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COMMON MEDICAL PROBLEMS IN OVERWEIGHT AND OBESE PATIENTS AT CIVIL HOSPITAL KARACHI

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ABSTRACT

OBJECTIVE: *To observe obesity related common medical problems in adult obese patients visiting civil hospital Karachi*
METHOD: *This was a prospective comparative study, conducted at medical OPD of Civil hospital Karachi in the Year 2008. One hundred sixty subjects aged were above 30 years were included in this study. These subjects were divided in three groups according to body mass index (BMI). The patients with BMI of >25, 23-24.9 & 18.5-22.9 were considered obese, over weight & normal respectively. Obesity related medical complications were observed in all three groups through history, clinical examination and investigations.*
RESULTS: *Of the 160 patients, females were 86 (54%) and male were 74 (46%). Their Mean age was 51.73 +_ 11 years. Fifty six (56) were obese, Fifty four (54) were over weight and fifty (50) were of normal weight. Osteoarthritis was found to be number one complication (71.4%) in obese patients as compared to 48% in over weight patients and 16% in normal weight patients. The other medical complications in these three groups of patients respectively were as follows. Hypertension (50%, 37%, 4%), Ischemic heart disease (50%, 33.3% and 16%), Heart failure (43%, 33.3% and 3%), Stroke (39.3%,6% and 2%), Hyperlipidemia (68%, 63% and 16%), Diabetes (57%, 40.7% and 12%), GERD (68%, 63% and 16%), Fatty liver (50% ,37% and 8%), Gall stones (53.6%, 33.3% and 4%) and sleep disorder (50%, 26% and 12%). All these results were statistically significant (p< 0.05) with increasing BMI of these patients.*
CONCLUSION: *A broad range of diseases and health problems are associated with obesity and over weight patients burden. Clinicians need to be aware of these problems and efforts should be made for the prevention of the disease burden.*

KEY WORDS: Obesity Over weight Medical Problems

INTRODUCTION:

The prevalence of overweight and obesity is increasing worldwide [1]. This increase crosses all ages, genders, racial/ethnic groups, and income and educational levels [2]. Obesity is now so common within the world's population that it is beginning to replace undernutrition and infectious diseases as the most significant contributor to ill health. The global epidemic of obesity results from a combination of a variety of genetic environmental, physiological, psychological, social and cultural factors [3].

More than 300 million people world wide are considered to be obese. Over 70% of older adults in the United States are overweight or obese [4]. Obesity affects over 20% of the UK's adult population [5]. In Pakistan and India obesity occurs in 10-28% of population and is more common in female and upper socioeconomic class [6].

Obesity should no longer be regarded simply as a cosmetic problem affecting certain individuals, but an epidemic that threatens global well being. A very high degree of obesity (BMI ≥ 35 kg/m^2) seems to be linked to higher mortality rates but the relationship between more modest degrees of overweight and mortality has shown a U-shaped association between weight and mortality [7, 8].

The impact of obesity on a person's life is physical, social, economical and psychological. Overweight and obese persons are at risk of a number of medical conditions which can lead to further morbidity and mortality. Direct associations between obesity and several diseases, including diabetes mellitus, hypertension, dyslipidaemia and ischaemic heart disease are well recognized but obesity also leads to a number of other medical problems.

Most of the work done in Pakistan have been regarding prevalence of obesity in diabetic, hypertensive, Ischemic heart disease and stroke patients but only few studies have been done on obesity related health problems [9,10]. This study was done to note the obesity related common medical complications in adult patients visiting Medical OPD of civil hospital Karachi.

MATERIAL & METHODS:

This was a prospective, observational comparative study, conducted by Medical Unit One at medical OPD Civil hospital Karachi from January to June, 2008**.** One hundred sixty (160) subjects aged above 30 years were included in this study. These subjects were divided in three groups according to body mass index (BMI) which was calculated by weight in Kg/height in m^2**.** BMI of > 25, 23-24.9 and 18.5-22.9 were considered obese, over weight and normal subjects respectively [11] Subjects suffering from edema secondary to what ever cause and obesity secondary to endocrinological causes were excluded.

Obesity related common medical problems like diabetes mellitus , hypertension Hyperlipidemia, Ischemic heart disease, heart failure, stokes gall stone , fatty liver, gastro-esophageal reflex disease (GERD), sleep disorders and osteoarthritis were observed in all three groups through history, clinical examination and relevant investigations. All subjects who were not known to be hypertensive under went blood pressure measurement with an aneroid type of blood pressure apparatus to note presence or absence of hypertension. Average of two or more readings was taken at each of two or more visits after initial screening for this purpose. Diagnosis of hypertension was made with a systolic reading of >140 and diastolic reading of >90 mmHg as per recommendations based on the 7th report of Joint National Committee of Prevention, Detection, Evaluation and Treatment (JNC VII) [12]**.** Fasting Blood Sugar and cholesterol levels were done in patients who were not known to be diabetic and hyperlipidemic. If subject was known to be suffering from ischemic heart disease, this was confirmed by his/her previously reports. An ECG was done for screening subjects who were not known to have Ischemic heart disease (IHD). Diagnosis of IHD in these subjects was based upon standard ECG criteria i-e Q wave ST and T wave changes. Ultrasound was done for all subjects to observe the gallstone & fatty liver. Individuals with history of cholecystectomy were considered to have gall stones. Stroke patients were identified by history and examination. If needed x-rays (knees) were done for confirmation of osteoarthritis and upper endoscopy was performed for GERD. Data was entered by two people to control the bias and was analyzed with the help of SPSS program version 13.0. Mean and standard deviations of continuous variables like age, systolic, diastolic pressure, body mass index, fasting blood sugar and fasting cholesterol had been calculated. Frequency

TABLE 1.

