The Early Effect of Laporascopic Sleeve Gastrectomy on Taste Change in a Multiethnic Asian Cohort

Dear Editor,

Bariatric surgery results in greater and lasting weight loss as well as reduces the severity of certain comorbidities.[1] The limited literature which has studied taste perception following Roux-en-Y gastric bypass (RYGB) and laparoscopic sleeve gastrectomy (LSG)[2] hypothesises that the consequent taste dysfunction influences food preferences, which prevents postoperative overeating of calorie-rich foods leading to greater weight loss.

As there are no similar investigations done in an Asian cohort, this Domain Specific Review Board (DSRB)-approved prospective study examined if there are any taste alteration for sweet, sour and salty food; and their influence on eating behaviour and weight loss outcomes after LSG in a multiethnic Asian cohort at the National University Hospital between 2012 to 2014. Questionnaires were administered 3 months post-LSG. The demographic and characteristics of the study participants are shown in Table 1.

Sensory change in taste was reported by 33 (27.5%) patients. Changes in taste perception for sweet, salty and sour food was 90.9% (n = 30), 57.6% (n = 19) and 21.2% (n = 7), respectively. Most subjects experienced heightened sensitivity to the respective taste: 28 (93.3%), 19 (100%), and 6 (85.7%). The taste dysfunction compelled 28 (100%), 16 (84.2%) and 5 (83.3%) subjects consuming sweet, salty and sour food to reduce their intake. However, independent samples t-test analysis found no significant difference in postoperative weight loss between those who experienced taste change versus those who didn't (18.9 ± 7.2 kg vs 19.5 ± 8.0 kg, $P = 0.70$).

Table 1. The Demographic and Baseline Characteristics of Participants

	Patients (n = 120)
Age (years)	37.1 ± 12.3
Gender	
Female	n = 68 (56.6%)
Male	n = 52 (43.4%)
Preoperative body weight (kg)	115.2 ± 25 (n = 120)
Postoperative body weight (kg)*	96.2 ± 21.6 (n = 110)
Preoperative BMI (kg/m^2)	42.3 ± 7.2 (n = 120)
Postoperative BMI (kg/m^2)*	35.3 ± 6.1 (n = 110)
Ethnicity	
Chinese	34.1% (n = 41)
Malay	40.8% (n = 49)
Indian	21.7% (n = 26)
Others	3.3% (n = 4)

BMI: Body mass index
*3 months post-surgery.

This study is limited by the ambiguous influence of recall bias and the precise time point of the taste dysfunction manifestation is unknown. Hence, future studies should explore participants' ability to identify varying concentrations of the respective tastes pre-LSG and retest at 1st, 2nd, 3rd, 6th, and 12th months post-LSG. It will be beneficial to use standardised tests to assess both taste and olfactory functions, as olfaction is an inseparable component of taste perception and alimentation.[3] Additionally, potential aetiologies for taste dysfunction such as medication and recent upper airway infection should be excluded.[4]

An improved study design to elucidate the mechanisms which lead to altered taste detection threshold and how it may affect food selection and weight changes is required as the gustatory system provides critical information about the quality (toxic exposures or spoilage indicators) and nutritional value of food.[5] We recommend that pre-LSG patients be informed about potential sensory changes as part of the informed consent process for surgery to prevent any eating disorders, anxiety, frustration or other related complications which may affect quality of life.

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