



Effects of Intra-gastric Balloons in Metabolic associated Fatty Liver Disease-A Mini-Review



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Abstract

Non-alcoholic fatty liver disease (NAFLD), also known as metabolic-associated fatty liver disease (MAFLD), is defined by hepatic steatosis without any evidence of cellular injury. Several therapeutic strategies have been proposed for MAFLD treatment; however, no appropriate treatment exists for this condition. Weight loss has been considered an effective strategy to improve MAFLD. Recent studies have demonstrated that the placement of an intra-gastric balloons (IGBs) placement improves weight loss and liver steatosis in MAFLD. In this review, we will evaluate the impact of IGB placement in patients with MAFLD.

Keywords: Metabolic associated fatty liver disease; Intra-gastric balloons; Liver steatosis; Weight loss

Abbreviations: EMT: Endoscopic Metabolic Therapy; IGBs: Intra-gastric Balloons; MAFLD: Metabolic-Associated Fatty Liver Disease; NAFLD: Non-Alcoholic Fatty Liver Disease

Introduction

Non-alcoholic fatty liver disease (NAFLD) is the most common liver disease globally [1]. NAFLD is considered the most common cause of cryptogenic cirrhosis, making it the most common cause of liver transplantation and thus a public health burden [1]. The worldwide prevalence is estimated to be 6-35% and is increasing due to the global epidemic of obesity [2]. NAFLD has been assigned a new name called metabolic-associated fatty liver disease (MAFLD). The criteria to diagnose MAFLD are based on hepatic steatosis and three other measures, including the presence of diabetes mellitus type 2, obesity, and evidence of body metabolic dysregulation [3].

Weight reduction of 10% is considered the recommended strategy to prevent the progression of MAFLD [4]. Several studies have demonstrated the beneficial effects of bariatric surgery in MAFLD patients; however, these procedures are associated with many short-term and long-term complications [5]. In recent years endoscopic metabolic therapies (EMT) such as intra-gastric balloons (IGBs) placement have shown safety and effectiveness for weight loss [6]. Some observational studies have revealed beneficial effects of IGBs on liver steatosis among MAFLD patients as assessed by some noninvasive parameters [7]. Bazerbachi et al. [8] have evaluated in a randomized controlled trial that the IGBs

placement has improved the 2 of 5 histological features in MAFLD. The present review discusses the role of intra-gastric balloons on the evolution and progression of

MAFLD.

Discussion

Mechanism of intra-gastric balloons

The IGBs use has shown promising weight loss results in morbidly obese individuals [9]. The IGBs are space-occupying devices inserted in the stomach endoscopically or can also be ingested. They provide a sense of early satiety during its use resulting in less food ingestion and delayed gastric emptying [9]. Moreover, continuous use of IGBs for six months induces a behavioral routine whereby consumed lower food amounts even after the balloon removal. Thus, these IGBs are associated with an improved eating pattern in MAFLD and obese individuals [10].

Fluid-filled IGBs have shown better effectiveness in weight loss compared to gas-filled balloons [8]. However, they are associated with a higher rate of patient intolerance in more than half of the cases due to their side effects profile such as nausea, vomiting, and reflux symptoms [11].

Intragastric balloons and behavioral modification

Fuller et al. demonstrated that the use of intragastric balloons for six months followed by 12 months of behavioral modification was associated with profound weight loss. They also studied that this combination is also associated with reversal of metabolic syndrome in obese patients compared to the behavioral modification alone [12].

Conclusion

a) IGBs use is associated with significant weight loss and histological changes in the liver among MAFLD patients. Rigorous research with well-designed randomized controls is needed to identify the specific effects of different IGBs in MALFD.

References

1. Wong RJ, Aguilar M, Cheung R, Ryan B Perumpail, Stephen A Harrison, et al. (2015) Nonalcoholic steatohepatitis is the second leading etiology of liver disease among adults awaiting liver transplantation in the United States. *Gastroenterology* 148(3): 547-555.
2. Younossi Z, Tacke F, Arrese M, Barjesh Chander Sharma, Ibrahim Mostafa, et al. (2019) Global perspectives on nonalcoholic fatty liver disease and nonalcoholic steatohepatitis. *Hepatology* 69(6): 2672-2682.
3. Eslam M, Sanyal AJ, George J (2020) International Consensus Panel. MAFLD: A Consensus-Driven Proposed Nomenclature for Metabolic Associated Fatty Liver Disease. *Gastroenterology* 158(7): 1999-2014. e1
4. Vilar-Gomez E, Martinez-Perez Y, Calzadilla-Bertot L, Ana Torres-Gonzalez, Bienvenido Gra-Oramas, et al. (2015) Weight loss through lifestyle modification significantly reduces features of nonalcoholic steatohepatitis. *Gastroenterology* 149(2): 367-378.
5. Younus H, Sharma A, Miquel R, Alberto Quaglia, Subba Rao Kanchustambam, et al. (2019) Bariatric surgery in cirrhotic patients: is it safe? *Obes Surg* 30(4): 1241-1248.
6. Neto MG, Silva LB, Grecco E, Luiz Gustavo de Quadros, André Teixeira et al. (2018) Brazilian intragastric balloon consensus statement (BIBC): practical guidelines based on experience of over 40,000 cases. *Surg Obes Relat Dis* 14(2): 151-159.
7. Salomone F, Sharaiha RZ, Boškoski I (2020) Endoscopic bariatric and metabolic therapies for non-alcoholic fatty liver disease: evidence and perspectives. *Liver Int* 40(6): 1262-1268.
8. Bazerbachi F, Vargas EJ, Rizk M, Daniel B Maselli, Taofic Mounajjed, et al. (2021) Intragastric balloon placement induces significant metabolic and histologic improvement in patients with nonalcoholic steatohepatitis. *Clin Gastroenterol Hepatol* 19(1): 146-154.
9. Lee YM, Low HC, Lim LG, Yock Young Dan, Myat Oo Aung, et al. (2012) Intragastric balloon significantly improves nonalcoholic fatty liver disease activity score in obese patients with nonalcoholic steatohepatitis: A pilot study. *Gastrointest Endosc* 76(4): 756-760.
10. Genco A, Maselli R, Frangella F, Massimiliano Cipriano, Emanuela Paone, et al. (2013) Effect of consecutive intragastric balloon (BIB®) plus diet versus single BIB® plus diet on eating disorders not otherwise specified (EDNOS) in obese patients. *Obes Surg* 23(12): 2075-2079.
11. Trang J, Lee SS, Miller A, Christian X Cruz Pico, Angelina Postoev, et al. (2018) Incidence of nausea and vomiting after intragastric balloon placement in bariatric patients - a systematic review and meta-analysis. *Int J Surg* 57: 22-29.
12. Fuller NR, Pearson S, Lau NS, John Wlodarczyk, Michael B Halstead, et al. (2013) An intragastric balloon in the treatment of obese individuals with metabolic syndrome: A randomized controlled study. *Obesity (Silver Spring)* 21(8): 1561-1570.



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