



CHILDHOOD BMI – AN INDICATOR OF AUTOIMMUNE DERMATOSES : A COMPARATIVE STUDY

Paediatrics

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ABSTRACT

Obesity is a chronic disorder with rising prevalence that affects several organs including skin. Obesity is implicated in a wide spectrum of dermatologic diseases including acanthosis nigricans, striae distensae, bacterial infections and early onset of several autoimmune ,chronic inflammatory dermatoses like psoriasis, lichen planus ,morphea. The aim of the study was to determine the increasing incidence of autoimmune and non infectious dermatoses with increasing BMI(Body mass index).

KEYWORDS

Obesity, BMI, autoimmune dermatoses

INTRODUCTION :

Overweight and obesity are defined by WHO as abnormal or excessive fat accumulation that may impair health. Prevalence of obesity has increased manifold over the last few years in both developed and developing countries and has reached epidemic. Obesity carries significant impact on physical and physiological health. The skin is commonly affected organ in obesity . Obesity has been implicated to cause a wide range of dermatologic disorder including Acanthosis nigricans ,acrochordon, keratosis pilaris, striae distensae, psoriasis, lichen planus ,morphea, vitiligo and skin infection[1].

MATERIALS AND METHODS:

This is a cross sectional, comparative study in which we examined 200 children aged between 3-16years from June -August 2019 attending OPD , Department of Dermatology ,Bapuji hospital ,JJM medical college . Patients were divided into two groups based on BMI ,as Obese and Non-obese according to IAP Body mass index charts for Boys and Girls .Study procedure was explained and informed consent was taken from all the parents or attenders height, weight and systemic examination was performed and all were noted in a pre designed proforma.

RESULTS

Prevalence of dermatoses in various ranges of BMI is listed below

NON-INFECTIOUS DERMATOSES

Table 1

DERMATOSES	BMI				
	10 -15	16-21	22-27	28-33	34-39
Acanthosis nigricans		25	49	19	2
Striae distensae			9	12	2
Acrochordons and DPN				2	3
Plantar hyperkeratosis			3	4	
Keratosis pilaris			2		
Pyogenic granuloma	1	1			
Lichen group of disorders	3	8	1		
Alopecia areata	1	3			
Lichen planus		3	2	1	
Psoriasis		2	2	2	
Vitiligo	8	5	3	2	
Atopic dermatitis			2	1	
Seborrheic dermatitis		1		1	
Morphea			1	1	
Urticaria	4	1	3		
Hypothyroidism			1	2	
Pityriasis Alba	1	3	2		
Pityriasis Rosea	1			1	
Eczema	4	4	2	2	
Keloid	2	1	2	1	
Canitis	1	2			

Acne vulgaris		3	3	2	2
Prurigo nodularis		2	2	2	1

INFECTIOUS DERMATOSES

Table 2

DERMATOSES	BMI				
	10-15	16-21	22-27	28-33	34-39
Tinea corporis		4	2	5	
Tinea cruris	1	1	6	3	
Scabies	11	3	4	3	
Verrucae	1	4		1	1
Onychomycosis				1	
Pityriasis versicolor		2	1		
Pyoderma	10	9	2		
HFMD	2	1			
IBR	3	2			
Intertrigo				3	2

A total of 200 children were examined of which 100 were obese and 100 were non-obese.

Most common cutaneous manifestation seen was acanthosis nigricans (49) in BMI ranging 22-27,And 19 in BMI ranging 28-33. Striae distensae was seen in 12 in BMI ranging 28-33.Psoriasis and Lichen planus was noted in 6 children above BMI 20. Morphea is seen in two children above BMI 22. Hypothyroidism was seen in 2 children above BMI 28. Other non-infectious dermatoses was seen increasing with rising BMI.

Among infectious dermatoses Tinea cruris was seen among 9 above BMI 22. T.corporis was seen in 11 above BMI 20.

DISCUSSION

Obesity is associated with a number of muco cutaneous manifestations and inflammatory dermatoses. Some of these manifestations show statistically significant relationship with increasing BMI. In our study most common cutaneous manifestation was seen in 95 of 100 obese children .It is the most common early symptom observed in children who present with obesity / insulin resistance syndrome. Hud et al observed that 74% of obese population show acanthosis nigricans along with elevated plasma insulin levels[4]. Boza et al have also reported an association between striae and increasing grades of obesity[3].

In our study along with cutaneous manifestations, it was also found that auto immune and chronic inflammatory dermatoses was seen increasing with raising BMI.

Obesity is characterized by an elevation of plasma levels of pro inflammatory cytokines including TNF alpha ,IL-6 and acute phase proteins such as C reactive proteins. Conditions associated with obesity is explained by the inflammatory activity of adipocytes.

Adipokines secreted by adipose tissue which are pro inflammatory ,thrombotic and vasoactive activity[5].

Adipokines include TNF-alpha, plasminogen activating inhibitors,IL-6 and leptin.

Obesity and psoriasis are linked by a common pathophysiological mechanism which is explained by low grade chronic inflammation. It is associated with high incidence and severity of psoriasis and response to treatment[5].

Skin infections are also more common in obese patients, mainly due to friction of the skin in the body folds resulting in Intertrigo and superadded infection[2]. Boza et al found statistically significant association of obesity with infections[3].

CONCLUSION

Obesity is one of the major public health problems. It directly or indirectly ,starts unfavourable processes in almost all organ systems. As the prevalence of obesity is increasing among the children , the paediatricians and dermatologists should be aware of its various manifestations including the cutaneous ones and early onset of auto immune disorders to ensure their early diagnoses and treatment ,which are as common as in adults , and can be a source of great physical or psychological morbidity.

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