Effect of pre-operative weight loss (PoWL) on glycosylated hemoglobin (HbA1c) optimisation in obese patients prior to bariatric surgery

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Abstract

BACKGROUND

The incidence of type two diabetes and its prominence within obese or overweight patients are closely correlated. Bariatric surgery has provided sustainable weight loss with remission of Type II diabetes in the majority of patients. Modification of certain pre-operative factors can improve the post-bariatric outcomes. One factor is preoperative weight loss, as it initiates the patient in dietary regulation and improves physical activity, which should be continued post-surgery for better results. Meanwhile, glycemic control is also necessary to reduce post-operative complications, affecting diabetic remission after the surgery. This study aims to identify the relationship between pre-operative weight loss as a factor to attain HbA1c optimisation before surgery to maximise the bariatric surgical outcomes. Age, sex, duration of diabetes, and use of insulin were also considered with their effect on HbA1c loss %.

METHODS

The data obtained from the Bariatric and Metabolic Department of University Hospital Ayr of patients underwent Bariatric surgery in the period from 2008 to 2018. The average age is 49.7961 with 62.7% a female and mean BMI of 46.779 ± 7.33 kg/m². The statistical package SPSS 25 was used for descriptive and analytical approaches. Following testing the assumptions, a linear regression modelling method was applied to investigate the influences of pre-operative weight loss and HbA1c loss % with other factors such as age, sex, duration of diabetes mellitus and use of insulin.

RESULTS

Our findings do not provide evidence for any significant link (p-value: 0.782) between pre-operative weight loss and pre-operative HbA1c. Sex was not a significant factor either. However, age, duration of diabetes and the use of insulin significantly influence the pre-operative HbA1c loss.

CONCLUSION

The pre-operative weight loss did not obtain HbA1c level optimisation. However, age, duration of diabetes, and insulin use should be taken into account while considering HbA1c level optimisation.