LETTER TO THE EDITOR

The potential effects of metabolic surgery on gut microbiota: novel insights

Efectos potenciales de la cirugía metabólica sobre la microbiota intestinal: nuevas perspectivas

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To the editor:

Obesity has become one of the most common health concerns in the developed world, with several comorbidities including Type 2 diabetes, hypertension, dyslipidemia, vascular disease, non-alcoholic fatty liver disease, obstructive sleep apnea, and a variety of cancers. Weight loss through lifestyle treatments such as diet and exercise is the most common treatment for obesity. However, these techniques frequently fail to result in sufficient weight loss, and weight rebound is widespread, indicating a lack of a long-term solution.

Metabolic surgery (MS) is the only treatment that has been shown to produce long-term weight control in obese adults, as well as a significant improvement or even complete resolution of obesity-related comorbidities and a reduction in long-term mortality[1]. Furthermore, gut microbiota composition varies as a result of MS, and these changes are important for weight loss and maintenance after surgery[2]. The enhanced richness and evenness of intestinal microbiota following laparoscopic Roux-en-Y gastric bypass and sleeve gastrectomy have been documented in the literature[3]. Verrucomicrobia *(Akkermansia muciniphila)*, Proteobacteria (*Hemophilus*, *Rothia*, *Aggregatibacter*, *Citrobacter*, and *Klebsiella)*, and Gammaproteobacteria are all linked to these procedures. Both of these methods result in a reduction in the relative abundance of possible pathogens including *Escherichia coli*[4].

Through complex neurological, hormonal, and immunological routes, the gut microbiota composition following MS can influence the gut-brain axis and modify the inflammatory response and metabolism. Finally, dysbiosis of the gut mycobiota has lately been linked to the pathophysiology of inflammatory and metabolic illnesses[5].

Control of appetite, higher energy expenditure, malabsorption of macronutrients, food aversion, and changes in the gut microbiota are only a few of the processes by which MS works. Its effects on the gut microbiota seems to have a major impact on weight loss and the decrease of obesity-related pro-inflammatory conditions, leading to a considerable improvement in liver injury. Modulation of the gut

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microbiota is one of the most promising areas of study in the future.

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