Original Research Article

A study of clinical profile of children with obesity at tertiary health care centre

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Abstract

Background: Obesity among children, adolescents and adults has emerged as one of the most serious public health concerns in the 21st century. The worldwide prevalence of childhood obesity has increased strikingly over the past 3 decades. **Aims and Objectives:** To Study Clinical profile of children with Obesity at tertiary health care centre. **Methodology:** This was a cross sectional study carried out in the Children and adolescents at tertiary health care centre during the one year period i.e. March 2017 to March 2018, so in the one year period there were 80 patients diagnosed with obesity by Body Mass Index (BMI) Growth charts. The data was entered to excel sheets and analyzed by Excel software for windows 10. **Result:** The average age of the children was 10.22 ± 3.62 Yrs. and range was 2-20 Yrs. The majority of the patients were males i.e. 51.25% and females were 48.75%. The most common complains of patient were Excess weight gain in 97.5%, GERD in 28.75%, Indigestion in 21.25%, Constipation in 18.75%, Shortness breath in 11.25%, C/o Stretch marks on abdomen in 10%, Small penis specially in adolescent boys was 3.75%, Amenorrhea in 2.5%. The most common cause of obesity was Exogenous Obesity with Insulin resistance in 72.5%, Exogenous Obesity in 11.25%, Apparently healthy individuals were 7.5 %, Exogenous Obesity+ Insulin resistance+PCOD in 2.5%, Exogenous Obesity+ Insulin resistance+ +PCOD+ Vit.D Def in 1.25%, Exogenous Obesity+ Insulin resistance+ +PCOD in 1.25%, Exogenous Obesity+ Insulin resistance+Vit.D def. in 1.25%, Pradder willi syndrome in 1.25%, Infantile syndrome in 1.25% **Conclusion:** It can be concluded from our study that the most common complains of patient were Excess weight gain, GERD, Indigestion, Constipation. The most common cause of obesity was Exogenous Obesity with Insulin resistance, PCOD, Vit.D Deficiency in combination.

Key Word: Childhood Obesity, BMI, GERD, PCOD, Vit.D deficiency

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Received Date: 25/12/2018 Revised Date: 20/01/2019 Accepted Date: 02/02/2019
DOI: https://doi.org/10.26611/1014929

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 10 February 2019

INTRODUCTION

Obesity among children, adolescents and adults has emerged as one of the most serious public health concerns in the 21st century. The worldwide prevalence of childhood obesity has increased strikingly over the past 3 decades[1]. Obesity is a multifactorial condition and has also been described as a phenotype of numerous pathologies[1,2].Over the past three decades, the prevalence of obesity among children and adolescents in most developed countries, and more recently in developing countries, has significantly increased[3,4]. In 2010, World Health Organization (WHO) estimated that 43 million preschool-aged children (that is 35 million in the developing world) were overweight or obese, and the worldwide prevalence has risen from 4.2% (95% CI 3.2–5.2%) in 1990 to 6.7% (95% CI 5.6–7.7%) in 2010[5]. In a 2010 systematic review, it has been shown that the prevalence of overweight and obesity in children and adolescents in Western Europe, the USA, Japan and Australia reached a plateau, although many developing countries are still encountered with a rising prevalence rate[6]. Based on an Iranian national survey in 2007, the prevalence of overweight and obesity in school age children was 10.1% and 4.79% respectively, according to the national cut-offs[7]. In another study in 2011, the prevalence of overweight and obesity among Iranian school children was 9.27% and 3.22% respectively[8]. Mirhosseini *et al* in 2012, reported prevalence of

overweight and obesity in adolescent Iranian girls, 14.6% and 3.4% respectively[9]. Not only is obesity the most common cause of insulin resistance in children, but also it is related to dyslipidemia, type 2 diabetes, and long-term vascular complications[10]. In one study about cardiovascular risk factors and body fat distribution in Iranian girls, adiposity, particularly truncal adiposity, was related to metabolic problems such as blood pressure and triglyceride abnormalities and consequently cardiovascular problems[9]. As we know during recent years, the prevalence of these chronic diseases has increased among children[11]. On the other hand, the risk of morbidity from coronary artery disease and arthritis in adulthood is higher in overweight adolescents, even if they have normal weight as adults[12]. In addition, childhood obesity increases the same risk in adulthood[13] and as obese parents would reproduce overweight offspring, these children will become parents to overweight children consecutively[14] So we have studied the clinical profile of the patients with childhood obesity at tertiary health care centre.

