Editorial

Pediatric dermatoses in India

Naresh Jain, Sujay Khandpur

Skin diseases are a major health problem in the pediatric age group and are associated with significant morbidity. Skin diseases constitute 30% of all outpatient visit to a pediatrician and 30% of all visits to a dermatologist involve children.[1,2] The prevalence of pediatric dermatoses in various parts of India has ranged from 8.7% to 35% in school-based surveys.[3] Skin diseases in the pediatric age group can be transitory or chronic and recurrent. The chronic dermatoses are associated with significant morbidity and psychological impact. Pediatric dermatoses requires a separate view from adult dermatoses as there are important differences in clinical presentation, treatment and prognosis. Dermatoses in children are more influenced by socio-economic status, climatic exposure, dietary habits and external environment as compared to adults. Cutaneous infections are common in children during school going years. Most of the cutaneous diseases which result from intrinsic genetic abnormalities also have onset in the pediatric age-group.

Various epidemiological studies have been undertaken across the world including India to study the pattern of pediatric dermatoses.[4-18] The epidemiological data in Indian studies is based on the pattern of pediatric dermatoses in school going children in both urban and rural areas, and in tertiary care hospitals (medical colleges).[11-18] The pattern of skin diseases in India is different across the states, rural and urban areas, and hilly areas.

EPIDEMIOLOGY IN INDIA

Data from medical institutions

In a study from eastern part of India in 1994, a total of 500 children (<12 years) attending dermatology OPD were recruited to study the pattern of common dermatoses.[14] In this study, pyoderma was the most common skin disease (35.6%), followed by scabies (22.4%), eczema (17.6%), molluscum contagiosum (4.6%), papular urticaria (4.0%), vitiligo (3.4%), miliaria (2.8%) and nevi (1.6%).

An epidemiologic study from Garhwal, a hilly area of Uttar Pradesh in children <14 years showed that pediculosis capitis (22.6%) was the most common dermatosis, being three times more common in girls, followed by pyodermas (15.4%), pityriasis alba (10.4%) and eczema (8.1%).[15] Nutritional deficiency dematoses (17.5%) were also common in this region [common manifestations included sparse hair (6.2%) and pigmented skin (7%)].

A study from south India of children of < 14 years showed that infections and infestations (54.5%) were the most common pediatric dermatoses.[16] Secondary pyodermas were more common than primary pyodermas. Pediatric patients constituted 20% of total dermatology OPD patients. Other common dermatoses were eczemas (8.6%), pigmentary disorders (5.7%), insect bite reactions (5.2%), miliaria (4.1%), nutritional deficiency-associated dermatoses (2.8%), urticaria (2.5%), genetic disorders (2.1%), psoriasis (1.4%), collagen vascular diseases (0.5%), hemangiomas (0.5%), drug eruptions (0.3%) and pityriasis rosea (0.2%).

A retrospective study from a large pediatric hospital in Delhi, a referral centre of north India compared the pattern of dermatoses in different age groups within the pediatric population.[17] They were grouped into three categories based on their age at first visit: infants (less than 1 year), preschool children (1–5 years), and school children (5–12 years). Most of the skin diseases were seen in the 1- to 5-years age group (44.94%), followed by school children (29.60%) and infants (25.46%) except birth marks and common genetic disorders

Department of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi, India

Address for correspondence:
Dr. Sujay Khandpur, Associate Professor, Department of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi, India. E-mail: sujaykhandpur@yahoo.co.in

DOI: 10.4103/0378-6323.69034

How to cite this article: Jain N, Khandpur S. Pediatric dermatoses in India. Indian J Dermatol Venereol Leprol 2010;76:451-4.
Received: July, 2010. **Accepted:** July, 2010. **Source of Support:** Nil. **Conflict of Interest:** None declared.

(hemangiomas, vascular malformation, nevi, ichthyosis, palmoplantar keratoderma, tuberous sclerosis and neurofibromatosis) which were more common in infants. The most common skin diseases as a group were infections and infestations (47.15%), dermatitis (26.95%), hypersensitivity/drug reactions (9.42%), physical factor-induced dermatoses (6.50%), noninfective and autoimmune dermatoses (4.27%), and birthmarks and other common genetic disorders (2.13%). Overall most common dermatoses in all age groups were bacterial infections (27.39), seborrheic dermatitis (10.49%), scabies (10.16%), pityriasis alba (5.85%), miliaria (5.46%), atopic dermatitis (5.27%), fungal infection (4.65%), urticaria/ angioedema (4.46%), viral infections (3.68%) and papular urticaria.

School going children – Urban areas

School survey is a useful parameter to screen large number of children of particular age group for presence of disease. These surveys are easy to conduct, less time consuming but may not be representative of true prevalence and incidence of a disease in the community especially in a country like India, as large number of children do not go to school. Also the common dermatoses in these surveys are asymptomatic dermatological diseases as parents are not seeking any treatment for these conditions.