OBESITY RELATED HEALTH PROBLEMS OR MEDICAL COMPLICATIONS

Medical Complication	**Obese (no=56)**	**Over weight (no =54)**	**Normal weight (no =50)**	**P-value**
Diabetes Mellitus				0.000
Yes	32 (57%)	22 (40.7%)	6(12%)	
No	10 (18%)	22 (40.7%)	40 (80%)	
Impaired FBS	14 (25%)	10 (18.5%)	4 (8%)	
Hypertension				0.016
Yes	28(50%)	20 (37%)	8 (16%)	
No	16 (28.6%)	24 (44.5%)	38 (76%)	
High Normal(Pre HTN)	12 (21.6%)	10(18.5%)	4 (8%)	
Hyperlipidemia				0.000
Yes	38 (68%)	34 (63%)	8 (16%)	
No	18 (32%)	20 (37%)	42 (84%)	
Ischemic heart disease				0.013
Yes	28 (50%)	18 (33.3%)	8 (16%)	
No	28(50%)	36 (66.7%)	42 (84%)	
Stroke				0.027
Yes	22 (39.3%)	12(22.2%)	4 (8%)	
No	34 (60.7%)	42 (77.8%)	46 (92%)	
Heart Failure				0.045
Yes	24 (43%)	18 (33.3%)	6(12%)	
No	32(57%)	36 (66.7%)	44 (88%)	
Sleep Disorder (Snoring)				0.009
Yes	28(50%)	14(26%)	6(12%)	
No	28(50%)	40 (74%)	44 (88%)	
Fatty Liver				0.004
Yes	28 (50%)	20 (37%)	4 (8%)	
No	28(50%)	34 (63%)	46 (92%)	
Gall Stone				0.001
Yes	30(53.6%)	18 (33.3%)	2 (4%)	
No	26(46.4%)	36 (66.7%)	48 (96%)	
Osteoarthritis				0.000
Yes	40 (71.4%)	26 (48%)	8 (16%)	
No	16(28.6%)	28 (52%)	42 (84%)	
GERD				0.000
Yes	38 (68%)	34 (63%)	8 (16%)	
No	18 (32%)	20 (37%)	42 (84%)	

and percentage was computed for categorized variable. Chi-square test was used for calculating p-value. P- Value <0.05 was taken as level of significance.

RESULTS:

Out of one hundred sixty (160) subjects 54 % (n=86) were female and 46 %(n=74) were male. The mean age of study population was 51.73±11.02 years (range 32-70 years). Fifty six (56) patients were obese, their mean age was 51.14± 11.67 years and 53.6 % (n=30) of them being female. Fifty four (54) patients were over weight, their mean age was 51.48±11.57 and 55.6% (n=30) of them were females. Fifty (50) patients were of normal weight, their mean age was 52.64±10.02 and & 52 % (n=26) of them were females. Obesity related medical complications noted in obese, over weight and normal weight patients are shown in Table 1**.**

DISCUSSION

The Health related problems are much more common in patients who have got increased body mass index. A recent meta-analysis of 89 studies determined statistically significant associations for overweight with the incidence of type II diabetes, all cancers except esophageal (female), pancreatic and prostate cancer, all cardiovascular diseases (except congestive heart failure), asthma, gallbladder disease, osteoarthritis and chronic back pain [13]. We in this study have evaluated some of the medical complications of this condition and found them to be significantly common in both over weight as well as obese patients as compared to normal weight patients.

MUSCULOSKELETAL DISORDERS.

Osteoarthritis was found to be number one complication (71.4%) in obese patients as compared to 48% in over weight patients and 16% in normal weight patients. These figures are much higher than noted in other local studies [9, 10].

Obesity can lead to a variety of musculoskeletal problems and is independently associated with locomotor disability and joint pain. Obesity increases the risk of radiographic knee osteoarthritis (OA), but has a lesser effect on disease progression. [5]

The fact that osteoarthritis occurs in non-weight-bearing joints as well, suggests there are components of the obesity syndrome that alter cartilage and bone metabolism independent of weight bearing.

METABOLIC DISORDERS

Hyerlipidemia was also seen to be highly prevalent, 68% of obese and 63% of overweight patients in our study having hyperlipidemia.

