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RESEARCH ARTICLE

PREVALENCE OF POSTOPERATIVE BARIATRIC SURGERY COMPLICATIONS SPECIALLY GALLSTONE

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Abstract

Background: The natural history of gallstone formation after bariatric surgery, the incidence of symptomatic gallstones, and timing of cholecystectomy are not well established.This research is being done to bring awareness to one particular postoperative consequence of bariatric surgery: gallstone development.

Methods: This study was retrospective cross-sectional study to achieve the objectives of the study. A cross-sectional study because of the capture information based on data gathered for a specific point in time. Obese population who were surgically managed aby one of the bariatric surgeries. The sampling type was a non-probability convenient sample. Sample size was determined according to 95% confidence level using Epi Info software.

Results: Researches filled the questionnaire from 843 participants. Among them, 15.5% had bariatric surgery (n= 131). Age at time of bariatric surgery was more than 25 years among most of participants. Male to female ratio was almost 1:1 among study participants who underwent bariatric surgery. The mean body mass index among study participants was 39.18 + 11.77 kg/m^2 while the median BMI was 40.74 kg/m^2. This indicates that most of study participants are morbidly obese. The most frequent type of bariatric surgery was gastrectomy operation (n= 101, 77.1%). There were a number of participants who reported having gallstone after the surgery (n= 24, 18.3%). The timing of gallstone formation varied among study participants

Conclusion: The incidence of gallstone formation following bariatric surgery was relatively less that other literature. All of study participants who underwent bariatric surgery reported having complications following the surgery.

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Introduction:-

By definition, "weight-loss surgery" encompasses a wide variety of operations that target the gastrointestinal tract. Bariatric surgery is a term used to describe this procedure (which simply means "therapy for obesity-related").

It's important to be aware of the risks and problems associated with any bariatric procedure you're considering. Some risks of gastric sleeve and gastric bypass surgery are listed below. The following are included in [2]:

1. Breakage
2. The "dumping" phenomenon
3. Having gallstones (the likelihood of which rises with quick or severe weight reduction)
4. Hernia
5. Leakage
6. Internal bleeding
7. Heavy bleeding from the surgical incision
8. Intestinal or stomach perforation

Small stones may form in the gallbladder, and these are called gallstones. They often cause no disruptions and may be ignored. In contrast, sudden, intense stomach pain that lasts anywhere from 1 to 5 hours is possible if a gallstone gets lodged in a duct inside the gallbladder. This form of nausea and vomiting is known medically as biliary colic.

It's worth noting that some people with gallstones may have complications including gallbladder inflammation (cholecystitis).

When gallstones begin to produce pain or other symptoms, it is called cholelithiasis [3].

As much as 45% of the obese population may have cholelithiasis [4-6], compared to only 5% of the overall population. More than a 25% drop in body weight following bariatric surgery is the only predictor of gallstone formation [7, 8].

The risk of gallstone formation varies with bariatric procedures. The prevalence of asymptomatic gallstones in patients having gastric banding was 26.5% [9], whereas the prevalence of symptomatic gallstones in patients undergoing gastric Roux-en-Y by pass (RYGB) ranged from 7% to 16% [10, 11]. However, only 3.9%-17.6% of patients needed cholecystectomy following RYGB [13], and this was true regardless of whether stones were present before bariatric surgery or not.

A laparoscopic cholecystectomy (LC) on a bariatric patient may provide technical challenges due to poor port placement and abnormal body habitus. It might also increase the risk of problems during surgery and need more time spent in the hospital afterward. Between 2% and 3% of patients are found to have major issues [14].

The prevalence of obesity increased from 28.8 to 36.9% in males and from 29.9 to 38.0% in women between 1998 and 2013. This makes obesity one of the most significant global health burdens. There is a growing need for improved obesity therapies due to the many problems and diseases that are linked to obesity. In many cases, patients who have tried and failed to lose weight with diet and exercise turn to bariatric surgery. By reducing the stomach's capacity, bariatric surgery helps people lose weight. This research is being done to bring awareness to one particular postoperative consequence of bariatric surgery: gallstone development.

Methods:-

Study design

This study was retrospective cross-sectional study to achieve the objectives of the study. A cross-sectional study because of the capture information based on data gathered for a specific point in time. The data gathered in the form a pool of participant of varied characteristics & demographics known as variable. The advantages of cross sectional study includes proof and disproof assumptions, not costly to perform and doesn't require a lot of time, captures a specific point in time, contains multiple variable at the time of the data snapshot, the data can be used for various types of research and may findings and outcome can be analyzed to create new theories or in-depth research.

