

GLP-1 (Active 7-36) secretory response after test meal in obese patients before and 5; 90 and 180 days after bariatric gastric bypass surgery

Micic D, Polovina S, Sumarac-Dumanovic M, Gregoric P, Cvijovic G, Ignjatovic S, Dajak M, Micic DD, PejkoVIC-Stamenkovic D, Jeremic D

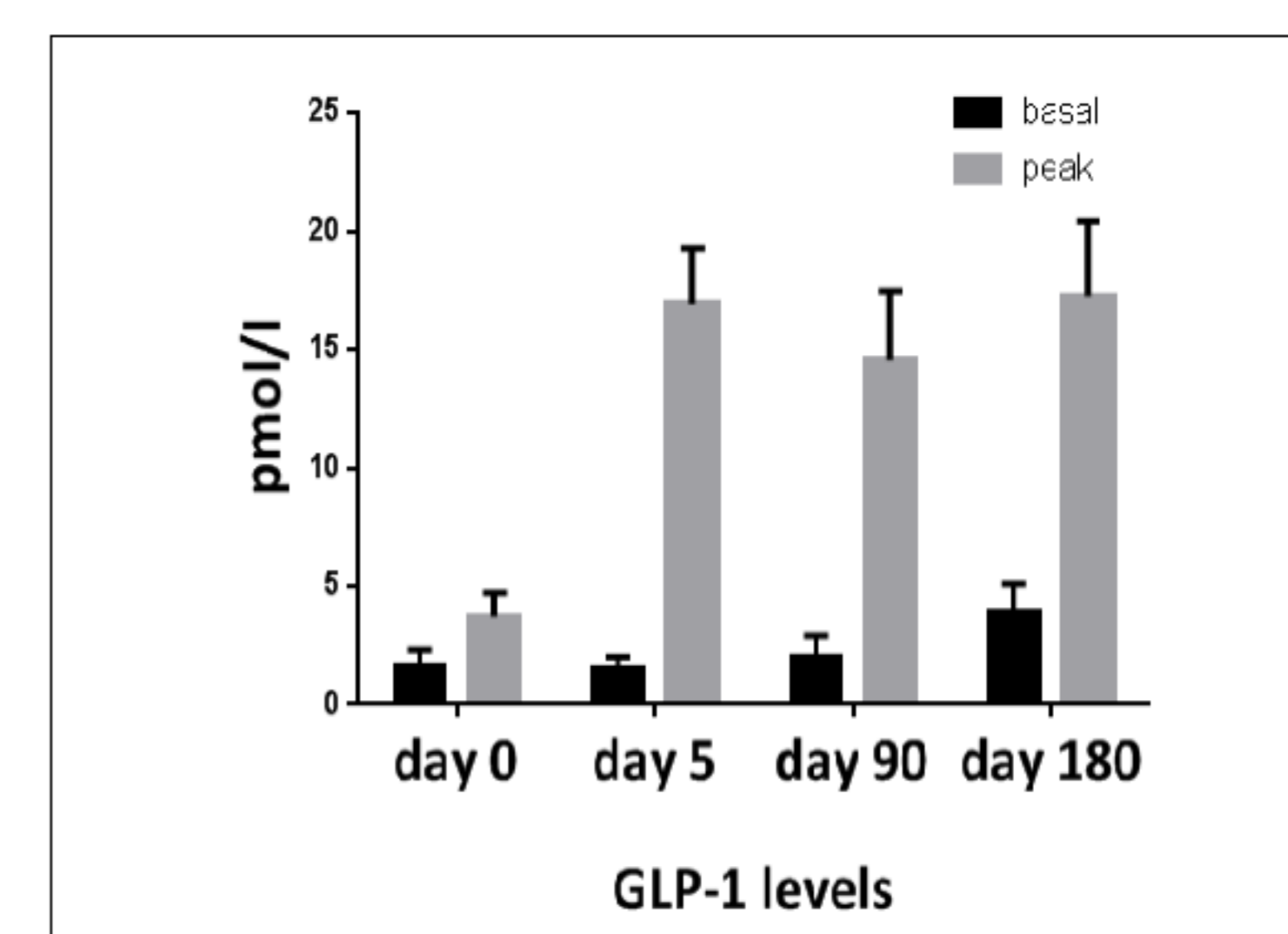
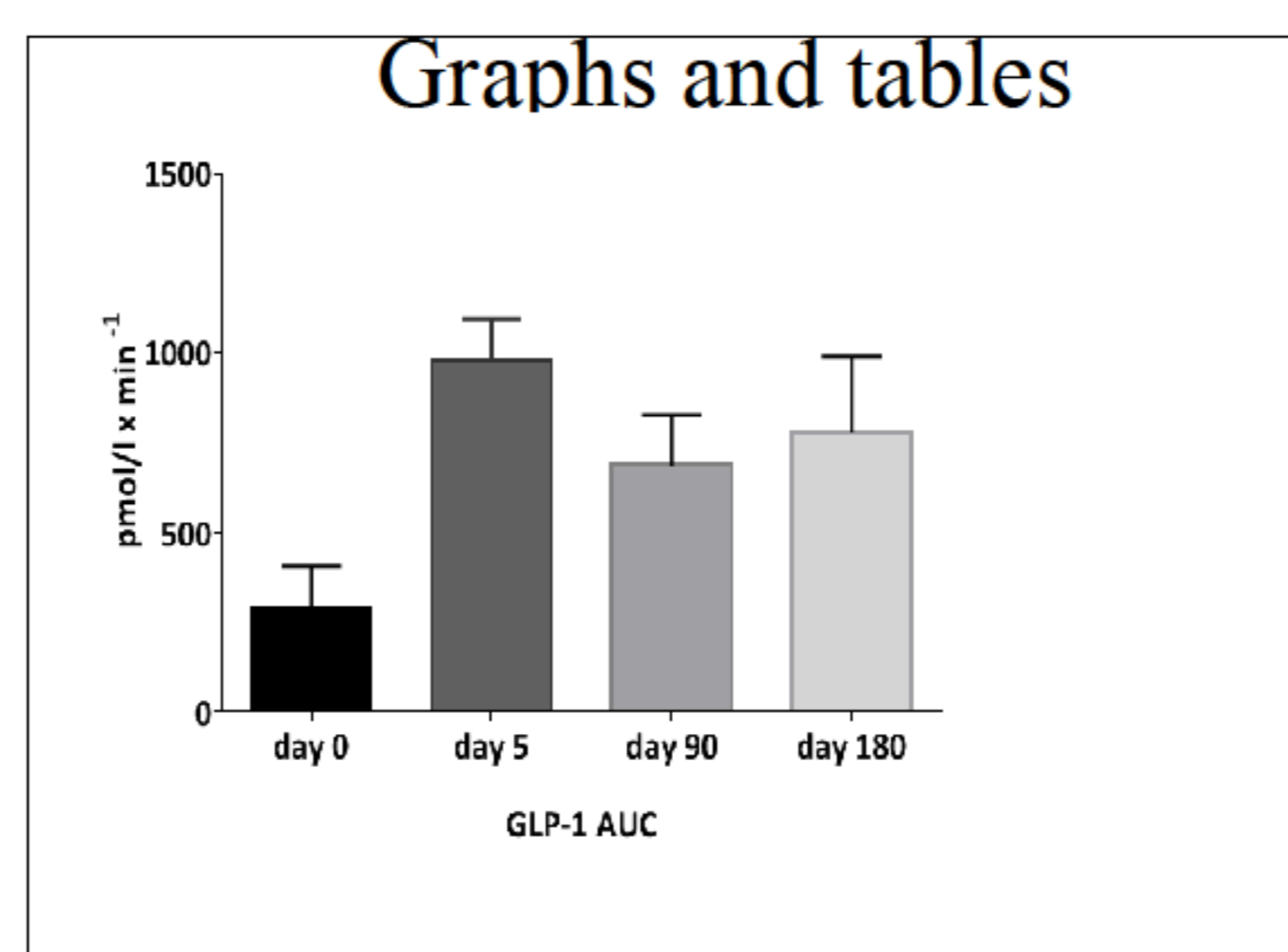
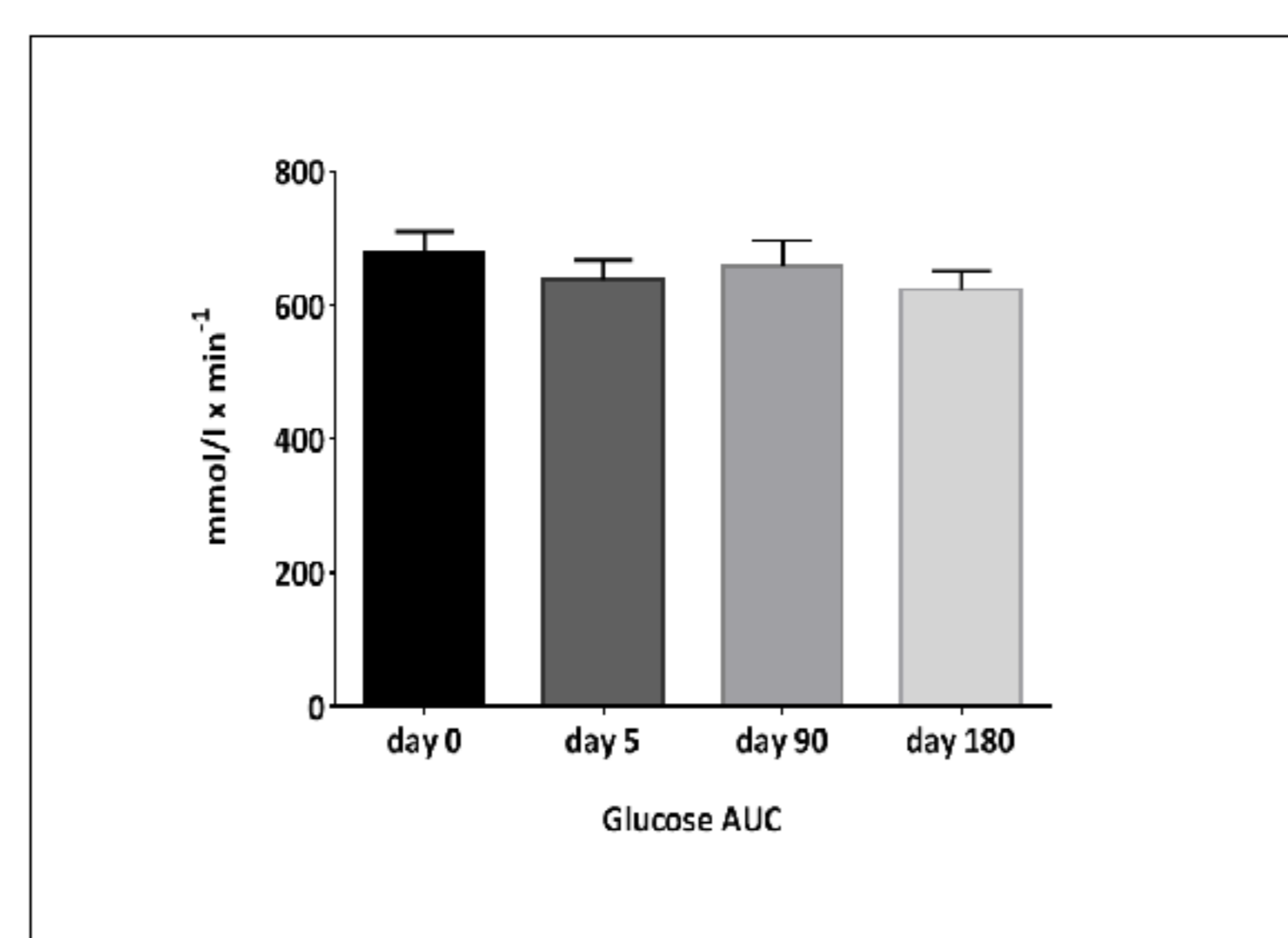
Center for Obesity, Clinic for Endocrinology, Diabetes and Diseases of Metabolism, Clinical Center of Serbia, Belgrade, School of Medicine, University of Belgrade, Serbia

