

SEASONAL VARIATION OF COMMON SKIN DISEASES IN PEDIATRIC AGE GROUP A RETROSPECTIVE STUDY CONDUCTED IN A MEDICAL COLLEGE OF NEPAL

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ABSTRACT

INTRODUCTION: Seasonal variation in disease frequency has been observed for centuries. The direct effects of climate on the skin play a small but significant role in determining the geographical and seasonal variation of many skin disorders also in pediatric age group. In our country Nepal where there is a wide range of climates and where pediatric population of 0 to 14 years constitutes 34.19% of the total population there is a need for studying the seasonal variation of pediatric dermatoses separately.

MATERIAL AND METHODS: A retrospective study was conducted in the outpatient department of dermatology of Nepal Medical College and Teaching Hospital for a period of 1 year. The total patients were divided according to 4 seasons spring, summer, autumn and winter and analyzed with Chi square test.

RESULTS: Out of total 2032 patients 52% was male and 48% was female. Majority of the visits was in the winter season, followed by summer, spring and autumn. The five most common dermatological problems in the pediatric age group were impetigo, lichen urticatus, scabies, seborrheic eczema and malaria. lichen urticatus, seborrheic eczema and malaria showed statistically very significant seasonal variation but impetigo and scabies did not. The age wise variation of these common dermatoses was also statistically highly significant.

CONCLUSION: Many common dermatoses in the pediatric age group show seasonal variation and age wise variation.

KEYWORDS: Seasonal variation, Skin diseases, Pediatric, Nepal

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INTRODUCTION

Seasonal variation in disease frequency has been observed for centuries since Hippocrates.¹ The direct effects of climate on the skin play a small but significant role in determining the geographical and seasonal variation of many skin disorders.² The effect of environment on skin is not only important on the adult skin but also in the pediatric age group and 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.³

Nepal is a country with a wide range of climates from the summer tropical heat and humidity of the lowlands to the colder dry continental and alpine winter climate through the middle and northern mountainous sections.⁴ Nepal has four distinct seasons in a year comprising of Spring (March to May), Summer (June to August), Autumn (September to November) and Winter (December to February).

Pediatric population (0 to 14 years) comprises a large group (34.19%) of our total population of 26.5 million (census 2011).⁵ Till date a single study has been done in Nepal to find out the seasonal variability of skin diseases that also in all age group.⁶ As pediatric age comprise a large percentage of our population and as pediatric dermatoses form a significant subset in our daily practice there is a need for studying them separately. So, this study aims at finding the impact of seasonal variation in skin diseases in the pediatric age group of 0 to 14 years.

MATERIALS AND METHODS

A retrospective study was carried out including all the new patients of the age group 0 to 14 years visiting the Dermatology outpatient department of Nepal Medical College from March 2012 to February 2013. The obtained data were divided according to the 4 seasons spring, summer, autumn and winter.

Only the primary disease was taken and secondary diseases like secondary infection and eczematization were not included as a separate entity.

The data was tabulated and analyzed with Chi square test.

RESULTS

The total numbers of patients in our study were 2032 out of which 52% were male and 48% were female. Majority of the visits were 30%, 24%, 25.5% and 20.5% in winter, spring, summer and autumn respectively.

The prevalence of disease according to age group : infants (0-1 year), pre school children (1-5 years), school children (5-10 years) and adolescent (10-14 years) is shown in Table 1.

Table 1: Distribution of patients according to age group

Age group	Total no. of patients (%)
Infants	266 (13.1)
Preschool children	617 (30.4)
School children	577 (28.4)
Adolescent	572 (28.1)

The five most common dermatological problems in the pediatric age group were impetigo, lichen urticatus, scabies, seborrheic eczema and malaria. The distribution of these diseases in different seasons with p value of each disease is shown in Table 2. Among these 5 common diseases lichen urticatus, seborrheic eczema and malaria show statistically very significant seasonal variation with p value < 0.0001. Lichen urticatus or papular urticaria has a peak (38.6%) in summer which is also the monsoon season in Nepal. Malaria is also significantly very common in summer (42.1%). Unlike these dermatoses seborrheic eczema has a peak distribution in winter (56.3%) which is statistically significant when compared to summer. (p value < 0.0001)

Table 2: Distribution of 5 common pediatric dermatoses in different season

Diagnosis	Spring		Summer		Autumn		Winter		Mean	p-value	Total
	No	%	No	%	No	%	No	%			
Impetigo	41	25.2	42	25.8	32	19.6	48	29.4	40.75	0.981	163
Lichen urticatus	37	25.5	56	38.6	30	20.7	22	15.2	36.25	0.000	145
Scabies	37	28	32	24.2	25	18.9	38	28.8	33	0.728	132
Malaria	33	26.2	53	42.1	15	11.9	25	19.8	31.5	0.000	126
Seborrheic eczema	9	8.7	20	19.4	16	15.5	58	56.3	25.75	0.000	103

If we look at the age wise distribution of the common dermatoses in children; impetigo, lichen urticatus and scabies are most common in the preschool children followed by school children. (Table 3) Seborrheic dermatitis and Malaria are most prevalent in infants. The age wise variation of these common dermatoses is also statistically highly significant.

