

Self-harm and suicide after bariatric surgery: time for action

Consistent findings have linked forms of gastric surgery to alcoholism, substance misuse, depression, self-harm, and suicide. For example, Bhatti and colleagues¹ recently measured self-harm emergencies after gastric bypass surgery and showed that the risks of such emergencies are higher after surgery than before surgery. Patients with a history of mental health issues and those living in rural areas were particularly vulnerable. It is now necessary to try to understand these risks, examine the mechanisms involved, and work to develop solutions.

Reports of self-harm after gastric surgery date back to the 1950s. Increased rates of accidental deaths, alcoholism, and suicide were reported after partial gastrectomy for ulcer disease in a cohort of more than 6000 Swedish patients followed up for 25–30 years.² A high incidence of suicide after Billroth II resection for management of duodenal ulcers was described in a series of 1000 patients from Denmark:³ 13.7% of deaths resulted from suicide, of which half were in patients who seemed to have developed alcoholism after surgery. Adams and colleagues⁴ reported in a retrospective study that accidental deaths and suicides were higher in a group of more than 8000 patients who had undergone gastric bypass than in non-operated controls. In a much smaller prospective study,⁵ consisting of 418 patients treated with surgery and two similar sized control groups, by the same research group, a similar pattern emerged by 6 years after surgery. Alcohol misuse, depression, and increased suicide risk occur in the early years after surgery, seem to be associated with the bariatric procedure, and might be restricted to interventions that either resect the stomach or bypass the upper gastrointestinal tract.^{6,7}

Consistent evidence shows that bariatric surgery improves both physical and mental aspects of quality of life,⁸ which makes it difficult to understand the emergent self-harm and suicide incidence. This risk has mainly been attributed to the high psychological burden, especially of depression, in patients presenting for surgery, and to post-surgical psychosocial maladaptation to weight loss. Solutions appropriately engage ongoing psychological assessment and support. However, this explanation does not directly address the matter of treatment-emergent psychopathology.

Gastric bypass has a profound effect on the absorption and metabolism of alcohol, with increased peak

blood alcohol concentrations and a prolonged effect.⁶ However, other mechanisms might also be important in generating self-harm and suicidal patterns of behaviour, since the brain is the end-organ successfully targeted by all forms of bariatric surgery through a range of neural and endocrine mechanisms that alter the set point of energy balance regulation.⁹ The pathways modified by surgery to generate sustained weight loss vary by procedure, and each of these poorly understood pathways might generate risks and benefits.⁹

Modification of ghrelin signalling pathways provides one mechanism through which gastrointestinal surgery might have important central effects beyond the hypothalamic effects on energy homeostasis. Evidence suggests that ghrelin signalling is important in learning, memory, reward, motivation, stress responses, anxiety, and depression, and might provide neuroprotection for degenerative and ischaemic conditions.¹⁰ Several other conditions occurring after gastric resection or diversion have also been suggested to have the potential to contribute to self-harm—eg, hypoglycaemia; increases in a range of hormones including GLP-1, PYY, and NPY; and changes in the pharmacokinetics of psychotherapeutic drugs.⁷

Symptoms of depression, suicidal ideation and behaviour, and cognitive dysfunction are key warning signals for weight loss drugs. Rimonabant, a cannabinoid-1 receptor blocker, doubled the incidence of suicidal ideation and behaviour, and has been withdrawn from the market worldwide.¹¹ Synergies between the endocannabinoid system and ghrelin signalling are evident, since they both affect homeostatic aspects of energy regulation and hedonic aspects of pleasure derived from food.^{11,12} The US Food and Drug Administration (FDA) has clear guidance for assessment of suicidal ideation and behaviour in clinical drug trials.¹³

Perhaps the issue of immediate concern is that sleeve gastrectomy, specifically designed to target reductions in circulating ghrelin, is now the most widely used procedure worldwide. This procedure has increased in popularity, but its effects on depression and suicidal ideation or behaviour have not been examined. Data from the STAMPEDE study¹⁴ suggested that sleeve gastrectomy does not provide the improved mental components of quality of life seen with gastric bypass.

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The fact that treatment-emergent suicidal ideation and behaviour are assessed for drug treatments, but not for bariatric surgical procedures, is unacceptable. It is not adequate to recognise that the post-surgical risks are high, but simply to blame the patient's premorbid psychological state and psychosocial maladaptation post surgery, or to recommend closer post-surgical psychological monitoring. To broaden the acceptance of bariatric surgery as a standard of care, we need to understand and attenuate the risks, and not be myopic in focusing only on the benefits.

It is time to formally test, prospectively, all existing and future procedures and devices for their effect on suicidal ideation and behaviour. The FDA stipulates that all clinical trials of drugs that affect the central nervous system, including drugs for weight management, must include a Columbia Classification Algorithm of Suicide Assessment.¹³ This assessment is easy to use in clinical trials and individual practices, and training is readily available for health professionals who wish to screen their patients.

John B Dixon

Clinical Obesity Research, Baker IDI Heart and Diabetes Institute, Melbourne, VIC 3004, Australia
john.dixon@bakeridi.edu.au

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