METHODOLOGY

This was a cross sectional study carried out in the Children and adolescents at tertiary health care centre during the one year period i.e. March 2017 to March 2018, so in the one year period there were 80 patients diagnosed with obesity by Body Mass Index (BMI) Growth charts provided by WHO with respect to age and sex was utilized for inclusion of the individuals. All the patients or their parents were asked regarding age, complains, all of them undergone all routine hematological , biochemical testing like CBC , Lipid profile special investigations for Insulin resistance like HBA1C, HOMA-R, Random blood sugar, OGTT(Oral Glucose Tolerance Test) or any other test if required was done. The data was entered to excel sheets and analyzed by Excel software for windows 10.

RESULT

Table 1: Distribution of the patients as per the age

Age	Mean ±SD (Yrs.)	Range (Yrs.)
	10.22 ± 3.62	2-20

The average age of the children was 10.22 ± 3.62 Yrs. and range was 2-20 Yrs.

Table 2: Distribution of the patients as per the sex

Sex	No.	Percentage (%)
Male	41	51.25
Female	39	48.75
Total	80	100

The majority of the patients were males i.e. 51.25% and females were 48.75%

Table 3: Distribution of the patients as per the clinical features

Clinical feature	No.	Percentage (%)
Excess weight gain	78	97.5
GERD	23	28.75
Indigestion	17	21.25
Constipation	15	18.75
Shortness breath	9	11.25
C/o Stretch marks on abdomen	8	10
Small penis	3	3.75
Amenorrhea	2	2.5

The most common complains of patient were Excess weight gain in 97.5%, GERD in 28.75%, Indigestion in 21.25%, Constipation in 18.75%, Shortness breath in 11.25%, C/o Stretch marks on abdomen in 10%, Small penis specially in adolescent boys was 3.75%, Amenorrhea in 2.5%.

Table 4: Distribution of the patients as per the Final diagnosis

Final diagnosis	No.	Percentage (%)
Exogenous Obesity with Insulin resistance	58	72.5
Exogenous Obesity	9	11.25
Apparently healthy	6	7.5
Exogenous Obesity+ Insulin resistance+PCOD	2	2.5
Exogenous Obesity+ Insulin resistance+ +PCOD+ Vit.D Def	1	1.25
Exogenous Obesity+ Insulin resistance+ +PCOD	1	1.25
Exogenous Obesity+ Insulin resistance+Vit.D def	1	1.25
Pradder willi syndrome	1	1.25
Infantile syndrome	1	1.25
Total	80	100.00

The most common cause of obesity was Exogenous Obesity with Insulin resistance in 72.5%, Exogenous Obesity in 11.25%, Apparently healthy individuals were 7.5 %, Exogenous Obesity+ Insulin resistance+PCOD in 2.5%, Exogenous Obesity+ Insulin resistance+ +PCOD+ Vit.D Def in 1.25%, Exogenous Obesity+ Insulin resistance+ +PCOD in 1.25%, Exogenous Obesity+ Insulin resistance+Vit.D def. in 1.25%, Pradder willi syndrome in 1.25%, Infantile syndrome in 1.25%

DISCUSSION

A number of factors contribute to pediatric or childhood obesity. These can be divided into genetic, behavioral and environmental factors. Genetic factors stem from the genes of parents, frequently leading to children becoming overweight[15]. Behavioral factors include food consumption and drinking of high-calorie sugar-sweetened beverages that are of low nutritional value, which are readily available for children. Consumption of the latter in particular has been associated with obesity[15]. Lack of physical activity also contributes to obesity.

