

EVALUATION OF CARBOHYDRATE RESTRICTION AS PRIMARY TREATMENT FOR POST-GASTRIC BYPASS HYPOGLYCEMIA

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Background

Up to 18 % of patients who underwent Roux-en-Y gastric bypass surgery may eventually develop postprandial hypoglycemia [1].

In a clinical setting, a 30 g carb-restricted meal does not provoke any symptoms [2].

Aim

To evaluate the daily life efficacy of a **carb-restricted dietary advice (CRD) of six meals per day with a 30 g carb maximum per meal** in patients with documented post gastric bypass hypoglycemia.

Methods

- Single-center retrospective analysis based on medical records and telephone questionnaires. Frequency and severity of hypoglycemia were assessed before and after the carbohydrate restricted dietary advice (CRD).
- The data collection was carried out in April 2016.
- Hypoglycemia was defined as blood glucose < 3.0 mmol/L.
- 41 patients included with documented post-gastric bypass hypoglycemia (Fig. 1).

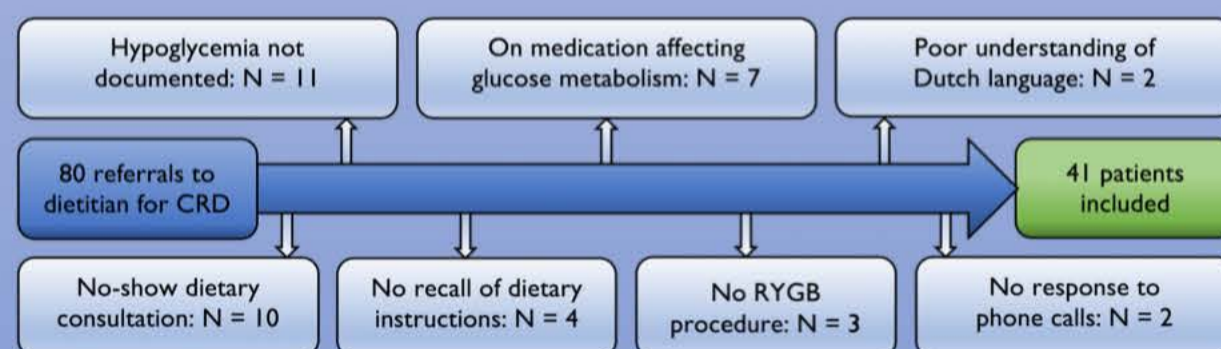


Figure 1 Patient selection procedure

Results

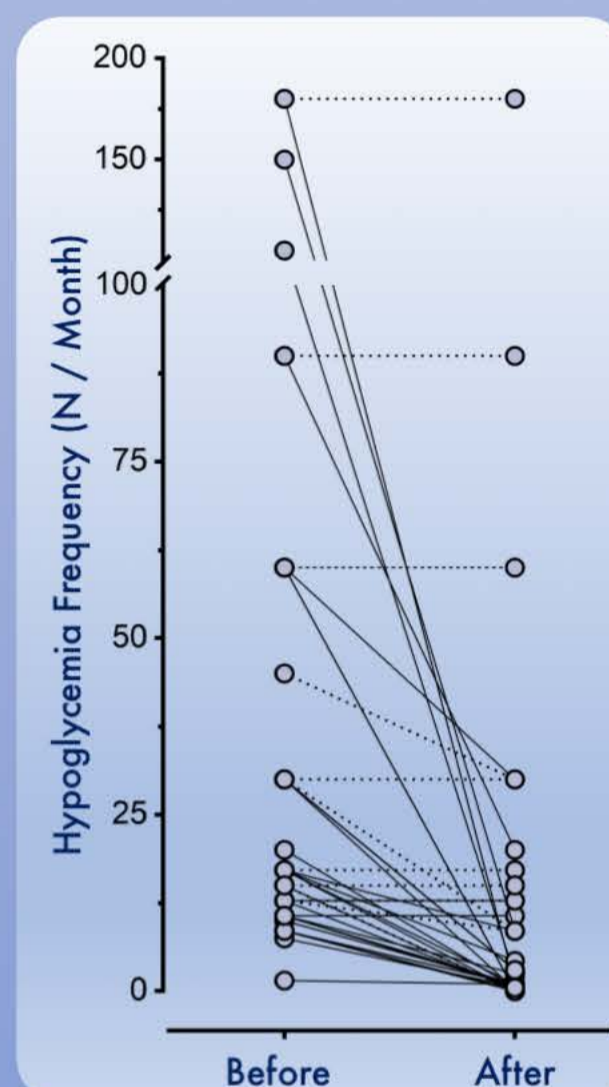
Table 1 Frequency and severity of hypoglycemic episodes, and quality of life before and after carb-restricted dietary advice (CRD).

Frequency of hypoglycemia was recorded as the number of times per month patients experienced symptoms of hypoglycemia that disappeared after carb ingestion. **Severity of hypoglycemia** was evaluated by the lowest measured blood glucose during a hypoglycemic event, and by the number of patients that needed outside help for the treatment of hypoglycemia

	Before CRD	After CRD	Difference	P value
Frequency of hypoglycemia (times/month)	17.1 (1.5-180)	2.5 (0-180)	-14.6	< 0.001
Lowest blood glucose (mmol/L)	2.1 ± 0.4	2.6 ± 0.2	+0.5 ± 0.2	0.004
Outside help required (number of patients)	23/41	6/41	-17	< 0.001
Quality of Life (1 to 10 scale)	5.4 ± 0.3	7.4 ± 0.3	+2.0 ± 0.3	< 0.001

Results expressed as mean ± standard error or as median and range

Figure 2 Number of hypoglycemic events per month, before and after the carb-restricted dietary advice (CRD). Results of patient who remained on CRD-only are shown as **solid lines**. The **dashed lines** represent the patients (14/41, 37 %) who were later put on insulin suppressive treatment because of lack of response to CRD-only. Results of insulin suppressive treatment are not shown in this figure.



References

1. Ritz, P., et al., *Hypoglycaemia after gastric bypass: mechanisms and treatment*. *Diabetes Obes Metab*, 2016. 18(3): p. 217-23.
2. Botros, N., et al., *Effect of carbohydrate restriction in patients with hyperinsulinemic hypoglycemia after Roux-en-Y gastric bypass*. *Obes Surg*, 2014. 24(11): p. 1850-5.

Conclusion

A **carb-restricted dietary advice**, consisting of six meals with up to 30 g carbs each, is an **effective treatment of post gastric bypass hypoglycemia** in the majority of patients. Additional medication is needed in about a third of patients.

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