

A Prospective Evaluation of Skin Manifestations of Obesity in Children and Adolescent Age Group: An Institutional Based Study

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ABSTRACT

Background: Obesity among children and adolescents has emerged as one of the most serious public health concerns in the 21st century. Obesity is an alarming threat to the children due to poor lifestyle and improper dietary habits. Childhood obesity causes wide range of skin manifestations. In this study skin manifestations in the obese children and adolescent of age group of 6-15 years were evaluated.

Materials and Methods: The prospective study was conducted in the Department of Dermatology, MNR Medical College & Hospital, Sangareddy, Telangana (India) over a period of 6 months. A total of 120 children and adolescents aged 6–15 years or more with BMI >30 kg/ m² were included in the study. Clinical evaluation included detailed history and skin and systemic examination was done. A detailed skin examination was considered necessary. Statistical analysis was done using chi square test and p value of <0.05 was considered significant.

Results: Infections was the predominant skin manifestation in boys whereas Acanthosis Nigricans was predominant in girls.

Conclusion: Obesity is one of the major causes of health

problems. Present study shows high incidence of skin diseases in obese and overweight children. Early identification and management of these skin conditions can significantly improve the quality of life among these children.

Keywords: Obesity; Skin; Children.


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INTRODUCTION

Obesity is defined as body mass index (BMI) of 30kg/m² or more. Over the past 30 years its prevalence has increased significantly worldwide.¹ Overweight and obesity are defined by the World Health Organization (WHO) as abnormal or excessive fat accumulation that may impair health. The prevalence of obesity has increased manifold over the last few years in both the developed and developing nations and has reached to epidemic proportions. It is common in adults, but the prevalence among children has also been rising alarmingly now. According to the WHO, 20% of children and adolescents in Europe are overweight, and of these, one-third are obese.² Morbidity and mortality in obese population is significantly more than the normal weight individuals.³ The World Health Organization (WHO) categorizes adults with a BMI of 25 to 30 as overweight, whereas obesity is classified according to stages or grades - Grade 1: BMI 30.0-34.9, Grade 2: BMI 35.0-39.9 and Grade 3: BMI ≥40.0.⁴ In the pediatric age group, gender-specific BMI-for-age percentile curves are used to define overweight and obesity. Children and adolescents with a BMI over the 85th but less than the 95th percentile for age and gender are considered overweight and those with a BMI greater

than the 95th percentile are considered obese. Children and adolescents with a BMI greater than the 99th percentile are considered severely obese.^{5,6,7} Skin is affected in a number of different ways in obesity.⁸ Apart from certain dermatoses that appear in obesity, certain cutaneous disorders are aggravated by obesity.⁹ Thus, the present study aimed to evaluate the skin manifestations in the obese children and adolescent of age group of 6-15 years.

