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IMPACT OF RAPID WEIGHT LOSS AFTER BARIATRIC SURGERY ON LOW BACK PAIN

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Abstract:

Background: Obesity raises the incidence of low back pain in overweight persons, whereas losing weight should alleviate their symptoms. However, the effects of obesity on the lumbar spine are more controversial & Despite the fact that obese people with persistent low back pain are routinely urged to reduce weight, the link between the two medical conditions is yet unknown.

Aim: The goal of this study is to see the effect of rapid weight reduction on the development of LBP.

Patients and Methods: a prospective study of 69 obese patients with persistent axial low back pain who were scheduled for bariatric surgery was recruited in this research during a 12-month follow up. Preoperative data was obtained; Age, height, medical comorbidities, weight, and BMI were among the demographic data collected. The Visual Analog Scale (VAS) for axial low back pain was used as an outcome measure. Follow up was done at 1, 3 and 6 months, and at 1 year following the surgery; the patients' postoperative demographic data were obtained.

Results:69 patients were included in this study 23(33%) males and 46(67%) females ,all underwent bariatric surgery, the patients weights rages from 112kg to 164 kg preoperative, reduced to 89 to 132 kg, their ages range between 28 to 57 years old, their BMI (body mass index) was between 39to 54 which reduced to a range between 29 to 40, the visual analog score of the patients regarding the backache was 4 to 7 preoperative which is become 2 to 7 postoperative in a fact that 22 (31.9%) of the patients started to complain from a real backache postoperatively.36 patients (52%) get improvement in their LBP postop. , and 11 patients (15%) had no significant changes in their LBP.

Conclusion: This study shows that significant weight loss following bariatric surgery can lead to significant relief of pre-existing back discomfort in nearly most of the patients & on the contrary about one third of the patients may even get worse.

Keywords: Bariatric surgery, low back ache, rapid weight loss

INTRODUCTION

Obesity is a significant risk factor for morbid medical disorders [1]. Back pain is the most common complaint among this group of patients [2].However, the effects of obesity on the lumbar spine are more controversial [3, 4]. Some studies have reported an association between obesity and lumbar spondylosis [5, 6, 7], whereas others have shown no association [8, 9].

Obesity-related chronic axial low back pain affects more than 70% of individuals on an episodic basis and 2% to 7% on a long-term basis [10, 11]. The etiology of lumbago is complex, and studies into its risk factors have so far failed to discover any characteristics that have a substantial correlation. The hypothesis that

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obesity predisposes a patient to lumbar spondylosis and back pain may appear obvious because obese people are at risk for osteoarthritis in weight bearing joints such as the knee, hip, and foot [12].Clinicians' casual advice to obese patients with persistent back pain to reduce weight in order to alleviate their symptoms may be appropriate. [13].However, there is no scientific evidence to support the claims that obesity causes the start of back pain, whether acute or chronic, and that losing weight reduces the intensity or frequency of these complaints. Manchikanti et al. discovered that the frequency of clinically visible facet joint disease producing pain was identical in obese and nonobese subjects in one research [3].

According to the American Obesity Association (AOA), LBP affects roughly one-third of obese people in the United States& Obesity has already been shown as a significant contributor to LBP [14, 15, 16]. As a result, it is necessary to comprehend the influence of weight loss on LBP.

Over the last few decades, the emergence of bariatric surgical techniques has played a significant role in weight loss [17].In addition to weight loss, bariatric surgery reduces back pain in a substantial and verifiable way [18].Bariatric surgery in very obese individuals reduces the intensity of LBP and also reduces disability owing to secondary back disorders, according to a previously published meta-analysis [19]. However, there is a scarcity of data on the relationship between weight loss after bariatric surgery and changes in pain scores.

The purpose of this study is to see the effects & links between changes in BMI and clinical symptoms of axial low back pain. Patients who have bariatric surgery often lose between 30 and 60 kg in the first year after surgery, making them a good longitudinal cohort for studying the impact of weight loss on low back pain.

PATIENTS AND METHODS

Following Institutional Board Review permission, 69 patients with persistent axial low back pain who were scheduled for bariatric surgery were recruited in the research during a 12-month period. Obese patients who had a sleeve gastrectomy (obesity defined as a BMI of less than 30 kg/m2), pain in the lumbar spine region, as determined by a diagnostic modality, and the presence of radiculopathy with dermatomal pain distribution and/or leg weakness met the inclusion criteria.

About one month before to their bariatric surgery, preoperative data was obtained. Age, height, medical comorbidities, weight, and BMI were among the demographic data collected. The Visual Analog Scale (VAS) for axial low back pain was used as an outcome measure.