In a school health survey of children studying in standard 1 to 5 (age 6-12 years) from an urban area of south India, 76.65% of students were found to have disorders of skin and its appendages.[10] Most of the dermatoses were asymptomatic and were diagnosed on routine examination. Nevoid conditions were seen in 21.96% students, communicable dermatoses were noted in 19% and nutritional deficiency was seen in 6.71% students.

In another study among school children of age group 6-14 years from Chandigarh, 38.8% of children had one or more identifiable/ apparent skin disease.[11] Among them, 30% had only one skin disorder, 6% had two, and 2.7% had three skin pathologies. The common skin conditions included skin infections (11.4%), pityriasis alba (8.4%), dermatitis/nonspecific eczemas (5.2%), infestations (5.0%), disorders of pigmentation (2.6%), keratinization disorders (mostly keratosis pilaris) (1.3%), and nevi/hamartomas (1.1%). Among skin infections, pyodermas (impetigo, folliculitis, infected arthropod bite) were most common (64.4%) followed by fungal (25.4%), viral (9.7%), and mycobacterial infections (0.4%).

Rural areas

Majority (78%) of the Indian population stays in rural areas and children below 14 years constitute about 38% of the total population.

In a school survey of middle and high school children (11-19 years) at Himachal Pradesh, all children (201) were found to have one or more dermatoses.[12] Pediculosis capitis was the most common disease (74.1%), followed by pityriasis simplex (alba) (33.3%), warts (20.4%), scabies (12.9%), pyoderma (8.5%) and papular urticaria (7.5%). Nevi were observed in 73.1% children. Acral erythema associated with cold hands and feet was seen in 7.5% children.

A house-to-house study was undertaken in 666 children aged 0-14 years in 5 villages of Wardha district in Maharashtra (Central India) of which 346 children (51.95%) had one or more skin diseases (493 episodes of dermatoses).[13] Infectious dermatoses were observed in 312 (63.5%), noninfectious in 105 (21.2%) and nutritional deficiency dermatoses in 76 (15.2%) children.

WORLD SCENARIO

Several epidemiological studies in pediatric age group have been undertaken across the World. Most of these studies have shown atopic dermatitis as the most common dermatoses, followed by viral infections, and pigmented nevi, while studies from developing countries have infections and infestations as the most common pediatric dermatoses.[4-9]

In a prospective study from Kuwait, atopic dermatitis was the most prevalent dermatosis (31.3%), followed by viral warts (13.1%), alopecia areata (6.7%), pityriasis alba (5.25%), psoriasis (4%), diaper dermatitis (4%), scabies (3%), impetigo (3%), dermatophyte infections (2.9%) and secondary bacterial infection (2.2%).[6] In another study from Switzerland, atopic dermatitis (25.9%) was the most frequent diagnosis, followed by pigmented nevi (9.1%) and warts (5.0%). Bacterial infections were less common (2.88%).[7] In China, eczema, nevi, and viral warts were found to have the highest prevalence among children.[8] In a recent study from Turkey, infectious skin diseases (27.6%) were the most frequently observed followed by eczemas (17.9%), acne (14,5%), papulosquamous diseases (6.9%), hair diseases (4.1%), pigmentation disorders (3.8%), generalized pruritus (2.8%), urticaria (2.7%), and insect bite (2.3%).[9]

SPECIFIC DISEASES

Psoriasis

Psoriasis in children is different from adults in many ways including morphologic types. According to one of the largest case series published from Australia, plaque psoriasis was the most common type (34.1%), followed by psoriatic diaper rash with dissemination (12.7%), scalp psoriasis (11.5%), anogenital (8.9%), guttate (6.4%), acropustulosis (4.7%), eczema-psoriasis overlap (4.3%), follicular psoriasis (2.1%), pustular (0.6%), nail (0.6%), erythrodermic (0.1%) and linear psoriasis (0.1%).[18]

In India also, plaque psoriasis (60.6%) has been shown to be the most common morphologic type followed by plantar psoriasis (12.8%), guttate (9.7%), scalp (5.9%), palmoplantar (5.7%), nail (2.3%), erythrodermic (0.7%), generalized pustular psoriasis (0.4%), localized plantar pustular psoriasis (0.4%) and flexural psoriasis (0.4%).[19]

Lichen planus

Lichen planus is a common pediatric dermatoses and more recent studies have described a higher prevalence in childhood (10-11%).[20,21]

According to the largest case series of childhood lichen planus from USA, classic lichen planus was the most common type (67%), followed by hypertrophic (19%), atrophic (8%), linear (8%), bullous lichen planus (5.5%), and lichen planus pigmentosus (2.5%).[22] Twenty two per cent of children had oral lesions while 8% had exclusive oral disease.

Cutaneous infections

In one of the largest series from India on the clinical profile of cutaneous infections and infestations in the pediatric age group, parasitic infestations (53.66%) were the most common cutaneous disorder, followed by bacterial (34.66%), fungal (8.42%), and viral infections (3.85%).[23] Among infestations, scabies was the leading offender (86.91%) followed by papular urticaria (7.49%) and pediculosis capitis (5.58%).

