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**ABSTRACT**

Titel:

**Standardized evaluation of suspected postprandial hypoglycemia after gastric bypass**

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Das Abstract soll folgenderweise gegliedert sein:

* Einleitung und Fragestellung
* Material und Methoden
* Ergebnisse
* Schlussfolgerungen

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**Background**: The reported prevalence of postprandial hypoglycemia after gastric bypass (GB) surgery varies considerable; 0,2% patients require hospitalization, hypoglycemia is observed in 29% of GB patients during fluid mixed meal test (MMT) and in 72% during oral glucose tolerance test (oGTT) (1) (2) (3). Anyway, oGTT and liquid MMT do not reflect the daily food intake. Therefore, we are currently evaluating standardized solid meal tolerance test as part of the workup of patients with postprandial symptoms.

**Subjects and methods**: Solid MMT was performed in 29 patients with self-reported postprandial symptoms compatible with hypoglycemia after GB and in 16 overweight patients with suspected hypoglycemia without history of gastrointestinal surgery (CON) (age: 44.03±1.9 vs. 47.8±3.4 p=0.16; BMI 35.7±1.7 vs. 29.5±2.05, p=0.02). Patients with insulinoma were excluded. Each patient received a standardized meal consisting of 40 g whole wheat bread, 15 g butter, 20 g honey and 100 g banana (Total kcal: 360; 4g protein, 13 g fat, 57 g carbohydrate) and blood was drawn at baseline and after 60,120,180 and 240 minutes.

**Results**: Despite higher BMI, GB patients showed lower HbA1C levels (GB 4.9±0.1 vs. CON 5.3±0.09; p= 0.01). AUC of glucose was lower in GB (GB: 19691±697 vs. CON: 22295±836). Plasma glucose concentrations were lower at baseline (GB: 82±1.4, CON 89.5±4.7: p=0.03), as well as 2 (GB66.8±2.7: CON95.5±4.3: p=<0.001) and 3 hours (GB 72.8±1.2, CON82.1±2.6, p=0.003) postprandial. AUCs of insulin and C-peptide concentrations were similar between both groups, however plasma insulin concentrations were significantly lower 2h (GB 9.03±0.71; CON 23.9±8.8; p=0.02) and 4h (GB 3.9±0.4; CON 6.8±1.5; p=0.01) postprandial. Plasma glucose concentrations slightly below 55 mg/dl were observed in 7 GB and 2 CON. Plasma glucose concentration of 35 mg/dl and 28 mg/dl were measured in 2 GB patients, who underwent further clinical investigations. However, no clinical symptoms of hypoglycemia were observed.

**Conclusion**: In the patients with suspected postprandial hypoglycemia after gastric bypass surgery symptomatic hypoglycemia seems to be rare after ingestion of a solid mixed meal with only minimal amounts of free sugars. This indicated that postprandial hypoglycemia after GB surgery might be related to intake of food with high glucose content and dietary counseling might be effective in most patients.