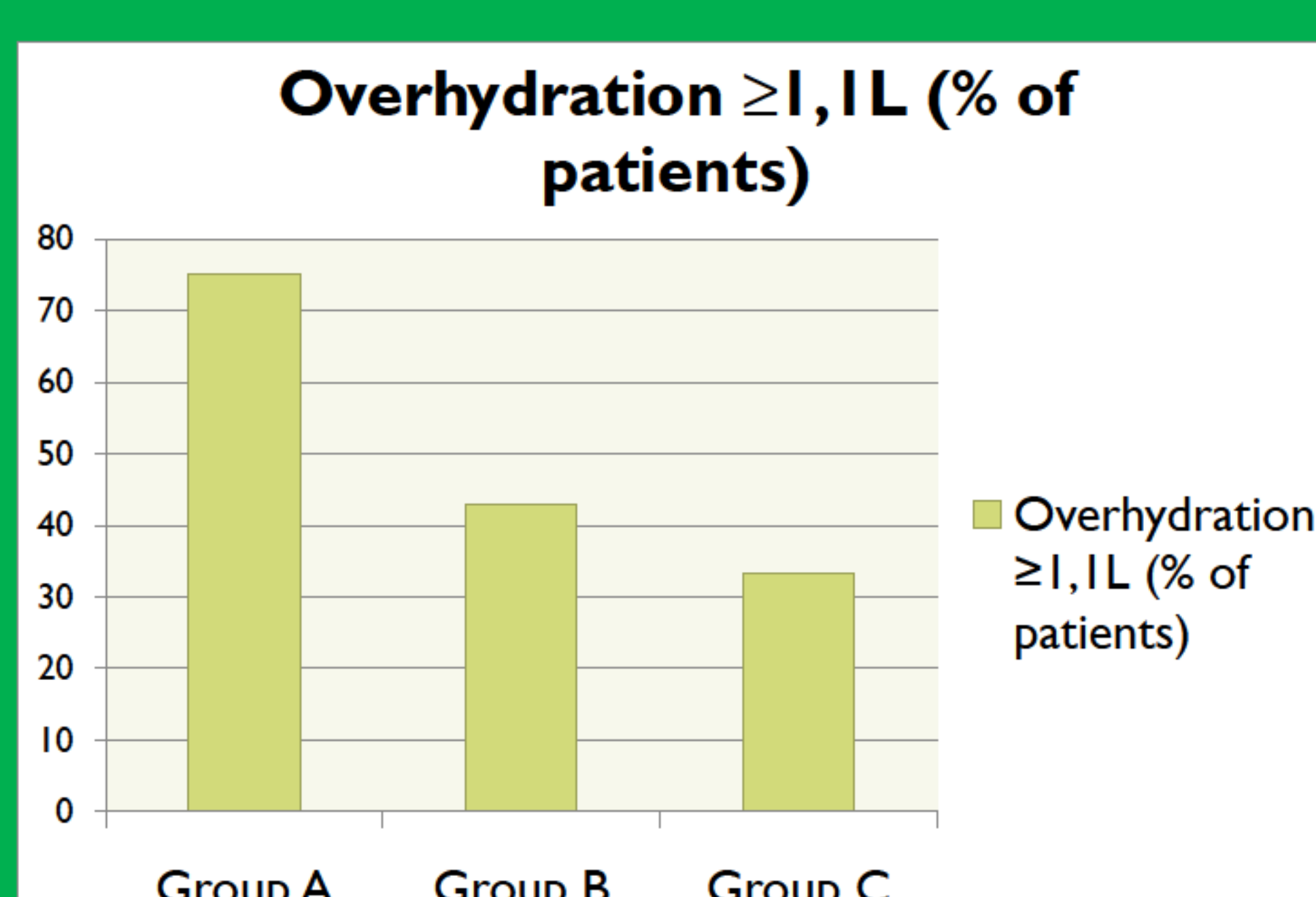
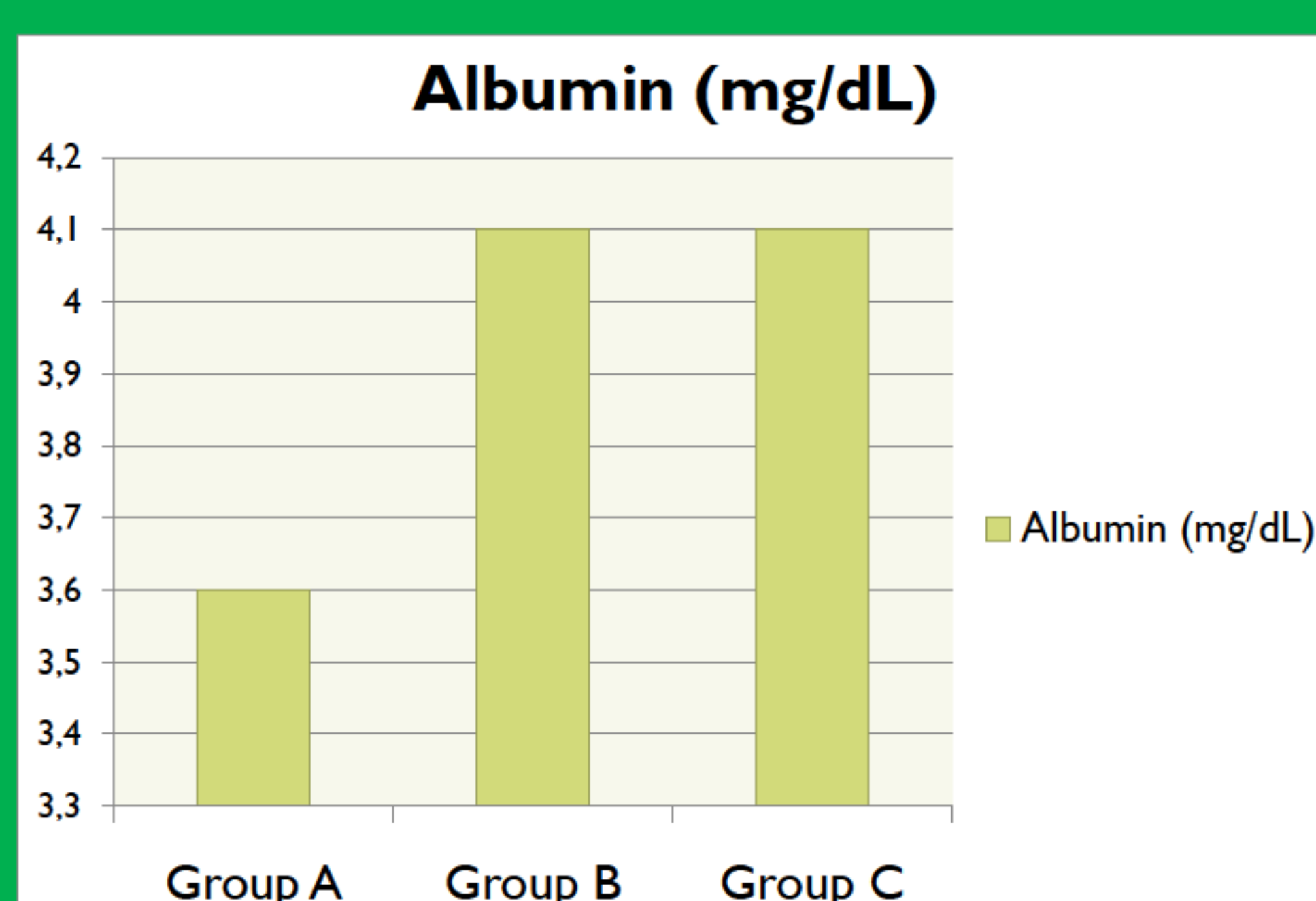
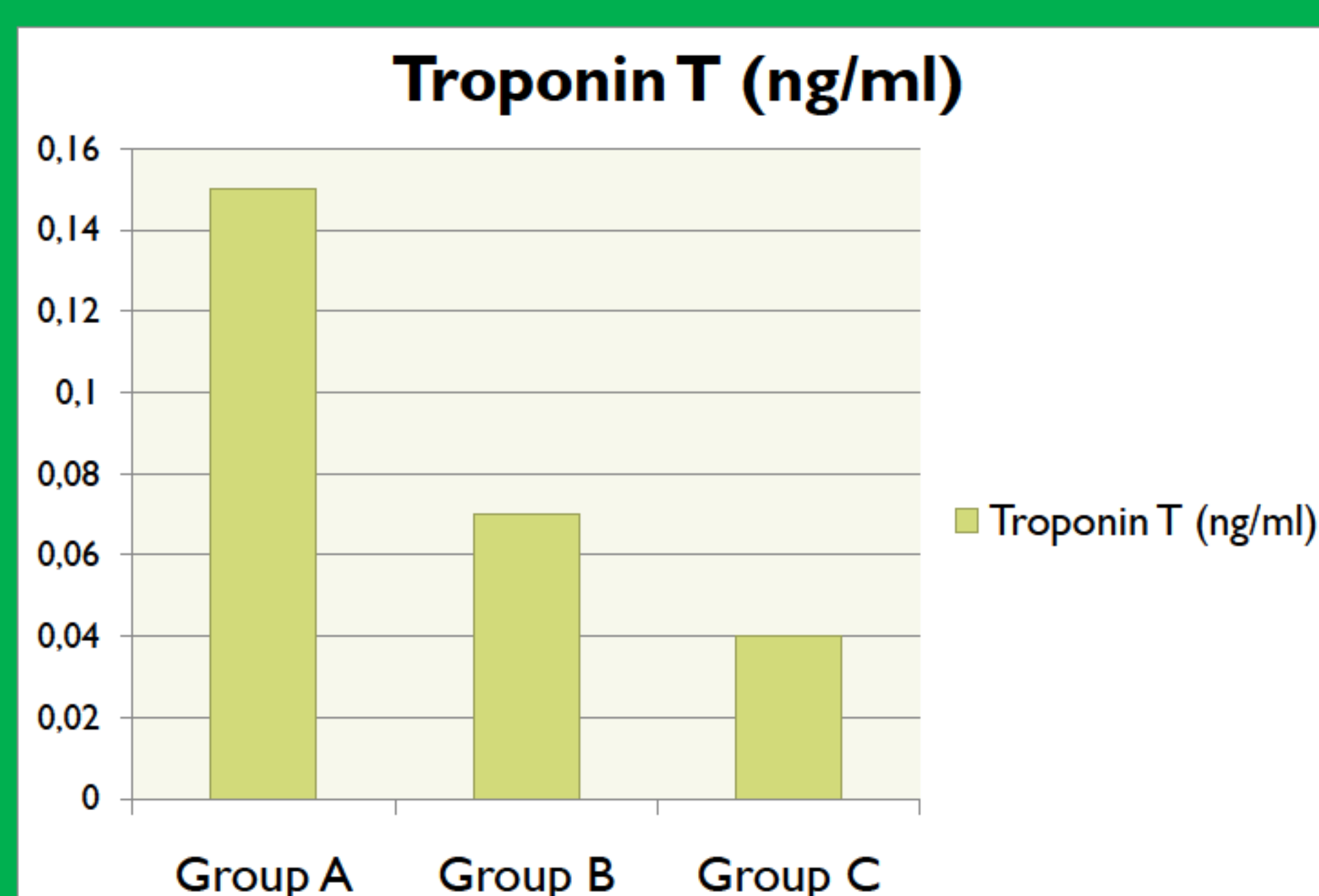
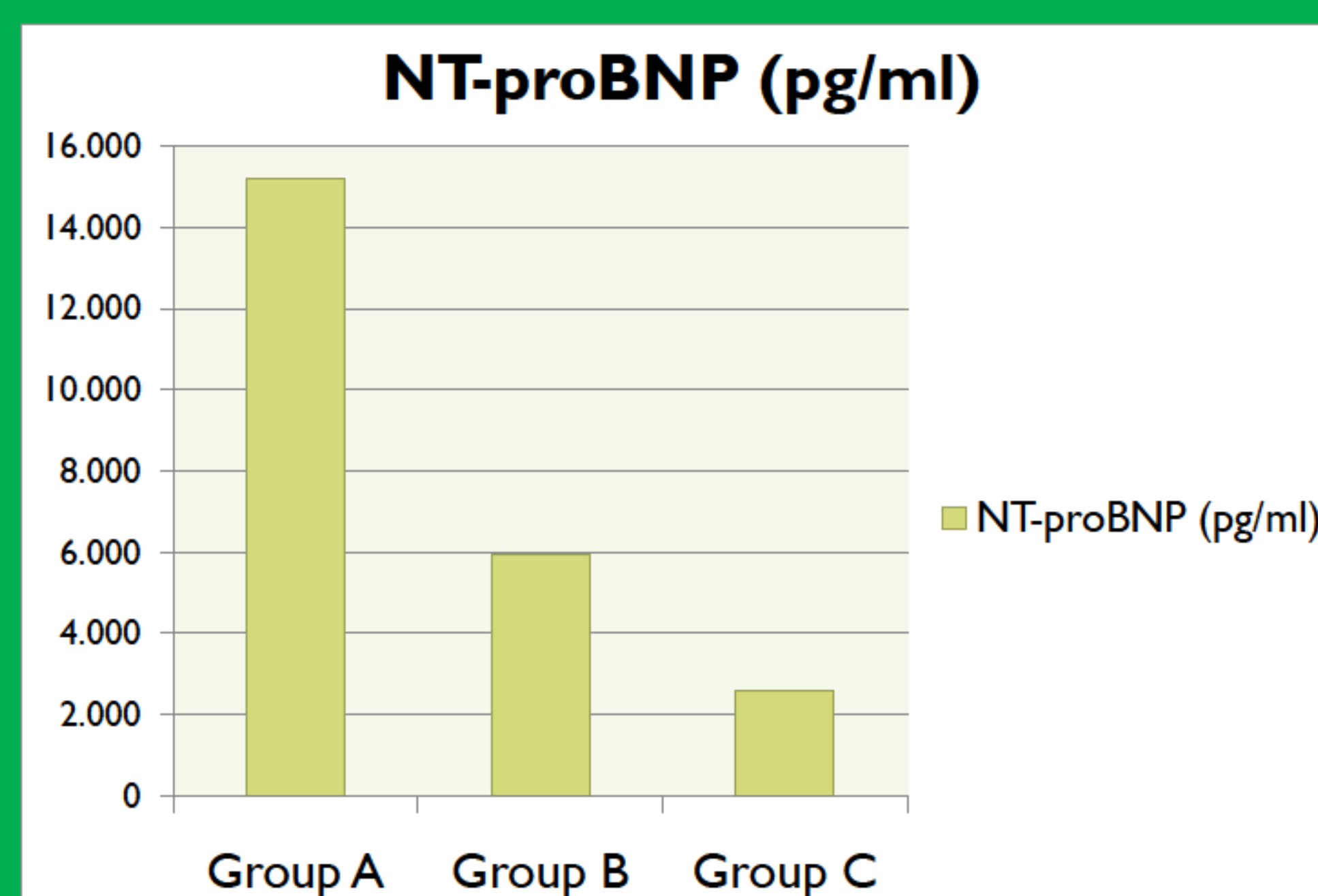
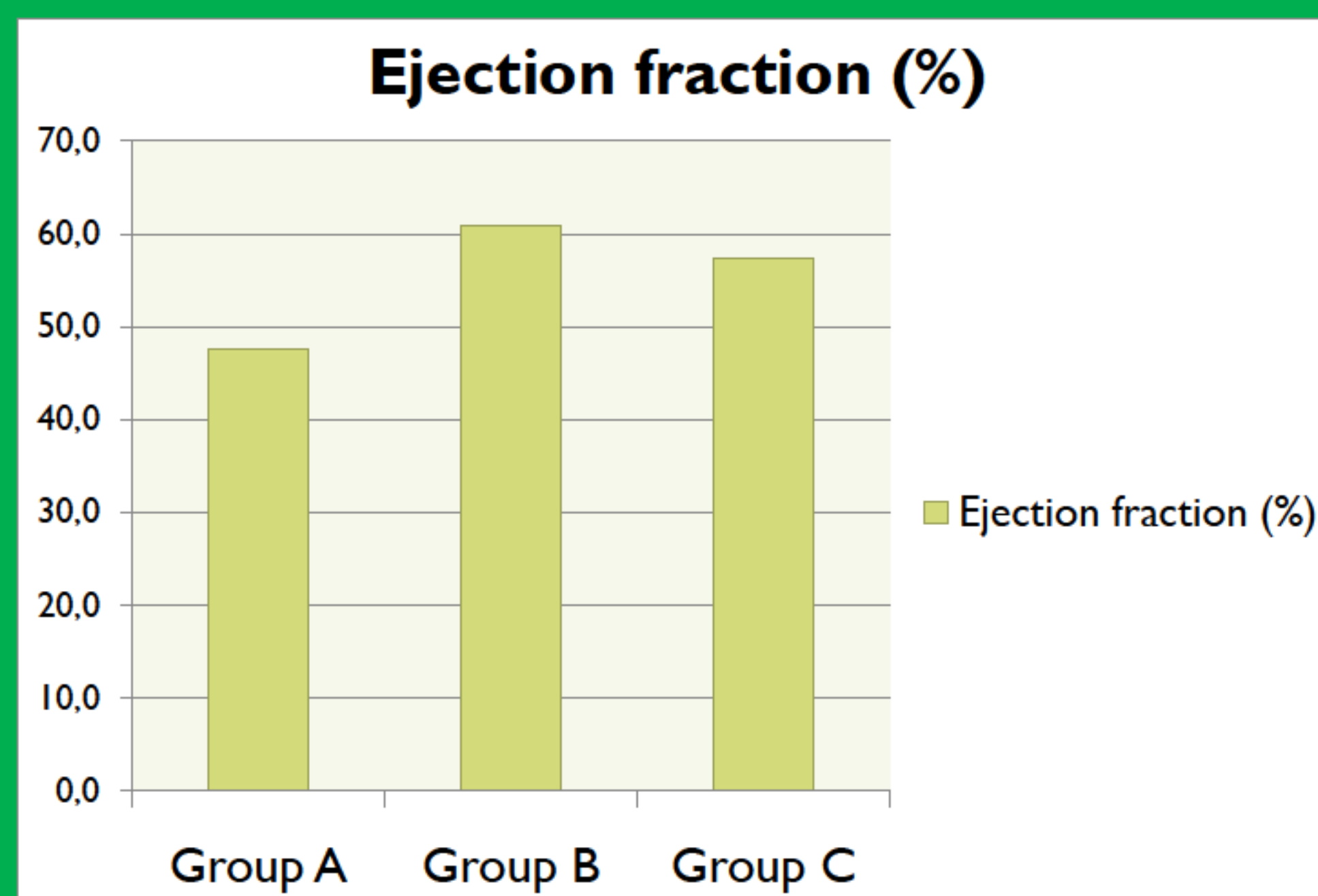


The importance of residual renal function in peritoneal dialysis patients.

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Introduction

