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Research Article

STUDY OF CLINICAL SPECTRUM OF PEDIATRIC DERMATOSES IN PATIENTS ATTENDING A TERTIARY CARE CENTER IN WEST UTTAR PRADESH

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A R T I C L E I N F O

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A B S T R A C T

Introduction: Skin diseases are a major health problem in the pediatric age group.
Aim: To determine the prevalence and clinical characteristics of different pediatric dermatoses in a tertiary care centre in Uttar Pradesh.
Materials and Methods: Children with age 18 years and below with clinical evidence of cutaneous disorders were studied.
Results: 15718 cases were studied which showed a female preponderance of 49.1%. The most common dermatoses was infections and infestations (42%) followed by eczemas (30%), disorders of sweat and sebaceous glands (17%), keratinisation and paulosquamous disorders (2.6%). Nutritional disorders were seen in 1.2% of children. 2% had photodermatoses, 1.8% had hair and nail disorders and 0.1 % had adverse cutaneous drug reactions.
Conclusions: Fungal infection was the most common infection noted in the study, followed by viral and bacterial infection. Allergic contact dermatitis was the commonest exogenous eczema and juvenile plantar dermatosis was the commonest endogenous eczemas. Acne, insect bite reaction and miliaria were the other common dermatoses.

INTRODUCTION

Pediatric dermatology deals with diseases and skin care requirements in individuals from birth to adolescence, a relatively short period in lifetime when significant physiological, psychological, and maturity changes take place.[1] The pattern of skin diseases is known to differ in different countries of the world and in different regions of the same country.[2] Dermatological problems constitute at least 30% of all outpatient visits to a pediatrician and 30% of all visits to a dermatologist involve children.[3,4] The prevalenceof skin diseases among children in various parts of India ranges from 8.7% to 35%.[5]

MATERIALS AND METHODS

The study was conducted in the Department of Dermatology, in a Tertiary Care Center in Agra, in 15718 children attending the outpatient department. Children with age 18 years and below with clinical evidence of cutaneous disorders were included in this hospital-based descriptive study to determine the prevalence of various skin disorders and to determine clinical characteristics of different pediatric dermatoses. All the patients were subjected to detailed history taking and meticulous examination as per the proforma after getting the informed consent. The clinical manifestations in relation to pediatric dermatoses were recorded. Detailed systemic evaluation was carried out in each case. Statistical test used was Chi-square test. The data obtained were subjected to descriptive analysis using SPSS software (Statistical software for social sciences, Version 20.0, Chicago, USA).

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RESULTS

In this study, 15718 pediatric patients of age 18 and below were included. Of them, 7996 (50.9%) were males and 7722 (59.1%) females. Adolescent group constituted highest percentage (48%) followed by school age group, which constitutes 27.6% of total pediatric patients [Figure 1]. Infections and infestations combined constituted highest proportion 42% (6602), followed by eczematous dermatoses which constitute 30% (4714) [Table 1]. Among the bacterial infections, furunculosis was the most common, amounting to 40% (475) cases followed by impetigo [Figure 2]. Dermatophytic infections constituted the maximum of the fungal infections involving the skin (49.8%). Among dermatophytic infections, tinea corporis constituted the highest

proportion, i.e., 56.82% (437), followed by tinea cruris 29.38% (226), tinea capitis 10.5% (81), and tinea faciei 3.3% (25) [Figure 3].

Table 1 Distribution of patients according to their diagnosis of various etiological factors (*n*=15718)

Disease	Number	Percentage
Infections and infestations	6602	42
Eczema	4714	30
Disorders of sweat and sebaceous gland	2672	17
Keratinization and papulosquamous disorders	409	2.6
Abnormal responses to light	314	2
Hair and nail disorders	283	1.8
Nevoid disorder	189	1.2
Vesiculobullous disorders	63	0.4
Connective tissue disorders	47	0.3
Disorders of skin color	126	0.8
Nutritional dermatoses	189	1.2
Adverse drug reactions	16	0.1
Miscellaneous disorders	94	0.6

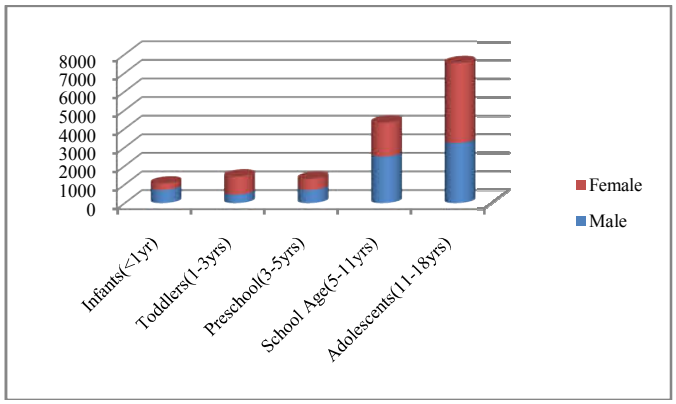

Figure 1 Age-sex distribution of pediatric dermatoses (*n* = 15718)

