]. Due to delicate nature of skin and constant exposure to trauma most pediatric dermatoses are attributable to physical factors, infections and allergens. Most of the genodermatoses, congenital and naevoid disorders, also manifest during early childhood.

In pediatric patients too, prevalence of dermatoses varies in different age groups, with children of preschool age showing higher prevalence of skin diseases compared to other age groups [2, 3]. It was, therefore, decided to study pattern and prevalence of dermatoses, in preschool children, presenting at a tertiary care hospital in Dehradun, Uttarakhand. Prevalence of pediatric dermatoses has been reported to be 14.3% to 69.38%, in various school surveys from across India [4-9]. The disease pattern, however, differs from region to region, within same country, due to different ecological factors [10].

2. Material and methods

This retrospective study, aimed at evaluating pattern of dermatoses in preschool children, was carried out at Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, one of

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the teaching hospitals, and major referral centers for Garhwal region of Uttarakhand, and adjoining districts of western Uttar Pradesh. Outpatient’s registers of department of dermatology, venereology and leprosy with information on age, sex and diagnosis of pediatric patients of age upto five years, for a 03 year period from 01 October 2012 to 30 Sep 2015, were analyzed, after obtaining institutional ethical clearance and anonym sing the data. All cases had been diagnosed by consultants with post graduate qualification in dermatology, venereology and leprosy. Diagnosis was primarily clinical, supported by relevant investigations, wherever required. Cases of leprosy and sexually transmitted infections were not included in the study. Age and sex distribution of patients, and frequency of various dermatoses was analyzed. Patients with more than one dermatological conditions were excluded from the study.

3. Results

A total of 1712 preschool children were seen during the study period. The age and sex distribution of these patients is shown in Table-1. There was a male preponderance with total 1012 boys (59.11%) and 700 (40.89%) girls, with a boy to girl ratio of 1.45:1.

Pattern and frequency of various dermatoses seen is shown in Table-2. Infective and parasitic dermatoses, with 861 (50.29%) cases, were major cause of dermatological morbidity in our study. This was followed by eczema-dermatitis with 316(18.46%), pigmentary disorders 119 (6.95%), disorders of skin appendages 105 (6.14%), papulosquamous disorders 86 (5.02%) and keratinization disorder with 32 (1.87%) cases.

Among infective and parasitic group of dermatoses (Table-3), children were found to be affected most by parasitic dermatoses (18.29%), mostly caused by scabies (14.95%). This was followed by fungal infections (12.85%), bacterial infections (10.10%) and viral infections in (9.05%) cases. Impetigo and furunculosis with 4.85% and 3.56% cases, respectively, were the commonest pyoderma. Warts, molluscum contagiosum and varicella were common viral infections accounting for 3.15%, 2.69% and 2.45% cases, respectively. Tinea corporis (5.90%) was the commonest fungal infection, followed by pityriasis versicolor (3.10%) and Tinea capitis in (2.86%) cases.

In non- infective group of dermatoses (Table-4), eczema-dermatitis (18.46%) was leading cause of morbidity followed by pigmentary disorders (6.95%), disorders of skin appendages (6.14%), papulosquamous disorders (5.02%) and keratinization disorders (1.87%). Other disorders like naevi and developmental disorders, nutritional disorders and bullous disorders accounted for 1.40%, 0.93% and 0.18% cases, respectively. Disorders which could not fit into above groups were counted under miscellaneous category and accounted for 8.76% of all cases.

In our study atopic dermatitis (6.48%) was commonest type of dermatitis followed by seborrheic dermatitis (5.32%), pityriasis Alba (3.27%) and pompholyx (1.81%). Among pigmentary dermatoses vitiligo accounted for 4.50%, followed by freckles in 1.46% cases. In disorders of skin appendages miliaria (2.98%) was the leading cause of morbidity followed by alopecia (1.17%) and milia (0.88%).

Among papulosquamous disorders psoriasis accounted for 1.99% of all cases followed by pityriasis rosea (1.64%) and lichen planus (0.82%). Other dermatoses like ichthyoses contributed 0.99% cases, keratoderma (0.47%), naevi (0.41%), haemangiomas (0.35%), bullous disease of childhood (0.12%), phrynoderma (0.06%) cases.