Objectives:

There are different explanations concerning observed improvement of glucose control after bariatric gastric bypass surgery.

Methods:

The aim of our study was to investigate GLP-1 response after test meal (Fresubin drink a 200 ml; 200 kcal, 15 % protein, 30% fat and 55 % carbohydrate) before (day 0) and 5; 90 and 180 days after gastric bypass surgery. Glycaemia (mmol/l; glucose oxidase) and GLP-1 (Active 7-36) (pM/l; ELISA, ALPCO diagnostics) were determined in 41 obese patients (age: 37.86±11.21 years; BMI: 43.45±4.91 kg/m²) in four separate days in 0, 15, 30, 45, 60, 90 and 120 min.



Results:

There were significant decrease in the area under the glucose curve ($X \pm SD$) (664.70±186.81 vs 636.45±177.35 vs 501.50±90.17 vs 507.41±80.08 mmol/l x min⁻¹; $p < 0.05$) in respective day intervals, while there was significant increase in area under the GLP-1 curve (pmol/l x min⁻¹) in days 5 (919.19±653.73), day 90 (682.92±489.79) and day 180 (789.41±558.56) in comparison with day 0 (279.80±429.97) ($p < 0.05$).

There were no significant differences between basal glucose and GLP-1 levels (1.67±2.64; 1.33±2.12; 2.06±2.75; $p > 0.05$) except for day 180 (3.52±3.92 $p < 0.05$) while there was significant increase in peak GLP-1 levels in day 5 (17.12±8.99), day 90 (14.44±8.75) and day 180 (17.25±10.52) during response after test meal in comparison with day 0 (3.82±3.95) ($p < 0.05$).

Conclusions:

GLP-1 response after test meal is significantly increased after gastric bypass surgery early (after 5 days) and lately (after 90 and 180 days). The improvement in GLP-1 response after test meal after gastric bypass surgery may be contribute to the beneficial metabolic effects of bariatric surgery, especially concerning glucose control .

