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The role of gut hormonal aspect in Iraqi patients subjected to sleeve Gastrectomy

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Abstract

There are a variety of obesity surgeries and procedures in which obese individuals undergo. Primarily, they alter satiety and hunger hormone levels in the gut. Moreover, standard method of such procedures can result in long-term weight loss. Ghrelin (Ghr) is a gut hormone that regulates food intake. Laparoscopic Sleeve gastrectomy (LSG) is one method for treating morbid obesity (MO), which could modulate its secretion. The aim of the present study was to demonstrate the effect of sleeve gastrectomy on gut hormones. This study was conducted at Al-Basrah metabolic and Bariatric Surgery Center, Iraq, from December 2021 to March 2022, on 24 patients with morbid obesity treated by sleeve gastrectomy. The included patients were categorized into two main groups according to the periods of their operation. Glucagon –like peptide-1 GLP-1, Ghrelin, Leptin hormones and body mass index (BMI) were significantly decreased after surgery. There was a statistically significant correlation, found between patient's BMI and Leptin level after three months of the surgery, while a statistically significant correlation was found between patient's BMI and GLP-1 level before the surgery when BMI increase by one unit (Kg/m^2), the GLP-1 would be increased by half unit 0.45 (50%). The present study has reported that the three hormones GLP-1, Ghrelin and Leptin were decreased after three months of the surgery.

Keywords: Ghrelin, GLP-1, Leptin, Obesity, Sleeve Gastrectomy.

Introduction

Obesity is a complex morbid condition that is resulted from an imbalance between energy intake and energy consume [1]. It is considered a significant risk factor for several chronic and major health conditions, including cardiovascular disease, diabetes mellitus, musculoskeletal disorders, and cancer [2] .Bariatric surgery remains the most effective treatment for obesity and its complications [3]. Among the most common, are Roux en-Y bypass, sleeve gastrectomy (SG) and other types of procedures that aim to promote sustained weight loss like laparoscopic adjustable gastric banding, that result in a new hormonal weight set point can be achieved by primarily modifying the levels of gut hormones that are accountable for hunger and satiety [4]. However, the metabolic and physiological alteration after SG is not fully understood [5]. Recently, the scope of addressing obesity and its related medical issues has broadened to include bariatric endoscopy, serving as a link between guidance on diet and lifestyle modifications, medical therapies along with the proven efficacy of bariatric surgery [6]. The (SG) has gained popularity as both a first-stage procedure for high-risk patients and a standalone option to address morbid obesity. During