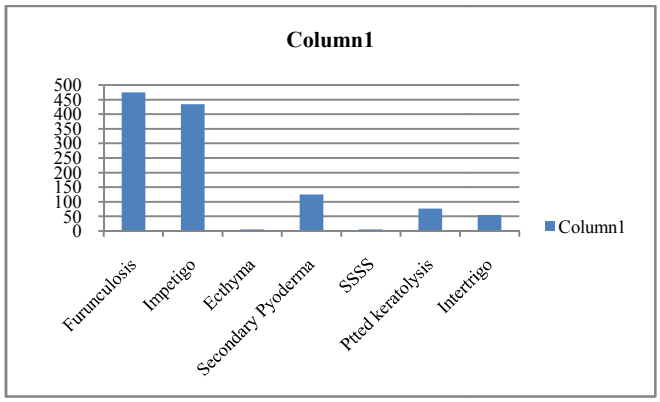

Figure 2 Distribution according to their diagnosis of bacterial infections (*n* = 1188). SSSS: Staphylococcal scalded skin syndrome

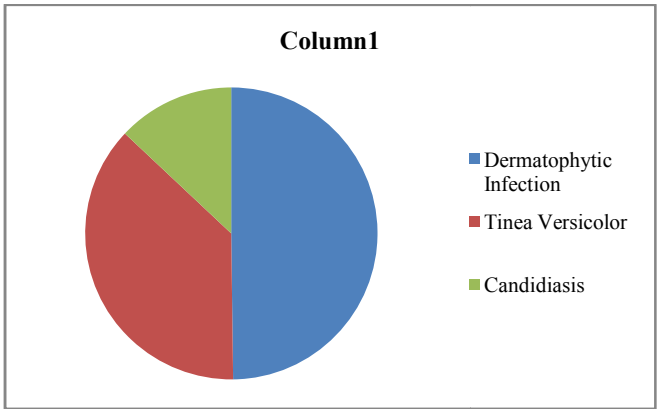

Figure 3 Distribution of fungal infections

Molluscumcontagiosum was the most common skin lesion caused by viral infection in this study and constituted 37.2% (859) followed by warts [Figure 4].

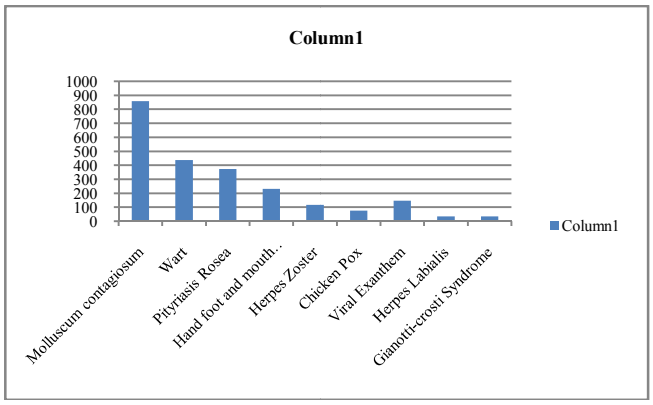

Figure 4 Distribution of patients according to their diagnosis of viral infections (*n* = 2310)

Among the infestations, scabies was the most common that constituted 88% (1373) cases followed by pediculosis capitis [Figure 5].

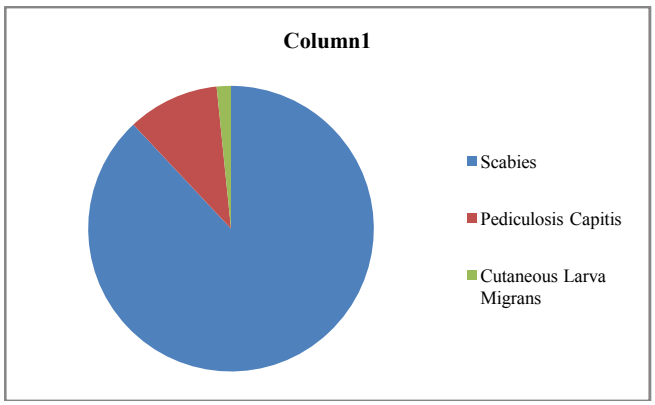

Figure 5 Distribution of patients according to their diagnosis of infestations (*n* = 1560)

Endogenous eczemas were more common than exogenous eczemas during the study period. Juvenile plantar dermatosis (JPD) was the most common endogenous eczemas, which constituted 19% (896) cases of all eczemas. Among the exogenous eczemas, allergic contact dermatitis (ACD) was the most common which constituted 9.2% (434) cases. Irritant contact dermatitis (ICD) was seen in 4% (189), photo ACD in 2.4% (113), and infectious eczematoid dermatitis in 1.2% (57) of the total eczema cases [Figure 6].

