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Original Research Article

DOES OBESITY INFLUENCE THE OUTCOME IN LAPROSCOPIC CHOLECYSTECTOMY DONE FOR GALL STONE DISEASE-INDIAN PERSPECTIVE

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Abstract

Background: Obesity is defined as an excessive fat accumulation that presents a risk to an individual's health. A body mass index (BMI)- weight of the individual in Kgs divided by square of his height in meters-over 25 is considered overweight, and over 30Kg/m2 is obese. **Materials and Methods:** A prospective study was done from June 21 to June23 in Command Hospital Lucknow. Stratified sampling strategy was followed for data collection. Data were collected in two stages. First, primary sampling units (PSUs) were selected from census enumeration blocks (CEBs) were selected from the urban area based on probability proportionate to size. At the second stage, an equal number of households were selected randomly from each PSU. From the selected households, all the eligible men and women were included for interview. **Result:** A total 287 patients were studied from Jun21 to Jun23 in Command Hospital Lucknow among them 43 males ,244 female patients were included in study which suggests that the study was female preponderance. Among 43 males, 28 were found to be obese and among 244 females, 38 were obese. Total of 66 patients were obese. The conversion rate from lap to open cholecystectomy was done in 3.2% of cases. Of this, Majority (40%)were obese and it was statistically significant ($p<0.05$). **Conclusion:** Lap Chole can be safely performed in obese with slightly increased complication rates. Lap Chole is gold standard for treatment of cholelithiasis.

INTRODUCTION

Obesity is defined as an excessive fat accumulation that presents a risk to an individual's health. A body mass index (BMI)- weight of the individual in Kgs divided by square of his height in meters-over 25 is considered overweight, and over 30Kg/m2 is obese.[1] In Asian population the cut-off for obesity is set lower at >= 27.5 Kg/m22. India, the largest South Asian country with a population of 1.4 billion has an estimated 355 million people with obesity.[3]
According to the National Family Health Survey-5(NFHS-5) of India the prevalence was higher among females (obesity: 16.31%; abdominal obesity: 60.84%) compared to their male counterparts (obesity: 11.56%; abdominal obesity: 54.78%).[4]
When the distribution of adipose tissue is abnormally high surrounding the internal viscera of the abdomen, it is referred to as abdominal or central obesity.[5] Both obesity and abdominal obesity are associated with increased risk of morbidities such as systematic inflammation, insulin resistance, and lipid abnormalities, leading to various non-communicable diseases, including cerebrovascular and cardiovascular (CVD) diseases and cancer.[6] Obesity is found in 40% of woman and 12% of men. Obesity poses considerable risk to post op complications. Obesity definitely makes surgery difficult. We have performed prospective study for 02 years. Lap chole is increasingly performed in cases of GSD. It is reported in 4-24% of the population.[7] Large number of obese patient require lap chole which also belong to higher age group. They present with higher risk and hence the hesitation.

MATERIALS AND METHODS

A prospective study was done from June 21 to June23 in Command Hospital Lucknow. Stratified sampling strategy was followed for data collection. Data were collected in two stages. First, primary sampling units (PSUs) were selected from census

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enumeration blocks (CEBs) were selected from the urban area based on probability proportionate to size. At the second stage, an equal number of households were selected randomly from each PSU. From the selected households, all the eligible men and women were included for interview. BMI of >25 were taken as obese. Patient were monitored for operation time, blood loss. CBD injury, Lung infection, UTI.

Four questionnaires were used for data collection (household, woman, man, and biomarker). Questionnaires were pretested and validated according to the local context. Participants' height and weight were measured using two Seca devices. Gulick tapes were used for measuring waist and hip circumferences.

Abdominal obesity was defined as a waist–hip ratio of >0.90 for males and >0.85 for females, as determined by the WHO1. An Asia-specific cut-off was used for BMI categorization: underweight (<18.5 kg/m2); normal weight (18.5 kg/m2–<23.0 kg/m2); overweight (23.0 kg/m2–<27.5 kg/m2); obesity (≥27.5 kg/m2) [2].

Statistical Analysis

For descriptive analyses of our study population, we calculated both unweighted and weighted percentages (mean and standard deviation) of the categorical variables. The sampling weight of NHFS-5 was used. Bivariate analysis was conducted to explore the proportion of obesity and abdominal obesity according to the subcategories of the explanatory variables. Multilevel logistic regression was performed to identify the factors associated with both obesity and abdominal obesity. We used SPSS version 24.0 for all statistical analysis.

RESULTS

As per [Table 1] A total 287 patients were studied from Jun21 to Jun23 in Command Hospital Lucknow among them 43 males ,244 female patients were included in study which suggests that the study was female preponderance. Among 43 males, 28 were found to be obese and among 244 females, 38 were obese. Total of 66 patients were obese.

As per [Table 2] the conversion rate from lap to open cholecystectomy was done in 3.2% of cases. Of this, Majority (40%)were obese and it was statistically significant (p<0.05).