Obesity is associated with an unfavourable lipid profile which include elevated serum concentration of cholesterol, low-density-lipoprotein (LDL) cholesterol, very low density lipoprotein (VLDL) cholesterol, triglycerides and apolipoprotein B as well as a reduction in serum high-density-lipoprotein (HDL) cholesterol [14]. The mechanism(s) involve the combination of insulin resistance and hyperinsulinaemia stimulating hepatic triglyceride synthesis from an increased adipose tissue undergoing enhanced lipolysis.

Diabetes was also very common in our obese (57%) as well as overweight (40.7%) patients as compared to normal weight patients (12%).There is a strong association between obesity and type 2 diabetes mellitus, in both genders and all ethnic groups.

Risk of developing diabetes increases to 28 folds in subjects with BMI of 30. [15]. This increased risk is most significantly attributed to insulin resistance and increased hepatic glucose production

GASTROINTESTINAL DISORDERS

Obesity is also associated with a number of hepatobiliary and gastrointestinal disorders Majority of our obese patients (68%) and overweight patients (63%) had symptoms of gastrointestinal reflux disease.

Nearly all epidemiologic studies have found an association between increasing body mass index (BMI) and symptoms of gastroesophageal reflux disease (GERD).

In a recent study in 453 patients, obese patients were 2.5 times as likely as patients with a BMI <25 kg/m^2 to have either reflux symptoms or oesophageal erosions [16].

Changes in gastroesophageal anatomy and physiology caused by obesity may explain the association. These include an increased prevalence of esophageal motor disorders, diminished lower esophageal sphincter (LES) pressure, the development of a hiatal hernia, and increased intragastric pressure [17].

Obesity is associated with cholelithiasis. More than half of our obese patients (53.6%) and more than one third of overweight patients (33.6%) had gall stones. In the Nurses' Health Study, Women with BMI >45 kg/m^2 had a seven-fold increase in risk for gallstones compared to women with BMI <24 kg/m^2 [18]. Similar data were found in men in the Health Professionals Study [19]. Notably however, there is also an increased risk for cholelithiasis in patients who lose weight rapidly. Gallstone formation after bariatric surgery has been reported to affect about 38% of patients [20].

Non Alcoholic fatty liver disease (NAFLD) is increasing in prevalence in developed countries, and is one of the most common causes of cryptogenic cirrhosis. It is strongly linked to the metabolic syndrome, of which obesity is a central component, and is in fact regarded as the hepatic manifestation of the metabolic syndrome [21, 22].

50% obese patients in our study had fatty liver on ultrasound examination as compared to only 8% in normal weight patients.

CARDIOVASCULAR AND CEREBROVASCULAR DISORDERS

Hypertension is strongly linked to obesity. 50% of obese and 37% over weight patients had hypertension in our study. These figures are lower than noted in a local study [9] but comparable to The Swedish Obesity Study which showed hypertension to be present at baseline in 44–51% of obese subjects. In addition to the link between obesity and mortality from cardiovascular disease, obesity is associated with increased risks of coronary artery disease, heart failure and atrial fibrillation. An increased risk of coronary artery disease (CAD) in the overweight was apparent in the Framingham Heart Study [24]. Our study showed that 50% of obese patients had ischemic heart disease and 43% of obese patients had heart failure.

Obesity is also linked to an increased risk of stroke in both men and women. In a study of 234 863 Korean men aged 40–64 years, an adjusted hazard of 11% for ischaemic stroke was found for each 1 point increase in BMI [25]. In the Physicians Health Study of 21414 US physicians, those with a BMI ≥ 30 kg/m^2 had a relative risk of 1.95 for an ischaemic stroke and 2.25 for a haemorrhagic stroke [26]. Obesity has been reported in 32% of stroke patients in a local study [27]. Strokes were also more common in our study (39.3% in obese vs 8% in normal weight patients).

RESPIRATORY DISORDERS

Snoring is a feature suggestive of sleep related disorder. Half of our obese patients were found to be snorers as compared to only 12% of normal weight patients. Snorers were found to be more often obese than non snorers in a local study [28]

Obesity is a major risk factor for obstructive sleep apnoea (OSA). Over 75% of patients with OSA are reported to be >120% of ideal body weight [29]. The prevalence of asthma is also increased in overweight subjects [30] and obese or overweight subjects account for 75% of emergency department visits for asthma [31].

Obesity probably contributes to OSA via multiple mechanisms. Increased fat deposits

in tissues surrounding the upper airway in obese patients may directly impinge on the airway lumen and may increase airway collapsibility. Potential mechanisms for this relationship include abdominal obesity-related changes in lung volumes, systemic inflammation and other adipocyte-derived factors that might alter airway smooth muscle function and promote airway narrowing [32].

LIMITATIONS:

This study is a single centre study and limited by sample size. It was done on a study population belonging to poor socioeconomic status visiting a public sector medical OPD.

CONCLUSION:

A broad range of diseases and health problems are associated with obesity. Clinicians should be aware of the diverse ways in which being overweight or obese may affect the health of their patients. Obesity itself should be considered and treated as a disease. Maintenance of a healthy weight could be important in the prevention of the large disease burden in the future.

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