Children spend a large amount of time using technology such as cell phones, television, computers or video games. On average, children of 8–18 years spend 7.5 h per day using these gadgets and do not participate in physical activities and active play[15]. Concerning environmental factors, the home, school, and community environments all play an important role in a child's development and maintenance of a healthy diet and involvement in physical activity. The majority of young children are enrolled in schools providing an optimum environment whose aim is to reinforce healthy eating and physical activity behaviors. When not in school, experiences in a child care or home setting continue to shape dietary and physical activity behaviors. Another crucial factor is the communities in which children reside as they provide opportunities for physical activity and access to affordable and healthy foods. Obese children are more likely to become overweight in adulthood than healthy-weight children. This increase in weight constitutes a health risk later in life when, as adults, they present with problems such as heart disease, diabetes (type 2), stroke, various types of cancer and osteoarthritis[15]. In addition, obese children are more likely to have cardiovascular risk factors such as high cholesterol or high blood pressure, and are more likely to have pre-diabetes, which places them at a high risk for developing diabetes later in life[15].Thus maintaining a healthy diet and involvement in physical activity are important for preventing obesity and other diseases. The rise in the consumption of convenience foods by children and adolescents in many nations has a particular relevance to the childhood obesity epidemic[16]. Convenience foods incorporate all of the potentially adverse dietary factors, including saturated and trans fats, a high glycemic index, high energy density and increasingly large portions of food. Convenience foods are usually low in fiber, micronutrients and antioxidants and contain dietary components that affect risk of heart diseases, cardiovascular events and diabetes in children. There is an association between the consumption of convenience foods and total energy intake or body weight in adolescents and adults[17]. Adolescent females who consumed convenience foods four times a week or more consume ~770–1095 kJ (~185–260 kcal) per day more than those who did not consume such food[17]. Parent-child interactions and the home environment may affect behavior associated with risk of obesity. Family life has changed over the past two decades, with lifestyle habits tending towards dining out and greater access to various forms of technology, including television, than previous years. Owing to larger portions of energy dense foods being served at restaurants, energy intake is greater when meals are consumed in restaurants compared to homemade meals. In addition, unlimited access to television has increased the period spent watching by 38 min per day (27). By contrast, family meals seem to decrease time spent on television watching and improve the quality of the diet as less saturated and trans fat, less fried food, lower glycemic load, more fiber, fewer sweetened beverages, and more fruits and vegetables are consumed[18]. Moreover, social support from parents and other community members correlates strongly with participation in physical activity[19]. In our study we have found The average age of the children was 10.22 ± 3.62 Yrs. and range was 2-20 Yrs. majority of the patients were males i.e. 51.25% and females were 48.75% The most common complains of patient were Excess weight gain in 97.5%, GERD in 28.75%, Indigestion in 21.25%, Constipation in 18.75%, Shortness breath in 11.25%, C/o Stretch marks on abdomen in 10%, Small penis specially in adolescent boys was 3.75%, Amenorrhea in 2.5%. The most common cause of obesity was Exogenous Obesity with Insulin resistance in 72.5%, Exogenous Obesity in 11.25%, Apparently healthy individuals were 7.5 %, Exogenous Obesity+ Insulin resistance+PCOD in 2.5%, Exogenous Obesity+ Insulin resistance+ +PCOD+ Vit.D Def in 1.25%, Exogenous Obesity+ Insulin resistance+ +PCOD in 1.25%, Exogenous Obesity+ Insulin resistance+Vit.D def. in 1.25%, Pradder willi syndrome in 1.25%, Infantile syndrome in 1.25% These findings are similar to [20] The symptoms in children may vary but some of the most common include: **Appearance:** stretch marks on hips and abdomen; dark, velvety skin (known as acanthosis nigricans) around the neck and in other areas; fatty tissue deposition in breast area (an especially troublesome issue for boys), **Psychological**: teasing and abuse; poor self-esteem; eating disorders **Pulmonary**: shortness of breath when physically active; sleep apnea, **Gastroenterological**: constipation, gastroesophageal reflux, **Reproductive**: early puberty and irregular menstrual cycles in girls; delayed puberty in boys; genitals may appear disproportionately small in males[20]

CONCLUSION

It can be concluded from our study that The most common complains of patient were Excess weight gain, GERD, Indigestion, Constipation. The most common cause of obesity was Exogenous Obesity with Insulin resistance, PCOD, Vit.D Deficiency in combination.