As per [Table 3] SSI happened in 16 patients. Obese patient accounted for 07 cases which is 43% of total SSI.

As per [Table 4] Lung Infection was found in 08 cases and among them Obesity was found in 03 cases.

As per [Table 5] Severe blood loss was seen in 16 cases among them Obesity was there in 03 cases. Operation time varied from 40-140 minutes. Average op time was 58 minutes. In obese patients, it was 77minutes. CBD injury was there in 03 cases. Obesity accounted for 02 cases. UTI was detected in 06 cases. Obesity accounted for 04 cases. Average hospital stay was 2.8 days in non- obese pt and 3.9 days in obese pt.

Table 1: Gender wise distribution in terms of Obesity

Total	287	OBESE
Male	43	28
Female	244	38

Table 2: Conversion Rate of lap to open cholecystectomy

Overall average	9	3.2%
Obese Pt	4	9%

Table 3: Surgical Site Infections as per Obesity

Total SSI	16	5.5%
Obese pt	7	10.6%

Table 4: Lung Infection as per Obese patients

Total Lung Infection	08	2.7%
Obese pt	03	4.5%

Table 5: Comparison of Clinical parameters

	Hosp Avg	**%**	**Obese pt**	**%**
Severe Blood loss	-	-	3	4.5%
Op Time	58 min	-	77	-
CBD Injury	1	.3%	2	3.0%
UTI	2	.6%	4	6.06%
Hosp stay	2.8 days		3.9 days	

DISCUSSION

Obesity definitely adversely affected outcome in lap chole which is standard treatment in cholelithiasis. It increased average operating time from 58 minutes to 77 minutes. Since operating time has increased per op blood loss increased. Severe blood loss found in 03 cases, all obese. UTI was found in 06 cases.

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Majority were obese.[11] As expected Lung infection found in 03 cases of obesity. CBD injury happened in 03 cases, out of which 02 were obese. Obesity increased average hospital stay from 2.8 days to 3.9 days.

The prospective design and high rate of follow-up in this study minimized the possibility of recall bias or bias resulting from loss of follow-up. Furthermore, the large size of the study increased the precision of the RR estimates, and the extensive information on potential confounders allowed us to control for confounding in detail. One potential limitation is that the anthropometric measures of adiposity in the present study were by self-report. However, the validity of self-reported weight and waist and hip circumferences compared with technician measurements was high in this population of health professionals.8,9Because of the prospective design of this study, misclassification would be non-differential and expected to bias the risk estimate toward the null. A major concern in analyzing the relationship between obesity and subsequent mortality is the problem of reverse causation (ie, weight loss can be the result, rather than the cause, of underlying illness).[10] To address this concern, we excluded participants with existing gall stones and cancer at baseline.

In the Iowa Women's Health Study,[9] both WC and WHR were significantly associated with mortality, particularly coronary heart disease mortality. Likewise, in both a Danish cohort,[10] of middle-aged and older women, abdominal adiposity was strongly and positively associated with all-cause mortality after adjustment for BMI. The follow-up time was short, and only findings related to WC were reported in the Danish cohort. In a recent study of elderly women (75 years of age) in the United Kingdom,[11] WHR but not WC was positively related to mortality in nonsmoking women only, mainly because of cardiovascular mortality. By contrast, in a relatively small Dutch cohort of elderly women neither WHR nor WC was significantly associated with all-cause mortality.[12] Data on the association of abdominal adiposity and fat distribution with overall cancer mortality are sparse. In the Iowa study,[9] neither WC nor WHR was significantly associated with cancer mortality after adjustment for multiple risk factors.

The metabolic effects of abdominal adiposity are well established. Greater abdominal adiposity is closely associated with adverse metabolic profiles such as insulin resistance, dyslipidemia, and systematic inflammation, which play essential roles in the pathogenesis of gall stones, diabetes mellitus, and certain cancers.[12,13] Of note, the association of abdominal obesity with these adverse metabolic profiles persisted among normal-weight women. For instance, higher WC was significantly related to higher total cholesterol, low-density lipoprotein cholesterol and triglyceride levels, higher systolic and diastolic blood pressures, and higher fasting glucose levels among normal-weight women.

There have been continuous debates on whether WC or WHR is a better measure of abdominal adiposity in predicting health risks in epidemiological studies. WC as a measure of both subcutaneous and visceral fat can be measured easily. However, WC also is correlated with body frame size; thus, WHR often is used instead. In the present study, both measures were significantly associated with all-cause, GALL STONES, and cancer mortality. WHR did not seem to provide substantially better prediction than WC. Because WHR requires measures of both waist and hip circumference and is more difficult to interpret, WC is more applicable in clinical practice.

CONCLUSION

Lap Chole can be safely performed in obese with slightly increased complication rates. Lap Chole is gold standard for treatment of cholelithiasis. It should be offered to all cases of cholelithiasis. In addition to weight control, guideline designers should provide advice and intervention programs for people to decrease abdominal fat and avoid central obesity, in an effort to reduce mortality risk in later life.

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