Atopic dermatitis

Clinical pattern of atopic dermatitis is different in infants and children. Data from Indian study shows that in infants, eczema was acute in 52.72%, subacute in 23.35%, chronic in 23.35%, and follicular in 0.46% at the time of presentation while in children, acute eczema was seen in 28.79%, subacute in 23.38%, chronic in 47.40%, and follicular in 0.43%.[24]

CONCLUSION

Skin diseases in the pediatric population are common all over the world including rural and urban areas. There is variation in the pattern of dermatoses, with eczemas being the most common skin disorder in developed countries and infections and infestations in the developing countries. There is an obvious need for diagnostic and therapeutic training for dermatologists, general practitioners and pediatricians in this group of disorders.

REFERENCES

1. Thappa DM. Common skin problems in children. In J Pediatr 2002;69:701-06.
2. Federman DG, Reid MC, Feldman SR, Greenhoe J, Kirsner RS. The primary care provider and the care of skin disease. Arch Dermatol 2001;137:25-9.
3. Sharma NK, Garg BK, Goel M. Pattern of skin diseases in urban school children. In J Dermatol Venereol Leprol 1986;52:330-1.
4. Bechelli LM, Haddad N, Pimenta WP, Pagnano PM, Melchior E Jr, Fregnan RC, *et al*. Epidemiological survey of skin diseases in school children living in the Porus valley (Acre State, Amazonia, Brazil). Dermatologica 1981;163:78–93.
5. Figuerosa JI, Fuller LC, Abraha A, Hay RJ. The prevalence of skin disease among school children in rural Ethiopia – a preliminary assessment of dermatologic needs. Pediatr Dermatol 1996;13:378–81.
6. Nanda A, Hasawi FA, Alsaleh QA. A prospective survey of pediatric dermatology clinic patients in Kuwait: An analysis of 10,000 cases. Pediatr Dermatol 1999;16:6-11.
7. Wenk C, Itin PH. Epidemiology of pediatric dermatology and allergology in the region of Aragau, Switzerland. Pediatr Dermatol 2003;20:482-487.
8. Hon KL, Leung TF, Wong Y, Ma KC, Fok TF. Skin diseases in Chinese children at a Pediatric dermatology centre. Pediatr Dermatol 2004;21:109-22.
9. Gul U, Gonul M, Kilic A, Bilgili S. Pediatric skin disorders encountered in a dermatology outpatient clinic in Turkey. Pediatr Dermatol 2008; 25: 277-278.
10. Rao SG, Kumar P, Kuruvilla M. Prevalence of various dermatoses in school children. In J Dermatol Venereol Leprol 1999;65:126-7.
11. Dogra S, Kumar B. Epidemiology of skin diseases in school children: A study from Northern India. Pediatr Dermatol 2003;20:470-3.
12. Sharma NL, Sharma RC. Prevalence of dermatologic diseases in school children of a high altitude tribal area of Himachal Pradesh. In J Dermatol Venereol Leprol 1990;56:375-6.
13. Bhatia V. Extent and pattern of paediatric dermatoses in rural areas of Central India. In J Dermatol Venereol Leprol 1997;63:22-5.
14. Ghosh SK, Saha DK, Roy AK. A clinico-aetiological study of dermatoses in paediatric age group. In J Dermatol 1995;40:29-31.
15. Negi KS, Kandpal SD, Parsad D. Pattern of skin diseases in children in Garhwal region of Uttar Pradesh. In Pediatrics 2001;38:77-80.
16. Karthikeyan K, Thappa DM, Jeevankumar B. Pattern of pediatric dermatoses in a referral centre in South India. In Pediatrics 2004;41:373-7.
17. Sardana K, Mahajan S, Sarkar R, Mendiratta V, Bhushan P,

Konanne RV, *et al*. The spectrum of skin disease among Indian children. Pediatr Dermatol 2009;26:6-13.
18. Morris A, Rogers M, Fischer G, Arch B, Williams K. Childhood psoriasis: A clinical review of 1262 cases. Pediatr Dermatol 2001;18:188-98.
19. Kumar B, Jain R, Sandhu K, Kaur I, Handa S. Epidemiology of childhood psoriasis: A study of 419 patients from Northern India. Int J Dermatol 2004;43:654-8.
20. Luis-Montoya P, Dominguez-Soto L, Vega-Memije E. Lichen planus in 24 children with review of the literature. Pediatr Dermatol 2005;22:295-8.
21. Kumar V, Garg BR, Baruah MC, Vasireddi SS. Childhood lichen planus. J Dermatol 1993;20:175-7.
22. Walton KE, Bowers EV, Drolet BV, Holland KE. Childhood lichen planus: Demographics of U.S population. Pediatr Dermatol 2010;27:34-8.
23. Sharma RC, Mendiratta V. Clinical profile of cutaneous infections and infestations in the paediatric age group. Indian J Dermatol 1999;44:174-8.
24. Dhar S. Kanwar AJ. Epidemiology and clinical pattern of atopic dermatitis in a North Indian pediatric population. Pediatr Dermatol 1998;15:347-51.