REFERENCES

1. Han JC, Kimm SYS. Childhood Obesity-2010: Progress and Challenges. Lancet. 2010; 375: 1737–1748.
2. Lustig RH and Weiss R. Pediatric Endocrinology (third edition) In: Sperling MA, editor. Disorders of energy balance. Philadelphia PA: Saunders Elsevier; 2008. pp. 788–838.

3. Wang Y, Lobstein T. Worldwide trends in childhood overweight and obesity. Int J Pediatr Obes 2006; 1(1):11-25.
4. Lobstein T, Baur L, Uauy R. Obesity in children and young people: a crisis in public health. Obes Rev 2004; 5 (Suppl 1):4-104.
5. De Onis M, Blossner M, Borghi E. Global prevalence and trends of overweight and obesity among preschool children. Am J Clin Nutr 2010; 92(5):1257-64.
6. Rokholm B, Baker JL, Sorensen TI. The levelling off of the obesity epidemic since the year 1999 -- a review of evidence and perspectives. Obes Rev 2010; 11(12):835-46.
7. Kelishadi R, Ardalan G, Gheiratmand R, *et al*. Thinness, overweight and obesity in a national sample of Iranian children and adolescents: CASPIAN Study. Child Care Health Dev 2008; 34(1): 44-54.
8. Mirmohammadi SJ, Hafezi R, Mehrparvar AH. Prevalence of overweight and obesity among iranian school children in different ethnicities. Iran J Pediatr 2011; 21(4):514-20.
9. Mirhosseini NZ, Shahar S, Ghayour-Mobarhan M, *et al*. Body fat distribution and its association with cardiovascular risk factors in adolescent Iranian girls. Iran J Pediatr 2012; 22(2):197-204.
10. Weiss R, Dziura J, Burgert TS, *et al*. Obesity and the metabolic syndrome in children and adolescents. N Engl J Med 2004; 350(23):2362-74.
11. Washington RL. Metabolic syndrome - No longer an adult only disease. J Pediatr 2008; 152(2):A1.
12. Must A, Jacques PF, Dallal GE, *et al*. Long-term morbidity and mortality of overweight adolescents. A follow-up of the Harvard Growth Study of 1922 to 1935. N Engl J Med 1992; 327(19):1350-5.
13. Molnar D, Erhardt E. Severe childhood obesity: what are the keys for management? Int J Pediatr Obes 2008; 3(Suppl 2):9-14.
14. Doustmohammadian A, Abdollahi M, Bondarianzadeh D, *et al*. Parental determinants of overweight and obesity in Iranian adolescents: a national study. Iran J Pediatr 2012; 22(1):35-42.
15. Hill JO, Peters JC. Environmental contribution to the obesity epidemic. Science 280: 1371-1374, 1998.
16. Ebbeling CB, Pawlak DB and Ludwig DS: Childhood obesity: Public-health crisis, common sense cure. Lancet 360: 473-482, 2002.
17. McNutt SW, Hu Y, Schreiber GB, Crawford PB, Obarzanek E and Mellin L: A longitudinal study of the dietary practices of black and white girls 9 and 10 years old at enrollment: the NHLBI Growth and Health Study. J Adolesc Health 20: 27-37, 1997
18. Gillman MW, Rifas-Shiman SL, Frazier AL, Rockett HR, Camargo CA Jr, Field AE, Berkey CS and Colditz GA: Family dinner and diet quality among older children and adolescents. Arch Fam Med 9: 235-240, 2000.
19. Sallis JF, Prochaska JJ and Taylor WC: A review of correlates of physical activity of children and adolescents. Med Sci Sports Exerc 32: 963-975, 2000.
20. Childhood Obesity Symptoms and Causes. Available online at: http://www.childrenshospital.org/conditions-and-treatments/conditions/c/childhood-obesity/symptoms-and-causes : Acessed on January 2018

Source of Support: None Declared
Conflict of Interest: None Declared