Table 1: Age and Sex distribution of pre- school patients.

| Age | Male | Female | Total | Percent (%) |
|-----------|------|--------|-------|-------------|
| < 1 year | 283 | 213 | 496 | 28.97% |
| 1-5 years | 729 | 487 | 1216 | 71.03% |
| Total | 1012 | 700 | 1712 | 100% |

Table 2: Pattern of Various dermatoses

| Dermatoses | Number | Percent (%) |
|--|-------------|-------------|
| 1. Infective and parasitic dermatoses | 861 | 50.29 |
| 2. Non-infective dermatoses | | |
| Eczema-Dermatitis | 316 | 18.46 |
| Papulosquamous disorders | 86 | 5.02 |
| Pigmentary disorders | 119 | 6.95 |
| Keratinization disorders | 32 | 1.87 |
| Disorders of skin appendages | 105 | 6.14 |
| Naevi & developmental disorders | 24 | 1.40 |
| Bullous disorders | 3 | 0.18 |
| Nutritional disorders | 16 | 0.93 |
| Miscellaneous disorders | 150 | 8.76 |
| Total | 1712 | 100 |

Table 3: Distribution of Patients with Infective and Parasitic Dermatoses

| Category (Number of Patients/%) | Dermatoses | Total | Percent (%) |
|---------------------------------|-----------------------|-------|-------------|
| Bacterial (173/10.10) | Impetigo | 83 | 4.85 |
| | Furunculosis | 61 | 3.56 |
| | Cellulitis | 18 | 1.05 |
| | Others | 11 | 0.64 |
| Viral (155/9.05) | Molluscum contagiosum | 46 | 2.69 |
| | Warts | 54 | 3.15 |
| | Varicella | 42 | 2.45 |
| | Herpes simplex | 07 | 0.41 |
| | Others | 06 | 0.35 |
| Fungal (220/12.85) | Tinea capitis | 49 | 2.86 |
| | Tinea Corporis | 101 | 5.90 |
| | Cutaneous candidiasis | 17 | 0.99 |
| | Pityriasis versicolor | 53 | 3.10 |
| Parasitic (313/18.29) | Scabies | 256 | 14.95 |
| | Papular Urticaria | 52 | 3.05 |
| | Pediculosis capitis | 05 | 0.29 |
| Total | | 861 | 50.29 |

Table 4: Distribution of patients with non-infective dermatoses

| Category (Number of patients/%) | Dermatoses | Total | Percent |
|--|------------------------------|-------|---------|
| Eczema-Dermatitis (316/18.46) | Atopic dermatitis | 111 | 6.48 |
| | Pityriasis alba | 56 | 3.27 |
| | Seborrhoeic dermatitis | 91 | 5.32 |
| | Contact dermatitis | 09 | 0.53 |
| | Pompholyx | 31 | 1.81 |
| | Diaper dermatitis | 13 | 0.76 |
| Papulosquamous disorders (86/5.02) | Nonspecific eczema | 05 | 0.29 |
| | Psoriasis | 34 | 1.99 |
| | Lichen planus | 14 | 0.82 |
| | Pityriasis rosea | 28 | 1.64 |
| | Others | 10 | 0.58 |
| Pigmentary disorder (119/6.95) | Vitiligo | 77 | 4.50 |
| | Freckles | 25 | 1.46 |
| | Others | 17 | 0.99 |
| Keratinization disorder (32/1.87) | Ichthyosis | 17 | 0.99 |
| | Keratoderma | 08 | 0.47 |
| | Others | 7 | 0.41 |
| Disorders of skin appendages (105/6.14) | Miliaria | 51 | 2.98 |
| | Milia | 15 | 0.88 |
| | Alopecia | 20 | 1.17 |
| | Nail disorder | 10 | 0.58 |
| | Others | 09 | 0.53 |
| Naevi and developmental disorders (24/ 1.40) | Naevi | 07 | 0.41 |
| | Haemangioma | 06 | 0.35 |
| | Others | 11 | 0.64 |
| Bullous disorder (03/0.18) | Bullous disease of childhood | 02 | 0.12 |
| | Hereditary bullous disorders | 01 | 0.06 |
| Nutritional disorders (16/0.93) | Phrynoderma | 01 | 0.06 |
| | Cheilitis / Stomatitis | 06 | 0.35 |
| | Others | 09 | 0.52 |
| Miscellaneous | | 150 | 8.76 |
| Total | | 851 | 49.71 |

4. Discussion

Pediatric dermatoses are common problem all over the world. Their pattern and prevalence is influenced by interplay of diverse ethnic, social, economic, climatic, religious and cultural factors. Uttarakhand, largely a hilly state is administratively divided into two divisions, namely, Garhwal and Kumaon. Temperature here varies from subzero levels to more than 40 degree Celsius depending on altitude of the place and season. Average rainfall is 1631 mm, and average relative humidity 76%, which may go beyond 90% during rains, particularly in plains like doon valley, where Dehradun, the capital city, is located. Like in many other studies (11-14) male preponderance was observed in our study, too, with boys to girl's ratio of 1:45:1.