Study Setting
This study was conducted at the (place). The study was conducted during the period from 1 November to 31 December 2022.

Study population, sampling and sample size
Obese population who were surgically managed aby one of the bariatric surgeries. The sampling type was a non-probability convenient sample. Sample size was determined according to 95% confidence level using Epi Info software.

Eligibility criteria
Inclusion criteria
1) Obese patients
2) Had bariatric surgery

Exclusion criteria
1) Obese people with no bariatric surgery

Instrument of the study
Study instrument was designed based on the data present in the latest literature. Study tool consisted of sociodemographic variables, surgery data and postoperative complications.

Data collection
In this study, data was collected directly from the participants by study tool based on study objective, previous related studies. Data collection was done during November and December 2022.

Statistical analysis
Data obtained from questionnaire was entered and analyzed using SPSS program version 23 computer software. Sociodemographic data are presented using descriptive statistics as means, median, percentages and standard deviation. Independent T test and one-way Anova are used to show statistical significance among participants characteristics. Chi square test is used to show relationship between categorical variables.

Ethical and Administrative Consideration
Approval of (institution)was gained to allow collect data from participants. Verbal informed consent was gained from participants after explanation of study objectives to study participants.

Results:-
Researches filled the questionnaire from 843 participants. Among them, 15.5% had bariatric surgery (n= 131). Age at time of bariatric surgery was more than 25 years among most of participants as figure 1 shows.

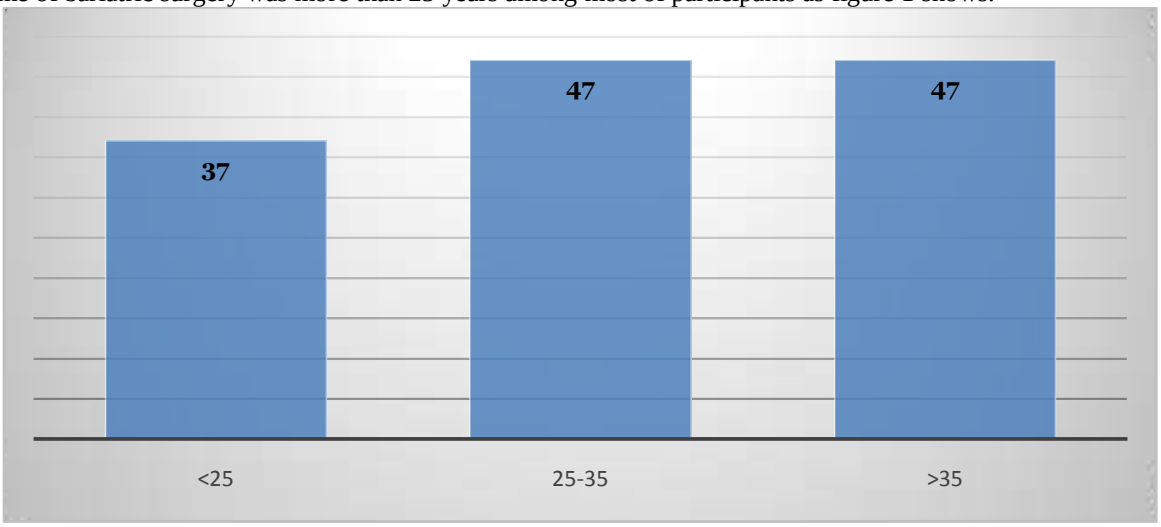

Figure 1:- Age groups distribution among study participants.

Male to female ratio was almost 1:1 among study participants who underwent bariatric surgery. There were 66 female (50.4%) and 65 male (49.6%). Most of study participants were Saudi (n= 124, 94.7%). The mean height among study participants was 1.66 + 0.09 meters while the mean weight was 113.98 + 27.26 kg with median weight of 113 kg. The mean body mass index among study participants was 39.18 + 11.77 kg/m^2 while the median BMI was 40.74 kg/m^2. This indicates that most of study participants are morbidly obese.

The most frequent type of bariatric surgery was gastrectomy operation (n= 101, 77.1%). However, there were 4 participants who didn't know thy type of surgery they had. Figure 2 shows the type of surgery among study participants.

