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Incidence Of Obesity In Orthopaedic Patients

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Abstract:

Introduction: - Obesity has truly become a global epidemic, socioeconomic and a worldwide problem affecting both developed and developing countries and people of rich and poor. Obesity is not a single disorder but a group of heterogeneous conditions.

Aim of the study is to investigate the prevalence of obesity in patients who were coming for the check-up from both urban and rural areas and to study associated disorders with food habits.

Material and methods: - The study was conducted at Mukund Orthopaedic Centre, Bellary, Karnataka, during the period May 2013 to June 2013 for a period of two months. During this period, 180 patients were considered for the study.

The results: - Out of 180 patients, 63 (35%) were obese in which 23 (36.50%) were in the age group of 31-45 years, 17 (26.98%) were suffering from hypertension and 15 (23.80%) were suffering from diabetes.

Conclusion: - To conclude, Obesity was more common in females than males and most of the patients were Non-Vegetarians. Obesity can be controlled by regular exercises, avoiding junk foods and changing lifestyle.

Key words: Obesity, Hypertension, Diabetes Mellitus, Non-vegetarians

1. Introduction

The twenty first century epidemiological transition is manifesting in the form of shift towards increase in prevalence of non communicable diseases and decline in communicable diseases.^[1] Obesity is the twenty first centuries epidemic and it has become a major concern for many metabolic diseases.^[2] According to a global estimate by the World Health Organisation (WHO), in 2005 there were about 1.6 billion overweight persons who were above 15 years of age and among them at least 300 million were obese. According to the recent study conducted by WHO in 2011, there were 600 million obese people all around the world.^[2] Over the past few years obesity has become a pandemic in developing countries.

Obesity in general is defined as the presence of excess adipose tissue in the body to such a degree that it may lead to health hazards. Obesity is a common manifestation of energy imbalance, which is classically defined as the balance between energy consumed, by food and drink, and energy expended through metabolism and physical activity.^[1] Obesity has truly become a global epidemic, socio-economic and a worldwide problem affecting both developed and developing countries and people of rich and poor.^[3,4] So just imagine, how many men, women and children are overweight or obese? It's a natural question and a surprisingly hard one for researchers to answer. At a time when various health policies were targeted and implemented to prevent malnutrition, now a days obesity has become a major concern.^[5] The problem is vast. Obesity is not a single disorder but a group of heterogeneous conditions. As the economies of developing countries continue to improve, the risk of becoming obese increases across all socio-economic classes as a result of improved access to food, lack of physical activity, and the consumption of western diets. It will ultimately dispose to an environment leading to obesity.^[6] In addition to this, obese people often report impaired psychological well being and greater risk of cardiovascular attacks.^[7] In Europe and US it has been shown that obesity reduces a person's overall activity and increases the rate of morbidity and mortality.

2. Aim Of The Study

Is to investigate the prevalence of obesity in patients who were coming for the check-up from both urban and rural areas and to study associated disorders with food habits.

3. Materials And Methods

The study was conducted at Mukund Orthopaedic Centre, Bellary district, Karnataka between May 2013 to June 2013 for a period of two months. A total of 180 patients were interviewed who had come to the centre for orthopaedic problems. All the patients

registered for orthopaedic appointment were subjected to a questionnaire (Annexure-1) and the consent for the study was taken from the patient and the orthopaedic surgeon. They were assessed for height, weight based on which BMI was calculated and they were asked about the history of diabetes, hypertension and food habits. The height was assessed in feet and inches by a graduated scale. The weight was assessed by removing the shoes or any valuables on the person using an electronic weighing machine in kgs which was converted to pounds (1kg = 2.204 pounds). The blood pressure of the person was accessed by an electronic sphygmomanometer with due correlation. The BMI was calculated by weight divided by height as per WHO norms. The patients with less than 18.5kg/m² of BMI was considered as underweight, 18.5-25kg/m² were considered as normal, 25-30kg/m² were considered as overweight and above 30kg/m² were considered as obese.

3.1. Exclusion Criteria

The patients who came for a follow-up were not considered for the study. The patients who could not stand due to limb injuries were excluded from the study.

At the end of the interview, each patient was provided with a handout with information related to their obesity status and an exercise chart with a nutritional diet chart was given for their maintenance of their health.

