

## Reply to the Letter to Editor Entitled “The %EBMIL/%EWL Double-Booby Trap. A Comment on Studies that Compare the Effect of Bariatric Surgery Between Heavier and Lighter Patients”

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Reply to the letter to the editor,

Dr. AW Van de Laar submitted a letter to the editor discussing our study entitled “efficacy of laparoscopic sleeve gastrectomy in mildly obese patients with body mass index of 30–35 kg/m<sup>2</sup>” [1]. We do appreciate for the comments and critics regarding our results.

Our study result is in line with the previously published literatures [2, 3], which demonstrated that the patients with lower BMI were inclined to achieve better outcomes after bariatric surgery in terms of percentage of excess weight loss (%EWL), the metric that Dr. AW Van de Laar argues to be abandoned [4, 5]. We agree that the %EWL metric has an indisputable deviation favoring lower BMI patients when comparing the results between the lighter and the heavier patients undergoing bariatric surgery. Nonetheless, %EWL is still worthy of notice in order to compare the individual study results against those in the previously published literatures.

Here, we would like to present the weight loss results of our patients expressed in percentage of total weight loss (%TWL) to respond to the request. During the average follow-up period of 2 years, the mean %TWL in the low

BMI group (BMI of 30–35) and the high BMI group (BMI >35) reached 25.0±8.0 % and 27.4±10.1 %, respectively; the difference was not statistically significant ( $p=0.130$ ). Chronologically, as shown in Fig. 1, both groups showed comparable %TWL up until 18 months. The results appeared to be statistically superior in higher BMI group thereafter, although both groups showed tendency of weight regain and the number of followed-up patients drastically decreased. The degree of weight loss expressed in %TWL showed reversed outcomes compared to those expressed in %EWL in our original paper as the relatively exaggerated outcomes in %EWL in lighter patients became mitigated in %TWL. It appears that the weight loss results were somewhat variable depending on what outcome metric was used.

We would like to make it clear though that the conclusion drawn from our original study was not to emphasize the superiority of surgical efficacy in lighter patients compared to heavier patients after laparoscopic sleeve gastrectomy. The study aimed to demonstrate the actual efficacy of sleeve gastrectomy in patients with BMI <35, as these patients have long been excluded from the conventional criteria for bariatric surgery and not much is known about the surgical outcomes, particularly in Asian population. Furthermore, the efficacy of surgical procedures should also take into account their effect on the obesity-related comorbidities, and our study demonstrated that they were similarly resolved in both lower and higher BMI groups. Therefore, we still would like to conclude that the laparoscopic sleeve gastrectomy is as effective in lower BMI population as in those with BMI of 35 kg/m<sup>2</sup> or more despite the inconsistency of weight loss outcomes depending on adopted metrics.

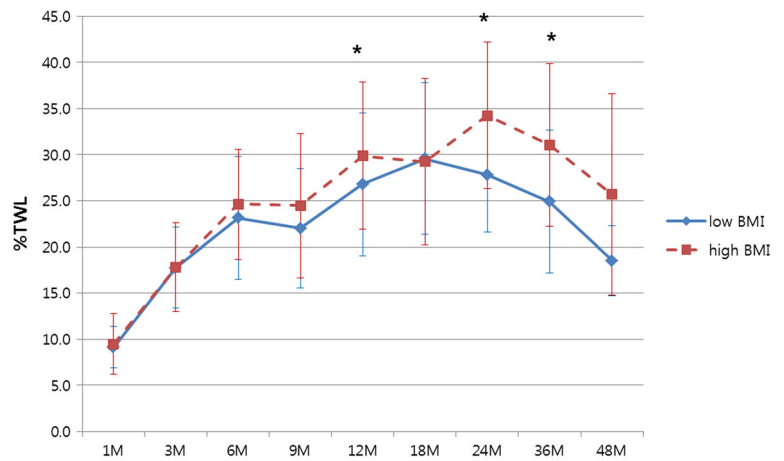
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**Fig. 1** Chronological change in percent of total weight loss (%TWL) (\* $p < 0.05$ )

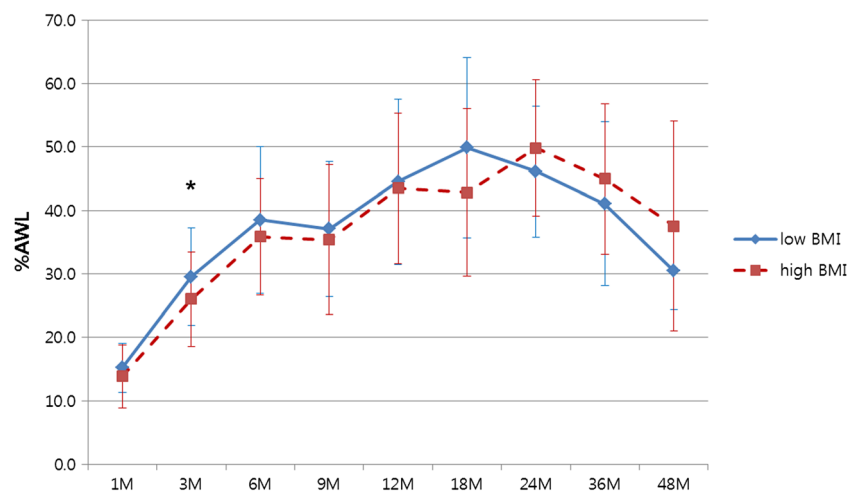


<i>Eligible patients</i>	192	192	192	192	192	83	164	108	30
<i>Patients at follow-up</i>									
Low BMI	48	46	44	10	43	18	25	16	2
High BMI	130	121	117	22	112	33	66	47	7

Van de Laar and his colleagues have suggested an alternative relative metric, percentage alterable weight loss (%AWL), which is not affected by the initial BMI of the patients in a series of their recent studies [5, 6]. We additionally looked at our outcomes in %AWL for reference using universal alterable part of (BMI -13). The results showed even similar weight loss outcomes suggesting comparable efficacy of LSG both in patients with higher BMI and those with lower BMI (Fig. 2). Still, we think that it is still too early to adopt %AWL in reporting the results of our study cohort because the metric was originally devised from the patients undergoing gastric bypass and has not been validated in

patients undergoing other types of bariatric procedures yet. Furthermore, the formula was achieved from the BOLD database, which is basically based on the data from American patients and the study population mostly consists of Caucasians (78.1 %) according to the published literature [7]. The inert part of the formula might significantly differ across the ethnicity as well as their distinct eating habits and the algorithm has not been properly validated in Asian population yet. Nonetheless, we are looking forward to the moment when the metric is properly validated and universally applicable in all spectrums of patients undergoing bariatric procedures in the near future.

**Fig. 2** The weight loss outcomes expressed in the percentage alterable weight loss (%AWL) (\* $p < 0.05$ )



**Compliance with Ethical Standards** For this type of retrospective study, formal consent is not required.

**Conflict of Interest** Drs. JY Park and YJ Kim do not have any financial ties to disclose.

**Informed Consent** This does not apply to this retrospective study.

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