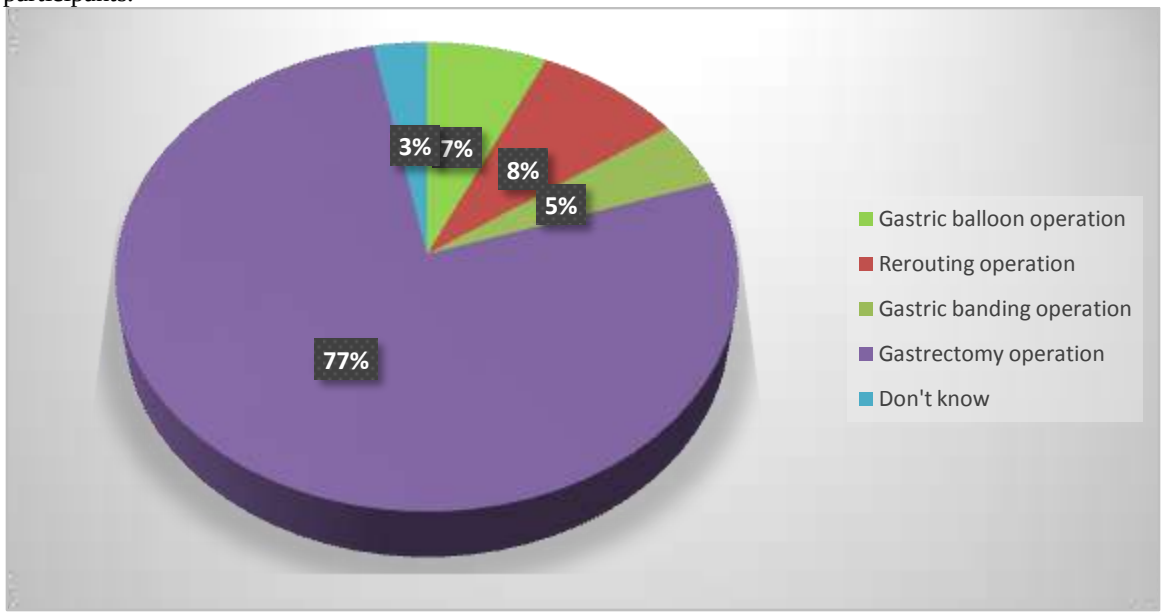

Figure 2:- Type of surgery among study participants.

Most of participants reported a number of complications after the bariatric surgery (n= 91, 69.5%). The reported complications were acid reflux. Other reported complications were chronic nausea and vomiting, malnutrition and others. There were a number of participants who reported having gallstone after the surgery (n= 24, 18.3%). The timing of gallstone formation varied among study participants as presented in figure 3.

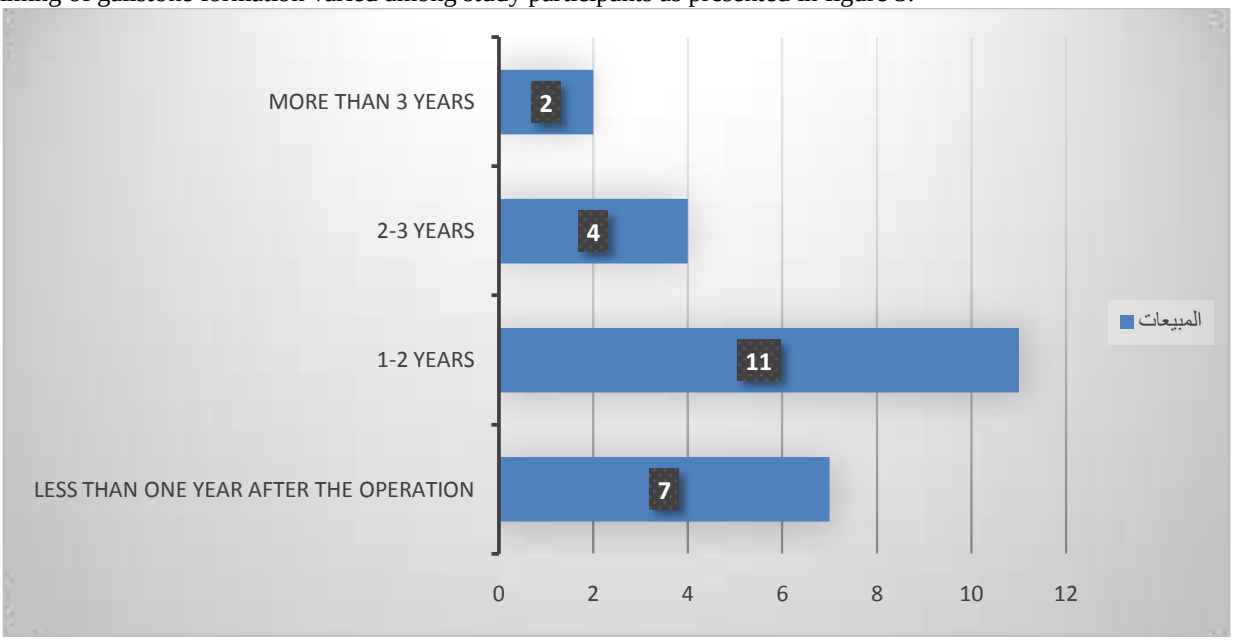

Figure 3:- Time of gallstone formation following the surgery.