Table 3: Age wise distribution of the 5 common dermatoses

Disease	Infants		Preschool Children		School Children		Adolescent		Total	p-value
	No.	%	No.	%	No.	%	No.	%		
Impetigo	22	13.5	75	46	43	26.4	23	14.1	163	.000
Lichen urticatus	15	10.3	85	58.6	37	25.5	8	5.5	145	.000
Scabies	11	8.3	55	41.7	43	32.6	23	17.4	132	.002
Malaria	54	42.9	47	37.3	20	15.9	5	4	126	.000
Seborrheic eczema	68	66.1	23	22.3	9	8.7	3	2.9	103	.000

DISCUSSION

Pediatric population of 0-14 yrs form a significant percentage of patients visiting dermatology outpatient department. In different studies conducted in different parts of Nepal the prevalence of pediatric have been found to be 12%, 17.15%, 18.33%, 22.64% and 28.2%.⁷⁻¹¹ Studies conducted in different parts of the world have shown skin diseases to be quite prevalent in pediatric population.¹²⁻²⁴

Impetigo has been found to be the most prevalent dermatoses in our study and this is similar to other studies conducted in Nepal.^{6,8} Even in other developing countries impetigo still is the commonest skin problem in the pediatric population.^{12,16-18,20-23} In the recent years few studies conducted in the tertiary care centre of the developing countries show that eczema has taken over infections as the commonest pediatric dermatoses like in the developed countries.^{10,24} This could be the effect of urbanization. But still most of the studies conducted in our part of the world show infectious diseases and infestations as the commonest skin problem.

Very few studies have been done to find out the seasonal variation of the skin diseases. In a study done by Banerjee et al impetigo was the commonest skin problem in the children under 5 years of age with more prevalence in the summer when compared to winter²³ but in our study there was no statistically significant variation in prevalence of impetigo between summer and winter. This may be because of wider

variation of seasons in our country.

Seborrheic eczema is statistically more common in winter than in summer as in other study. Seasonal variation in temperature and humidity are related to the course of this disease with low winter temperature and low humidity worsening it.²⁵

Lichen urticatus or papular urticaria results from hypersensitivity reaction to bites of insects and is common in summer and spring when opportunities of bites are more.²⁶ In our study also the distribution is highest in summer followed by spring. There is statistically significant variation in prevalence in summer and winter. Usually occurring in 2 to 10 years old children, papular urticaria occurs occasionally in adolescents and adults.²⁷ Our study also shows that it is commonest in the pre school (58.6%) and school children (25.5%) with significantly less number in infants (10.3%) and adolescent (5.5%).

Besides the variation due to climatic factor age wise variation in pediatric dermatoses is also important and in our study we see significant variation of the common dermatoses in the infants, preschool, school going and adolescent age group. Similar to the study done by Banerjee et al our study also shows that impetigo, lichen urticatus and scabies shows sudden rise in prevalence after the 1st year of life. This could be explained by the fact that as the child starts to move around and comes out of the cozy parental care he/she is exposed to a wide variety of infections and contagions.

Unlike the above 3 dermatoses seborrheic eczema and malaria are most prevalent in the infants. The high prevalence of seborrheic eczema in infants is explained by the fact that placentally transferred maternal androgen stimulates the sebaceous gland activity and this gland activity gradually decreases from about the end of the first month to reach a stable level by the end of the first year.²⁸

Malaria occurs commonly in hot, humid environments which explain the high prevalence in summer in our study. Infants are more prone to it because of relative immaturity of the sweat duct and nursing in excessively warm and humid conditions.²⁹ Our study also shows similar findings. But in the study by Banerjee et al the prevalence of malaria was highest in the toddler age group (1-3yrs).²³ In our study though malaria is commonest in infants, the prevalence is relatively high. in preschool children as well. This could be because of the practice of hot oil massage and hot fomentation in our region for 1-2 years. Besides to protect the child from cold environment even in hot weather they are covered with multiple layers of clothing which may act as a predisposing factor for malaria.

If we compare our study with study done in general population

of all age group there are some subtle differences.⁶ Among the five most common dermatoses only scabies is common in both studies. Besides in general population the seasonal variation of scabies is significant with highest prevalence in summer but in our study we don't see that variation. The prevalence of scabies is almost same in all 4 seasons. Also in the study conducted in general population seasonal variation is significant in all common dermatoses unlike our study. This shows that the findings in general population cannot be standardized for all age groups and for population from all over the world.

CONCLUSION

There is definite role of environment, climate, socioeconomic status, education and urbanization on the prevalence of skin diseases. Therefore studies should be conducted in different age groups in different parts of the world to find out the exact epidemiology of common dermatoses.

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