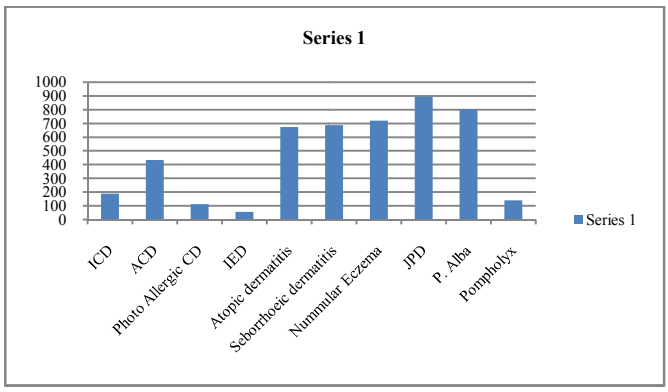

Figure 6 Distribution of eczema. ICD: Irritant contact dermatitis, ACD: Allergic contact dermatitis, IED: Infectious eczematoid dermatitis, JPD: Juvenile plantar dermatoses, P. Alba: Pityriasisalba

1.2% of total pediatric dermatoses in this study were nutritional dermatoses, in which there were 96 cases of phrynoderma. Congenital melanocytic nevus was the most common among all the nevoid and developmental disorders seen in this study, which constituted 68.7% (130). Followed by Becker's nevus 23,nevus depigmentosus 16, linear verrucous epidermal nevus 12, and nevus sebaceous 8.

The ichthyoses constituted 38% (29) cases of the keratinization disorders. Keratosis pilaris 23 cases and palmoplantar keratoderma were seen in 7 patients and lichen spinulosus 11 patients andpityriasisrubra pilaris in 6 patient. Plaque psoriasis constituted 37.8% (126) of papulosquamous disorders. Lichen planus was seen in 25.2% (84), lichen nitidus in 16% (53), and guttate psoriasis in 12% (40) of all papulo squamous disorders. Among the disorders of sweat glands and sebaceous glands, acne was the most common to be seen. These cases constituted 72.6% (1940) and 12.34% of total patients in this study.Miliaria cases constituted 20.7% (553) of sweat and sebaceous disorders and 3.52% of total patients, fordyce spots was seen in 2.3% (61), and sebaceous cysts in 4.4% (118) of sweat and sebaceous disorders.

Among the vesiculobullous disorders, there were 49 cases of epidermolysis bullosa simplex and 14 case of chronic bullous disease of childhood. 47 cases were seen in the category of connective tissue disorders which included 20case of systemic lupus erythematosus and 27 case of morphea. The disorder of skin color was seen in 126 patients during the study period. Vitiligo 56 patients, freckles were 18, and postinflammatory hypo‐pigmentation in 26 cases.

Abnormal responses to light were seen in 314 cases during the period of study. Polymorphic light eruption was the most common abnormality as seen in 90.7%.

The disorders of hair and nails were seen in 283 cases during the study period. Telogen effluvium was the most common disorder belonging to this class, which constituted 40.4% (114), followed by alopecia areata in 24% (68). Paronychia was the most common nail disorder seen, which constituted 20% (57). The other disorders belonging to this category included premature canities in 14% (40) and trichotillomania 1.6% (4). Sixteen patients developed adverse drug reactions.

Ninety-four cases were included in the miscellaneous disorders category. It comprised 51% (48) cases of insect bite reaction, urticaria 28.7% (27), erythema multiforme 1.1% (1), corns and callosities 6.4% (6), pyogenic granuloma 2.1% (2), Henoch–Schonlein purpura 1% (1), acanthosis nigricans 1% (1), fissure feet 3.2% (3), parapsoriasis 2.1% (2), angioedema 2.1% (2), and neurofibroma 1% (1) of the total miscellaneous disorders.