The method of treatment for gall stone formation varied among study participants. However, the main treatment was surgical laparoscopic excision of the gallbladder (n= 16) (Figure 4). There were 2 diabetic and 4 hypertensive patients among study participants.

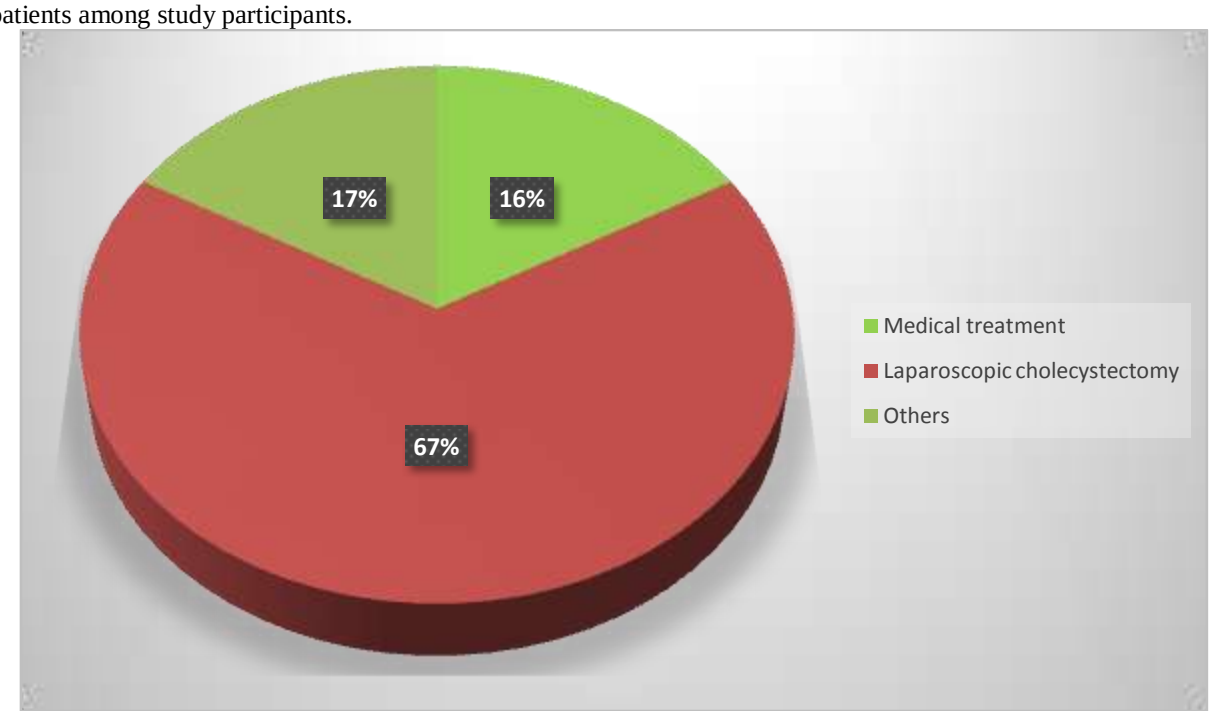

Figure 4:- Treatment approach for gallstone formation.

Discussion:-

Preoperative evidence of gallstones, the prevalence of cholelithiasis with accompanying comorbidities, and gallstone production following bariatric surgery are all areas where further information is needed. Patients undergoing bariatric surgery were expected to have a history of cholecystectomy at rates between 11 and 23 percent [13-16] based on the available literature. Li et al. [17] found a figure of 32.79 % for bariatric surgery.

Only seven patients in our study had difficult gallstones in the first year after surgery; the other instances all occurred in the second year. Inferring what took place throughout the time of fast weight reduction. No one had a cholecystectomy before 9 months or after 23 months after laparoscopic cholecystectomy [18]. Evidence of the gallstone effect after bariatric surgery. Since gallstones often arise in the first 6-12 months and rarely beyond 2 years [18], it seems that this impact is comparable to the effect of Roux-en-Y by pass (RYGB).