With 50.29% incidence, infective and parasitic dermatoses were the major cause of dermatological morbidity in our study. This is in conformity with many other studies in children (2, 11-16), reporting 29.4% to 56.40% incidence of infective dermatoses. Parasitic dermatoses alone, accounted for 18.29% of cases, in our study, with scabies responsible for 14.95% of cases, followed by papular urticaria (3.05%) and pediculosis capitis (0.29%). Near similar incidence of scabies (14.2%) has been reported in a study from South India (15). A high incidence of pediculosis capitis (22.6%) has been reported from Garhwal region, in an earlier study (16), though we found pediculosis capitis in 0.29% cases only. Among infective dermatoses, incidence of fungal infection was highest (12.85%) followed by bacterial (10.10%) and viral infections (9.05%). Variable incidence of different types of

skin infections has been noted in different studies. Balai *et al.* [11], in their study from Udaipur, reported bacterial infections as the most common cause of skin infections, followed by fungal and viral infections, whereas the order was viral, bacterial and fungal in another study [14]. These differences, in incidence, among infective dermatoses, can possibly be attributed to the regional climatic variations, personal hygiene and other socio-economic factors. High incidence of fungal infection, in our study, may possibly be due to high humidity and heat, in doon valley and adjoining districts of western Uttar Pradesh, particularly during rainy season, and largely rural background of the patients.

In our study, impetigo (4.85%) was commonest bacterial infection, followed by furunculosis (3.56%). Most studies (2, 12, 14) report impetigo as the commonest bacterial infection. Warts (3.15%) were commonest viral infection like in other study (14), though molluscum contagiosum has been found to be commonest viral infection in other studies (2, 11, 12, 15). With 5.90% incidence, Tinea corporis was the commonest fungal infection in our study. Though, Tinea capitis has been reported to be common in some studies, (2, 11) higher incidence of Tinea corporis (3.1%) has been reported, in a study, from Pondicherry. (15)

18.46% cases of eczema- dermatitis were recorded in our study, which is near similar to the findings of Ghosh *et al.* [17] In the eczema group, atopic dermatitis (6.48%) was the commonest eczema, followed by seborrhoeic dermatitis (5.32%), a finding similar to other studies (2,11,14). However, higher incidence of seborrhoeic dermatitis, compared to atopic dermatitis, has been documented by Sharma *et al.* [13]. The incidence of eczema primarily depends on genetic makeup, individual predisposition and exposure to allergens.

Among papulosquamous disorders psoriasis recorded an incidence of 1.99% largely similar (1.4%) to study by Elfaituri. (14) Vitiligo recorded an incidence of 4.5%, somewhat similar (3.4%) to report by Ghosh *et al.* [17] Negi *et al.* [16] recorded 2.9% incidence of vitiligo from same region. Ichthyosis was seen in 0.99% of cases, near similar to reported by Jawade *et al.* [2]. Miliaria was seen in 2.98% cases, near similar to, 3.9% reported by Saurabh *et al.* [8], and less than 4.1% reported by Karthikeyan *et al.* [15] Naevi and developmental disorders were seen in 1.40% cases. Haemangioma occurred in 0.35% cases, compared to 1.35% recorded by Jawade *et al.* [2] Cases of bullous dermatoses were 0.18% in our study, compared to 0.33% and 0.58% report by Jawade *et al.* [2] and Balai *et al.* [11], respectively. Nutritional disorders were found in 0.93% in our study, compared to, higher incidence of, 2.8% and 4% by Karthikeyan *et al.* [15] and Hassan *et al.* [12], respectively.

5. Conclusion

This study provides important statistical data, on the frequency of dermatological diseases, occurring in children of preschool age, in the foothills of Garhwal region of Uttarakhand and its adjoining areas. The study shows that more than half the case load, in this age group, comprises of infective and parasitic dermatoses. This group of diseases can easily be controlled by effective health education, improvement in personal hygiene and sanitation and provision of efficient healthcare facilities. Proper training of general practitioners, pediatricians and dermatologists, in early diagnosis and efficient treatment of common pediatric dermatoses, will go a long way in preventing the morbidity caused by these diseases.

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