Follow up was done through visit to their bariatric surgeon and orthopedic surgeon at 1, 3 and 6 months, and at 1 year following the surgery; the patients' postoperative demographic data were obtained. In addition, towards the conclusion of the 12-month period, an impartial observer assisted in collecting responses to the outcome measures by contacting the patients.

The study period extending from the year 2018 till 2020.

STATISTICAL ANALYSIS

Data entry and analysis were performed using the Statistical Package for the Social Sciences Version 22.0 (SPSS).

A total of 69 patients were included in the study, with 69 of them completing the VAS score application satisfactorily.

RESULTS

69 patients were included in this study 23(33%) males and 46(67%) females (chart 1) all underwent bariatric surgery, all followed up for 6 months post-surgery were most of the patients weights rages from 112kg to 164 kg preoperative. Reduced to 89 to 132 kg, their ages range between 28 to 57 years old, their BMI (body mass index) was between 39to 54 which reduced to a range between 29 to 40, the visual analog score of the patients regarding the backache was 4 to 7 preoperative which is become 2 to 7 postoperative in a fact that 22 (31.9%) of the patients started to complain from a real backache postoperatively.36 patients (52%) get improvement in their LBP postop. ,and 11 patients (15%) had no significant changes in their LBP.

DISCUSSION

Back pain isn't usually linked to a major or life-threatening illness, but it may cause a lot of agony and impairment, as well as leave people out of work. Several risk factors have been identified, including smoking, poor posture, intense physical labor and other psychological and occupational issues. However, the precise involvement of obesity in the LBP syndrome is unknown [20]. It is said that Obesity is a contributor factor to LBP in one study [21].

According to the World Health Organization's adult BMI database, women are more fat than males on average, but men are more likely to be pre-obesity [22, 23]. Similarly, women were overrepresented in this research compared to men.

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Bariatric surgery is one of the few interventions that can consistently result in considerable weight loss in obese people [24]. For example, in one study, the BMI dropped from 53.4 kg/m2 (preoperatively) to 31.2 kg/m2 (postoperatively) and remained stable for up to 5 years [25]. Similarly, there was a statistically significant reduction in BMI from 46.5 kg/m2 to 34.5 kg/m2 and weight from 138 kg to 110 kg in this research.

Weight loss surgery results in weight loss that not only improves overall health but also lowers physical discomfort. From the preoperative to the postoperative context, low back pain–specific visual analog scale ratings were statistically substantially reduced by 44% in only 36(52%) and this agree with many studies of this topic [26, 27].Some writers have hypothesized a variety of etiological explanations for better back pain following bariatric surgery, including mechanical or musculoskeletal changes, as well as biochemical changes [28, 29, 30]. Obesity can decrease spinal range of motion through postural adaptation and increase mechanical strain on the spine by creating a larger compressive force or increased shear stress in the lumbar spine [31]. The mechanical stress on the intervertebral disc or facet joint is reduced as a result of the lower BMI after bariatric surgery, which may lead to a reduction in back discomfort. Furthermore, in obese individuals, low-grade systemic inflammation caused by increased cytokine and acute-phase reactant production acts as a mediator for intervertebral disc degradation, which might explain the influence of obesity on back pain [28 , 29 ,30].

On the contrary worsening of preexisting low back pain or newly developed low back and/or leg pain were occur after bariatric surgery in 22 patients(31%) in our study. In one manuscript the authors discovered that 30 patients with a BMI of more than 30 had worsening or new development of low back pain following bariatric surgery [32].according to that study, Intra-abdominal pressure(IAP), a mix of visceral fat, abdominal fat, and waist circumference, has been proposed as a contributing factor for spinal stability [33] and increase in IAP is thought to unload the spine by creating upward stress on the rib cage via the diaphragm & downward pull on the pelvic floor, resulting in an extensor moment on the lumbar spine, which reduces erector spinae activity [34 ,35].Furthermore, the decrease in IAP after bariatric surgery induces spinal instability, a forward bending of the lumbar spine [36], and a degree of kyphosis, all of which lead to uneven weight bearing on the disks and eventually herniation, low back pain, and radiculopathy. Other possible causes of this increasing LPB following bariatric surgery are; while weight loss post-surgery helps take the load off the back muscles, they continue to remain quite tensed and another contributing factor could be increased levels of physical activity to which your back muscles take some time to adjust back.

CONCLUSION & RECOMMENDATION

This study shows that significant weight loss following bariatric surgery can lead to significant relief of pre-existing back discomfort in nearly most of the patients & on the contrary about third of the patients may even get worse& to establish this intervention impact, bigger randomized studies with longer follow-up would be required taking into account the prospective case-control characteristics of the study, as well as a bigger cohort population.

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