Even though 23 patients had preoperative signs of gallstones, putting them at risk for complex gallstones, only three of them developed symptoms and needed cholecystectomy [18]. As a result, their risk was 13.04%. Patients who did not have gallstones before to surgery, on the other hand, had a 4.7% risk. In particular, four patients were diagnosed with acute cholecystitis, one with biliary colic, two with choledocholithiasis [18], and one with pancreatitis. Compared to other series, ours holds up rather well. In particular, out of a total of 164 individuals (1, 8%) [19], Tucker et al. observed that 2 patients had symptomatic cholelithiasis and 1 patient had symptomatic choledocholithiasis. Gallstone symptoms were present in just 1.8% of patients before surgery, whereas 3.8% of patients acquired symptoms after surgery, as described by Arias et al. [20]. However, 3.8% of patients who had LSG developed symptomatic gallstones needing medical care and surgical intervention, as shown by research by Li et al. [17]. Choledocholithiasis was reported in 0.7% by Lalor et al. [21]. Only one instance of acute cholecystitis and two cases of cholelithiasis (3.8% of total cases) were reported by Uglioni et al. [22].

In modern gastric banding and RYGB, the conservative regimen of reserving cholecystectomy for symptomatic disease serves as a safe method of therapy [7, 23]. However, the management of asymptomatic gallstones (silent gallstones) remains controversial. Studies on the natural history of asymptomatic gallstones show that the majority

of people who get them will show no symptoms at all [24, 25]. Concomitant cholecystectomy should be considered only in symptomatic gallstones, according to current trend analysis in RYGB patients [26].

Current cholecystectomy and bariatric surgery assertion is not supported by evidence. There are three potential outcomes. The first is to recommend laparoscopic cholecystectomy for all patients, regardless of their symptoms, if gallstones are found during preoperative testing (the Hamad method) [27]. This preventative measure is based on the assumption that LSG patients have a distinct natural history of gallbladder disease than the general population. The second is the Fobi technique, in which cholecystectomy and LSG are performed at the same time without any preoperative testing [8]. Third is the noninterventionist strategy of only treating patients after they show symptoms (symptomatic care). Yet, no prior workup or even postoperative care standards have been created. Each patient in [18] clinic had a transabdominal ultrasound before surgery. In addition, the authors' perspective favored elective cholecystectomy for symptomatic patients who had prior signs of gallbladder illness. The prescription for early cholecystectomy is warranted, however, since eight of 138 patients (5.6%) became symptomatic and rapidly developed complications. Even among those without gallstones before to surgery, a disproportionately high number of bariatric patients had problems. Therefore, routine concomitant cholecystectomy may be considered due to the high incidence of complications, the short time it takes for complications to develop (especially life-threatening ones like choledocholithiasis, cholangitis, and pancreatitis), and the real technical difficulties encountered during subsequent cholecystectomy.

All but one instance was treated by surgical intervention. Because of where the trocars are placed and the patient's body type, doing a cholecystectomy following laparoscopic splenectomy (LSG) is not without its technical challenges. As a result, cholecystectomy was more difficult to conduct than anticipated due to the placement of the trocars. To provide better access, a second trocar was placed. However, cholecystectomy following laparoscopic sleeve gastrectomy (LSG) had the benefit that the patient's altered body habitus and the weight loss made for a more manageable procedure.

Ursodeoxycholic acid has been presented as a means of preventing gallstones from forming. In particular, Sugerman et al. [28] found that taking 600 mg of ursodiol orally daily for 6 months after gastric bypass, or even until gallstone development, was related with a lower risk of developing gallstones. These findings are consistent with those of another trial including vertical banded gastroplasty and gastric banding [29], which found that the rate of cholecystectomy was lower in the group receiving ursodiol than in the placebo group (4.7 vs 12%). Based on their meta-analysis, Mc et al. [30] found that protective ursodiol treatment significantly decreased the gallstone formation rate. However, a recent cost-effective analysis reported that while ursodeoxycholic acid reduced the costs of concurrent cholecystectomy and shortened the length of hospital stay, the authors concluded that the prescription of ursodiol is unaffordable as an additional cost and proposed the nonuse of ursodiol after bariatric surgery [31].

Conclusion:-

The incidence of gallstone formation following bariatric surgery was relatively less that other literature. All of study participants who underwent bariatric surgery reported having complications following the surgery. Due to the genuine technical challenges with future cholecystectomy and the large percentage of patients who suffer problems, particularly those with potentially major morbidities, routine concurrent cholecystectomy might be explored.

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