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How can bariatric surgery cure diabetes?

Bariatric surgery is emerging as a powerful weapon against severe obesity and type-2 diabetes mellitus. Diabetes mellitus is a chronic disorder that can alter carbohydrate, protein and fat metabolism. It is caused by absence of insulin secretion due to either the progressive or marked inability of the β -Langerhans cells of pancreas to produce insulin, or due to defects in insulin uptake in the peripheral tissue. Diabetes mellitus is broadly classified under two categories which include type-1 and type-2 diabetes. The etiology of type-1 diabetes can be explained by damage to the pancreatic cells due to environmental or infectious agents. On the other hand, type-2 diabetes etiology can be described as a combination of low amount of insulin production from pancreatic β cells and peripheral insulin resistance. Insulin resistance leads to elevated fatty acids in plasma causing decreased glucose transport into the muscle cells, as well as increased fat break down, subsequently leading to elevated hepatic glucose production. Anyone who is overweight and/or obese has some kind of insulin resistance, but diabetes only develops in those individuals who lack sufficient insulin secretion to match the degree of insulin resistance. Insulin in those people may be high yet it is not enough to normalize the level of glycaemia. Bariatric surgery, before used for treating only obesity, is now being explored as a cure of type-2 diabetes not only in obese patient but also moderately overweight patients. Rapid improvement in blood sugars and reduction or elimination diabetic medication is often seen within the immediate post-operative period following bariatric surgery, even before significant weight loss. Potential mechanisms of diabetes remission following bariatric surgery can be due to decreased calorie intake and weight loss, changes in gut physiology, improved pancreatic beta cell functions, hepatic and peripheral insulin sensitivity, altered bile acid metabolism and changes in gut microbiota. Several randomized controlled trials of type-2 diabetes remission after bariatric surgery versus medical therapy have shown good control of diabetes mellitus following bariatric surgery.

Biography

Rakesh Kumar Sinha is a senior Laparoscopic and Bariatric surgeon at Nanavati Hospital and Criticare Hospital, Mumbai, India, with a special interest in advanced laparoscopic surgery including bariatric and hernia repair. He has received his MS degree (General Surgery) from Grant Medical College Mumbai in the year 2000. He has received training in Advanced Laparoscopic Surgery and Bariatric Surgery from Stanford Medical School, USA in 2009 and special Single Port Laparoscopic Surgery at The Royal Surrey County Hospital, UK in 2010. He is also trained in Robotic surgery from Intuitive Surgical, California. He is a Fellow of International College of Surgeons (FICS) and Indian Association of Gastrointestinal Endo-Surgeons (FIAGES). He is also a faculty at Obesity and Metabolic Surgeons Society of India (OSSI) and Member of International Federation for Surgery of Obesity and Metabolic Diseases (IFSO).

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