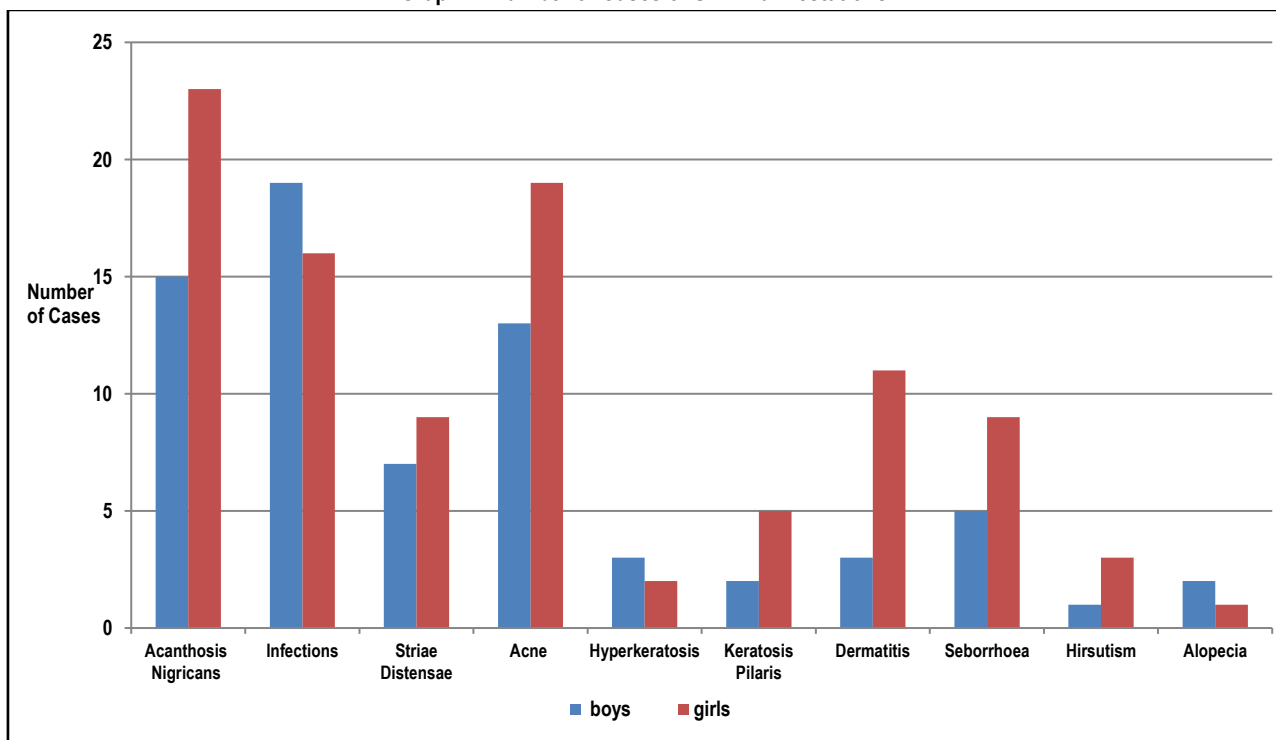
MATERIALS AND METHODS

The prospective study was conducted in the Department of Dermatology, MNR Medical College & Hospital, Sangareddy, Telangana (India) over a period of 6 months. A total of 120 children and adolescents aged 6–15 years or more with BMI >30 kg/ m² were included in the study. After taking informed consent from the parents all the findings were noted. Clinical evaluation included detailed history and skin and systemic examination was done. A detailed skin examination was considered necessary. Statistical analysis was done using chi square test and p value of <0.05 was considered significant.

Table 1: Distribution of Skin manifestations in Children and adolescents

Skin manifestations	Number of cases (120)	
	Boys (57)	Girls (63)
Acanthosis Nigricans	15(26.31%)	23(36.50%)
Infections	19(33.33%)	16(25.39%)
Striae Distensae	7(12.28%)	9(14.28%)
Acne	13(22.80%)	19(30.15%)
Hyperkeratosis	3(5.26%)	2(3.17%)
Keratosis Pilaris	2(3.50%)	5(7.93%)
Dermatitis	3(5.26%)	11(17.46%)
Seborrhoea	5(8.77%)	9(14.28%)
Hirsutism	1(1.75%)	3(4.76%)
Alopecia	2(3.50%)	1(1.58%)

Graph 1: Number of Cases of Skin Manifestations



RESULTS

A total of 120 children and adolescents aged 6–15 years or more with BMI >30 kg/ m² were included in the study and in which 63 were girls whereas 57 were boys. Table 1 shows the distribution of skin manifestations in children and adolescents. Infections was the predominant skin manifestation in boys whereas Acanthosis Nigricans was predominant in girls.

DISCUSSION

Obesity is associated with a number of mucocutaneous manifestations.^{10,11} In present study; infections was the predominant skin manifestation in boys whereas Acanthosis Nigricans was predominant in girls.

Similar study by Ahsan U concluded that common dermatoses seen in obese patients were acanthosis nigricans, striae, acrochordons, and various infections. Out of these acanthosis

nigricans, acrochordons and striae had statistically significant relationship with obesity as compared to control group ($p < 0.05$).¹² Another study by Mrutunjay D shows that Acanthosis nigricans is the most common manifestation in the age group of 10-14 years and infections are most common in the age group of 5-9 years.¹³

The treatment of overweight and obesity in children and adolescents requires a multidisciplinary approach with a holistic outlook. The team should include a paediatric physician, nurse practitioner, dietician, physical instructor, behavioural therapist and a social worker in addition to a motivated team of parents, caretakers, teachers and policy makers. The immediate goal is to bring down the rate of weight gain, followed by a period of weight maintenance and finally weight reduction to improve BMI. The long-term goal is to improve quality of life and reduction in morbidity as well as mortality associated with overweight and obesity.¹⁴

CONCLUSION

Obesity is one of the major causes of health problems. Present study shows high incidence of skin diseases in obese and overweight children. Early identification and management of these skin conditions can significantly improve the quality of life among these children.

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