DISCUSSION

The pattern of skin lesions in children is greatly influenced by climatic factors, dietary patterns, and socioeconomic status. In our study, age group of 11–18 years constituted the maximum (48%) number of pediatric patients. Sacchidanand *et al*.[2] observed 5–11 years is the common age group followed by adolescents with 33.21% and 29.81%, respectively. Sharma *et al*.[6] reported that pediatric dermatoses are more common in adolescent age group. Female patients outnumbered the male patients (51%) in our study, similar to that of Karthikeyan*et al*.[7] Flavia Regina Ferreira *et al*. also reported female predominance (57.2%).[8]

Infections and infestations were the most common dermatoses encountered, which were seen in 42% of the total cases. Our findings were similar to study by Sacchidanand*et al*. and Bisht*et al*. which showed 32.47% and 36.46%, respectively.[2,9] Negi *et al*., Sharma and Mendiratta, and Bhatia and Ghosh *et al*. studies have reported them occurring in the range of 35.6–85%.[10‐13]

Scabies alone constituted the majority of infestation,making 8.73% of the total dermatoses. Sacchidanand *et al.*[2] in their study found that the incidence of scabies was 6.97%. The incidence of scabies had varied from 5.1% to 22.4% in studies done by Negi *et al*., Sharma and Mendiratta, and Bhatia.[10‐12] Sarkar and Kanwar in their study pointed out that then prevalence of scabies in general population of rural communitiesn in India is about 5%.[14] Pediculosis capitis was the next most common infestation.

Bacterial infections constituted 7.55% of total pediatric dermatoses. Furunculosis was the most common bacterial infection with 40% of total bacterial infections, followed by impetigo with 36.5%, then secondary bacterial infections with 10.5% of bacterial infections. Pyodermas were the single most common dermatosesfound out by Bhatia[12] and Ghosh *et al*.[13]

Fungal infections of the skin constituted 23.38% of the total infections and 9.82% of total dermatoses. Dermatophytic infections were the most common among these infections making up to 49.8%. Tinea corporis was found in a significant number of children forming 56.82% of dermatophytic infections and 2.78% of all dermatoses followed by tinea cruris. Tinea versicolor was seen in 29.38% of total fungal infections and 1.43% of the total dermatoses. The incidence varied from 3.3 to 8.5 in various other studies.[2,7,15] Among candidal infections, which constituted 13% of the fungal infections and 1.27% of total dermatoses, candidalintertrigo constituted 50% of all candidal infection and 0.64% of total dermatoses. Karthikeyan *et al*.'s study was similar to us which showed candidal infections constituted 2.1% of total dermatoses.[7]

The viral infections constituted 34.98% of the total infections and infestations and 14.69% of total dermatoses of our study. Molluscumcontagiosum was the most common viral disease constituting 37.2% of these infections and 5.4% of total dermatoses. Karthikeyan*et al*. in their study observed that incidence of molluscumcontagiosum was 2.5% in children aged 1 to 15.[7] Second most common viral infection in our study was warts, which constituted 19% of viral infections and 2.78% of total dermatoses. We observed that viral warts were more common in the adolescent group, similar toobservations in previous studies.[16,17] Pityriasisrosea was the next common viral infection with 16.2% of viral infections and 2.37% of total dermatoses in our study. Hand foot mouth disease constituted 10% of viral infections and 1.46% of total dermatoses. The incidence of Varicella was 0.48% in our study which is similar to that reported by Karthikeyan*et al*. (0.4%).[7] The incidence of herpes zoster was 0.73% in our study whereas in Karthikeyan*et al*.'s study, it was 0.37%.[7]
The present study recorded 1.2% of nutritional dermatoses which is very less as compared to other studies which reported incidence of 15.4% to 17.5%.[9,10] Some studies have shown incidence from 0.45% to 2.8%.[7,18] Phrynoderma was the most common among the nutritional deficiency disorders.

Sacchidanand*et al*.'s study showed that incidence of nutritional dermatoses is 0.72%.[2] Karthikeyan*et al*.'s study showed 2.8%.[7] Awate *et al*. observed that the incidence of phrynoderma was 9.8%.[19]

Eczema was the second common group of dermatoses in our study constituting 30% of total cases. The incidence rate of eczema in the study by Sacchidanand*et al*. was 20.66%[2] whereas in Karthikeyan*et al*.'s study, it was 8.6%.[7] JPD was the most common endogenous eczema, followed by pityriasis alba, nummular eczema, atopic dermatitis, and seborrhoeic dermatitis. Exogenous eczema constituted 4.2% of total dermatoses. Sacchidanand*et al*. reported atopic dermatitis as the most common eczematous dermatitis which constituted 6.12%.[2] Other studies had same opinion as atopic dermatitis was the most common endogenous eczema which ranges from 3% to 28%.[20,21] Pityriasis alba was second most common endogenous eczema in accordance with Saurabh Sharma *et al.*[6] with incidence rate of 4.9%. Nanda *et al*. reported an incidence of 5.2%.[22]

