

## Bariatric Triage: Weight Loss As A Tool For Therapeutic Decision Making

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### Abstract

This communication highlights how early weight loss can be used as a technique for triage in persons who have undergone bariatric surgery, and as a tool for therapeutic decision making. Weight loss is a target for obesity medicine, but can also be used to plan further treatment strategies and interventions. In this manner, early weight loss is similar to HbA1c (glycated haemoglobin) which is a diagnostic tool, a monitoring device, a therapeutic target, and also a technique to decide intensity of treatment in diabetes.

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### Introduction

Glycated haemoglobin (HbA1c) is used as a diagnostic tool, a monitoring device, and a therapeutic target in the management of type 2 diabetes. It is also used as a technique for triage, to help decide thresholds for intensity of intervention. A relatively higher HbA1c, for example, prompts initiation of dual or triple combination glucose-lowering therapy.<sup>1</sup> A similar situation is noted in blood pressure and lipid management. Does such a construct hold true in the field of obesity management? Can weight, or weight loss be used as a means of “bariatric triage”?

### Weight loss as a tool for triage, and therapeutic decision making

Data suggests that the majority of weight loss after bariatric surgery occurs within the first postoperative year. Greater % early weight loss (EWL) (by 3 months post surgery) predicts successful and sustained weight loss over time.<sup>2</sup> Early weight loss after a metabolic

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intervention, therefore, should be viewed not only as a desired outcome, but also as a tool to inform choice of subsequent therapy. The degree of EWL can identify persons who need intensification of therapy. Thus, weight loss is also as a means of triage, helping to choose appropriate intensity of subsequent therapy.

A higher total weight loss percentage (%TWL) at 3-6 months reduced the chance of insufficient weight loss at 3 years. Hence, it makes it appropriate to intervene with intensification at 3-6 months post-surgery, rather than later.

### The Concept Of Metabolic Adaptation

One of the reasons why weight loss is a challenge is the existence of a metabolic set point. This ‘barostat’ is an adaptive evolutionary mechanism, helps maintain weight within a predetermined range, and prevents excessive loss of body mass. In obesity, however, this becomes maladaptive, and retards efforts to lose weight. A weight-reduced state is associated with metabolic maladaptations, including reduction in resting energy expenditure, and an increase in hunger.

This leads to weight regain, a phenomenon that is experienced after weight loss due to lifestyle changes, pharmacotherapy, and surgery. One of the ways of hoodwinking the metabolic setpoint is to aim for, and accomplish, a slow drift in body mass, rather than a sudden shift in weight.<sup>3</sup> This should be explained to all persons undergoing bariatric surgery as well. However, this does not mean that every person living with obesity should be prescribed the same step wise increase in behavioural and medical interventions, without regards to individual characteristics.

### Genotypic Triage

Genome-wide associations have identified single-nucleotide polymorphisms (SNPs) associated with initial weight loss {(mitochondrial proliferator-activated receptor 3 (MTIF3)}, neural growth regulator 1 (NEGR1) and others that are linked with weight regain (brain-derived neurotrophic factor (BDNF) and fat mass and obesity-associated gene (FTO)).<sup>4,5</sup> Though these may serve as therapeutic targets in the future, currently there is no system of offering genotype-based precision medicine in bariatrics. We therefore need a phenotypic, or clinical

model to assist in therapeutic decision making while managing obesity.

### Therapeutic Implications

Based upon expected short-, medium-, and long-term surgical outcomes, we suggest a bariatric personality model to help optimize post-surgical outcomes (Table 1). This simple checklist can be used pre-, and well as post-operatively, to identify persons who need intensification of therapy. In fact, it works equally well for persons being treated without surgical procedures.

Intensification of therapy is defined as a change in drug formulation, regimen, frequency or dosage, or addition of other therapeutic modalities, with a view to improving weight control (adapted Kalra, 2010).<sup>6</sup> From a weight management perspective, this can be done by adding anti-obesity medication, increasing its dose, or intensifying behavioural therapy and lifestyle modification. Another approach is to begin with intensive therapy, as defined earlier.<sup>7</sup>

### Hit Early, Hit Hard

Simultaneous intensive therapy (behavioural and medical) may be started at 3-6 months post-surgery, in person with a “demanding” bariatric personality (severe disease, urgent need for control, suboptimal results at 3-6 months, favourable risk benefit ratio of anti-obesity medication, and high expectations) (Table 1).

**Table-1:** The components of Bariatric personality.

| The Bariatric Personality                       |
|---|
| <b>S</b>  |
| ● Severity of over weight                       |
| ● Surgical procedure carried out                |
| <b>U</b>  |
| ● Utility of weight loss                        |
| ● Urgency of weight loss                        |
| <b>R</b>  |
| ● “Residual weight” at 3-6 months               |
| ● Risk benefit ratio of anti-obesity medication |
| <b>E</b>  |
| ● Expectation of person and family              |
| ● Efforts put in so far, and their result       |

The widening spectrum of anti-obesity medication can benefit persons who have not responded fully to

conventional medical or surgical therapy. Semaglutide, liraglutide and tirzepatide are now approved for the management of obesity in various countries. This allows for a person-centred choice of pharmacotherapy in person living with obesity.<sup>6</sup>

### The Way Forward

The next step, now should be to identify the specific interventions which will help persons who do not respond fully to bariatric intervention or surgery. The

**Table-2:** The role of weight (loss) in bariatric medicine.

|                                     |
|-------------------------------------|
| • Threshold for diagnosis           |
| • Threshold for intervention        |
| • Threshold for intensification     |
| • Tool for risk stratification      |
| • Tool for choosing initial therapy |
| • Tool for monitoring of therapy    |

type, timing and intensity of intervention will certainly vary from person to person. However, weight, and weight loss, will be used as a diagnostic bariatric threshold and bariatric triage: as a monitoring tool, a threshold for triage and choice of therapy, and also as a therapeutic target<sup>8</sup> (Table 2).

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