4. Results

A total of 180 patients were interviewed in this study. The data so obtained from these respondents were used for the analysis of the study. Out of 180 patients who had come to the orthopaedic problem, 92 (51.11%) were males and 88 (48.89%) were females. Patients between the age group of 31-45 yrs were more 63 (35%) followed by 47 (26.11%) of 46-60yrs, 37 (20.55%) of 16-30 yrs as shown in table-1. Majority of the individuals were from urban areas 133(73.88%) and only 47(26.12%) were from rural areas. After the interview, we came to know that the non-vegetarian were more 98(54.45%) than the vegetarians 82(45.55%). Out of 180 patients in the study, 58 (32.44%) were suffering from hypertension and 62 (34.44%) were suffering from diabetes as shown in table-2. The patients height and weight was checked and based on that BMI was calculated to know the patients obesity rate. Out of the 180 individuals, 63(35%) were obese followed by 55(30.55%) were over weight as shown in table-3. Out of 63 (35%) patients who were obese, 23 (36.50%) were aged between 31-45 years, followed by 19 (30.15%) of 46-60years. In this females 38(60.34%) were more than males as shown in table-4. In this study, we came to know that, urban patients 133 (73.88%) were more than rural patients. In the Urban areas, obese patients were 53 (29.44%) in which females 32 (17.77%) dominated males 21 (11.66%) as shown in table-5. Out of 63 (35%) obese patients, 17 (26.98%) patients had hypertension, 15 (23.80%) had diabetes mellitus and 7 (11.11%) patients were suffering from both hypertension and diabetes as shown in table6. The incidence of obesity was more in non-vegetarians (53.96%) than vegetarians (46.03%) as shown in table-7.

5. Discussion

It is already known from multiple studies that obesity is distributed along a socioeconomic gradient.^[7] The epidemic-like rise in the prevalence of obesity constitutes an undoubted and serious global health problem.^[9] Importantly, hypertension and diabetes are frequently associated with obesity and, together, constitute a significant burden in terms of patients' morbidity and escalating health care costs.^[10] Although obesity is caused by many factors, in most people, it is due to the combination of excess calorie consumption and inadequate physical activity. Population based policies and programmes that emphasize environmental changes are most likely to be successful.^[6] The need for studies on the increasing prevalence of obesity in developing countries is greater now, than ever before as more countries are reaching their developmental goals.^[7]

Out of 180 patients who were considered for the study, 51.11% were males and 48.89% females. According our survey, 35% were of the patients were in the age group of 31-45 years it was similar to the study of Mithu Bhadra et al^[11] but there was a increase in the study of Benjamin kuntz et al.^[7]

In this study, the body mass index (BMI) of the (35%) patients was obese. Our results were similar to the studies of Luma Akil et al. According to the studies of Ramesh K Goyal only 3% of the people were obese.^[13] The high palatability of sweets and foods associated with higher energy intake leads to overweight and obesity.^[3-12,13]

The present study showed that, 13.88% males and 21.12% females were obese. In our results, there was some increase with the studies of Ramesh K Goyal et al and Anand & Tandon.^[3] The relatively increase in obesity among the Indians is a serious issue, which may lead to morbidity, cardiovascular diseases and mortality.^[3-45]

In this study the prevalence of obesity was more common in the age group of 31-45 years with (36.50%), but according to the study in England it was more in the age group of 65-74 years.^[12] Using of more number of drugs may lead to obesity in the age group after 50 years. According to our study, number of female obese patients (20.63%) were more obese in the age group of 31-60. Our results are similar to the study of the England.^[12]

In our study the prevalence of obesity was more in urban areas (29.44%) than the rural areas, our results are similar to the results of Y.S. Saraswati et al and Premanath et al.^[8] Due to luxurious living, lack of physical work and over intake of food in cities leads to obesity.

There was a higher prevalence of obesity in females (21.12%) than males. Our results was similar with the study of Ambady Ramchandran and Chamukuttan Snehalata. It could be explained by higher physical activity by males, hence the risk of obesity in them is less.^[3-52,53]

In the present study, many of the patients were suffering from Diabetes Mellitus (23.80%) and Hypertension (26.98%). Our results were similar to the study of Ramesh K Goyal.^[3] Lifestyle changes that lead to weight reduction have been demonstrated to reduce the incidence of diabetes and hypertension. In this study diet habit was interviewed, in this (53.96%) of the obese patients were non-vegetarians but according to the study of Ramesh K Goyal et al (89.8%) were Vegetarians. Diet habits differ from place to place, the non-veg contains more fatty substances than veg items.^[3]

6. Conclusion

To conclude, urban patients were more suffering from obesity than rural patients. Obesity was more common in females than males. Hypertension and Diabetes mellitus was more prevalent in obese patients. Many of the obese patients were Non-vegetarians. It was more in adults than children. Obesity is the sixth epidemic in the world in the 21st century. Obesity can be controlled by following steps:-