Nevoid and developmental disorders constituted 1.2% of total dermatoses in this study. Thappa[3] in their study observed a prevalence of 0.5%. Dogra and Kumar observed a prevalence of 1.1%.[23] Congenital melanocytic nevus was the most common nevoid and developmental disorder in our study. Among keratinization disorders, ichthyosis was seen in 0.18%, followed by keratosis pilaris and palmoplantar keratoderma with 0.14% and 0.04% prevalence and pityriasisrubra pilaris 0.038% and lichen spinulosus 0.069% prevalence. Thappa observed the prevalence of ichthyoses and palmoplantar keratoderma in 2.1% of cases,[3] which is similar to our study. In contrast, Ghosh *et al.*[13] did not encounter any of these disorders in their studies. In the study conducted by Dogra and Kumar,[23] the prevalence was 1.3%.

Papulosquamous disorders were noted in 2.11% of the cases during this study period. Prevalence of papulosquamous disorders in the study of Sacchidanand *et al*. was 6.08%. [2] In accordance with Sacchidanand *et al*., among the papulosquamous disorders, psoriasis was the most common dermatoses and constituted about 0.80% of the total dermatoses. Karthikeyan*et al*. reported prevalence of psoriasis as 1.4%.[7] In a prospective study from Kuwait, psoriasis was seen in 4%.[24]

Sweat and sebaceous gland disorders constituted 17% of dermatoses during this study period. Acne was the most common among them with prevalence rate of 12.34%, followed by miliaria with 3.52%. In the study done by Karthikeyan*et al*.,[7] the prevalence of miliaria was 4.1%. Tamer *et al*.[25] showed 12.4% prevalence while Rajar*et al*.[26] reported a prevalence of 26% in the age group of 11–15 years.

Vesiculobullous disorders constituted 0.4% of total dermatoses with 49 cases of epidermolysis bullosa simplex and 14case of chronic bullous dermatoses of childhood. According to Sarkar *et al*., the prevalence rate of epidermolysis bullosa simplex was 4.65%.[27] Connective tissue disorders constituted 0.3% of dermatoses in this study. Dogra and Kumar reported an incidence of 0.09% in their study among schoolchildren in Northern India.[23] Karthikeyan*et al*. reported that 0.5% of dermatoses were connective tissue disorders.[7]

Pigmentary disorders constituted 0.8% of total dermatoses in our study. Vitiligo 0.36% and freckles were 0.11% andpostinflammatory hyperpigmentation in 0.17%. Sacchidanand*et al.*[2] reported that pigmentary disorders constituted 5.81% and Karthikeyan*et al*.[7] reported 5.7%. Abnormal response to light was seen in 2% of total cases in our study. Polymorphic light eruption was the most common among them with 1.81%.

Hair and nail disorders constituted 1.8% of cases in this study. Telogen effluvium was the most common hair disorder noted in this study, followed by alopecia areata, premature canities, and trichotillomania. Paronychia was the most common nail disorder. Thappa reported 5.2% prevalence of hair and nail disorders in their study.[3] Vora*et al*. observed alopecia in 0.07%, premature canities in 0.02%, nail changes in 0.07%, and paronychia in 0.02%.[28]

Adverse drug reaction seen in 0.1% cases.Sacchidanand*et al*. reported adverse drug reactions in 0.72% of patients.[2] Miscellaneous conditions constituted 0.6% of study population. Insect bite reaction contributed to 51% of these disorders.

Our study had few limitations. It was conducted in a single center. No laboratory tests were done for conformation. A large, prospective multicentric study needs to be conducted to know more about pediatric dermatoses.

CONCLUSIONS

The present study was undertaken to determine the characteristic clinical pattern and prevalence of pediatric dermatoses.

The majority of the study population (48%) belonged to adolescent age group. Of them, females outnumbered males. Viral infections were the most common infection noted in the study, followed by viral Fungal, bacterial infections. ACD was the most common exogenous eczema and JPD was the most common endogenous eczema. Plaque psoriasis was the most common papulosquamous disorder, followed by lichen planus. Acne was the most common sweat and sebaceous gland disorder with female preponderance. Telogen effluvium was the most common hair disorder, followed by alopecia areata. Paronychia was the most common nail disorder.

A detailed knowledge about the pattern of pediatric dermatoses in each geographic area will help us in implementing essential changes in health education, disease control, and preventive strategies in the area concerned.

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Nil.

Conflicts of Interest

There is no conflicts of interest.

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