

Bariatric-Metabolic Surgery for Non-Alcoholic Fatty Liver Disease

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Non-alcoholic fatty liver disease (NAFLD) and obesity are closely linked. Up to 90% of obese patients suffer from NAFLD which may progress to steatohepatitis (NASH), cirrhosis and hepatocellular carcinoma [1,2]. NAFLD has become the leading cause of chronic liver disease and is estimated to become the most common indication for liver transplantation in the near future [3,4]. An effective treatment of NAFLD in most cases is dependent on significant weight loss, which may be achieved by life style modification, pharmaceutical therapy or bariatric-metabolic surgery [5]. Bariatric-metabolic surgery may achieve sustained significant weight loss, leading to a decline of the metabolic syndrome and improvement or reversibility of NAFLD in up to 84% of patients [6,7].

In respect of liver disease weight loss of more than 10% is required to achieve therapeutic success, which may be reached in almost all patients who undergo bariatric-metabolic surgery [8]. Depending on the procedure a long-term percentage excess weight loss between 47 and 64% is expected [9]. The combined restrictive and malabsorptive procedure Roux-en-Y gastric bypass (RYGB) has shown a significant superiority regarding hepatic improvements in comparison to the purely restrictive gastric band after 5 years of surgery [10,11]. Even in advanced fibrosis an improvement or reversal was possible in 55% of all patients undergoing RYGB [12]. In contrast, after extensive malabsorption as in biliopancreatic diversion (BPD) or jejunioileal bypass (JIB) a progression of liver fibrosis was reported in few patients [13,14]. A fulminant liver failure after bariatric surgery is very rare and was mainly described after BPD and JIB [15]. However, we recently reported that severe liver dysfunction may also occur after the nowadays commonly performed RYGB and One-anastomosis gastric bypass (OAGB) including ascites, impairment of coagulation parameters and progression of liver fibrosis to advanced stages including cirrhosis [16]. The reason for this liver deterioration in single patients remains currently unknown. Up to 5% of the bariatric patients suffer from asymptomatic cirrhosis, only diagnosed during their operation [17]. In patients with preexisting liver cirrhosis an increased perioperative liver-related morbidity exists and early mortality, especially in decompensated liver cirrhosis, has been reported to be as high as 1.6% [18]. Jan., *et al.* showed that restrictive procedures did not lead to an increased liver-related mortality and that complication rates were reduced in comparison to malabsorptive methods in patients with cirrhosis [18].

The present data suggest, that the preoperative diagnostic work-up and the individual selection of the applied bariatric-metabolic procedure is vital for patients with obesity and preexisting liver disease. Equally important is the follow-up after bariatric-metabolic surgery with an increased attention towards a possible postoperative deterioration of liver function.

Bariatric- metabolic surgery is an excellent therapeutic approach in order to achieve sustained weight loss and improve or reverse of NAFLD in most patients. A postoperative deterioration of NAFLD seems to be rare, but may occur mainly after highly malabsorptive procedures. In preexisting cirrhosis a restrictive procedure should be preferred.

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