- Choose whole grain foods. Avoid highly processed foods made with refined white sugar, flour and saturated fat.
- Eating more calories than you burn for energy will lead to weight gain.
- Weigh yourself regularly.
- Avoid foods that are high in “energy density” or that have a lot of calories in a small amount of food.
- Crack a sweat: accumulate at least 30 minutes or more of moderate-intensity activity on most, or preferably, all days of the week.
- Make opportunities during the day for even just 10 or 15 minutes of some calorie-burning activity, such as walking around the block or up and down a few flights of stairs at work. Again, every little bit helps.
- Exercise at least 20 minutes per day

1. Socio-Economic information	
Age:-	
Gender:-	
Place :- urban/ rural	
2. Anthropometric measurements	
Height:-	
Weight:-	
Body mass index (BMI):-	
3. Dietary survey method	
Vegetarian :-	
Non-vegetarian :-	
4. Family history of diabetes:-	
5. Family history of hypertension:-	
Remarks:-	

Annexure-1 Questionnaire For Obesity

Age (in years)	Males	Females	Total
0-15	8(4.44%)	1(0.56%)	9(5%)
16-30	21(11.67%)	16(8.88%)	37(20.55%)
31-45	33(18.33%)	30(16.67%)	63(35%)
46-60	20(11.11%)	27(15%)	47(26.11%)
61-75	9(5%)	11(6.11%)	20(11.11%)
76-90	1(0.56%)	3(1.66%)	4(2.22%)
Total	92(51.11%)	88(48.89%)	180(100%)

Table 1: Shows The Age Wise Distribution Of Patients In Males And Females

	Male	Female	Total
<u>Place</u>	63	70	133(73.88%)
• Urban	29	18	47(26.12%)
• Rural			
Total	92(51.11%)	88(48.89%)	180(100%)
<u>Diet</u>			
• Vegetarian	45	37	82(45.55%)
• Non-Vegetarian	57	41	98(54.45%)
Hypertension	33	25	58(32.22%)
Diabetes	28	34	62(34.44%)

Table2 : Shows The Distribution Of Place, Diet And Disease

	Male	Female	Total
Under weight	6(3.33%)	3(1.67%)	9(5%)
Normal weight	29(16.11%)	24(13.33%)	53(29.44%)
Over weight	32(17.78%)	23(12.77%)	55(30.55%)
Obese	25(13.88%)	38(21.12%)	63(35%)
Total	92(51.11%)	88(48.89%)	180(100%)

Table 3: BMI Of Both Males And Females

Age(years)	Male	Female	Total
0-15	3(4.76)	2(3.17%)	5(7.93%)
16-30	4(6.34%)	5(7.93%)	9(14.28%)
31-45	10(15.87%)	13(20.63%)	23(36.50%)
46-60	6(9.52%)	13(20.63%)	19(30.15%)
61-75	2(3.17%)	4(6.34%)	6(9.52%)
76-90	0(0%)	1(1.58%)	1(1.58%)
Total	25(39.66%)	38(60.34%)	63(100%)

Table 4 :Shows The Age Distribution Of Obese Male And Female Patients

	Urban			Rural			Grand Total
	Male	Female	Total	Male	Female	Total	
Under weight	4(2.22%)	2(1.11%)	6(3.33%)	1(0.55%)	2(1.11%)	3(1.66%)	9(5%)
Normal weight	20(11.11%)	16(8.88%)	36(20%)	9(5%)	8(4.44%)	17(9.44%)	53(29.44%)
Over weight	18(10%)	20(11.11%)	38(21.11%)	15(8.33%)	2(1.11%)	17(9.44%)	55(30.55%)
Obese	21(11.66%)	32(17.77%)	53(29.44%)	4(2.22%)	6(3.33%)	10(5.55%)	63(35%)
Total	63(35%)	70(38.88%)	133(73.88%)	29(16.11%)	18(10%)	47(26.12%)	180(100%)

Table 5: Shows Distribution Of Urban And Rural Patients BMI

	Urban			Rural			Grand Total
	Male	Female	Total	Male	Female	Total	
Hypertension	6	8	14(22.22%)	0	3	3(4.76%)	17(26.98%)
Diabetes	4	9	13(20.63%)	1	1	2(3.17%)	15(23.80%)
Both (B.P & Diabetes)	2	4	6(9.52%)	0	1	1(1.58%)	7(11.11%)

Table 6: Shows The Incidence Of Obese Patients Hypertension And Diabetes

	Urban			Rural			Grand total
	Male	Female	Total	Male	Female	Total	
Vegetarian	9	15	24(38.09%)	3	2	5(7.93%)	29(46.03%)
Non-Vegetarian	12	18	30(47.61%)	1	3	4(6.34%)	34(53.96%)

Table 7: Shows The Incidence Of Obesity With Food Habits

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