Peritoneal dialysis (PD) patients with preserved residual diuresis appreciate a lower risk of death and complications. The main aim of the study was to demonstrate the impact of residual kidney function on presence of complications in PD patients.

Materials and methods

The study was performed on 44 PD patients who were divided into three subgroups, depending on the volume of residual diuresis (group A ≤ 500; group B 600-1900; and group C ≥ 2000 mL/day). The degree of overhydration was assessed by bioimpedance analysis (BIA) and clinical criteria (edema and hypertension). To evaluate the nutritional status, a subjective global assessment method (SGA) was implemented. Among the laboratory examinations, blood morphology, electrolytes, lipid profile, CRP, and albumin level were used to assess the general clinical condition of the patients. Serum concentrations of NT-proBNP and troponin T (TnT), echocardiography and chest X-ray examinations were performed to assess the presence of cardiovascular complications.

Results

In BIA overhydration by more than 1.1 L occurred in 75.0% of patients from group A, 42.9% from group B, and 33.3% from group C. Peripheral edema occurred in 25.0% of patients from group A, 21.4% from group B, and 0.0% from group C. Surprisingly, comparable systolic (137.1 ± 23.2 vs. 134.3 ± 13.9 vs. 138.6 ± 18.1 mmHg) and diastolic (85.2 ± 13.8 vs. 80.9 ± 11.2 vs. 79.6 ± 11.1 mmHg) blood pressure were observed in each group. Between examined groups, significant differences were found in ejection fraction (47.6 ± 11.6% vs. 60.8 ± 5.7% vs. 57.3 ± 13.6%; p < 0.05), SGA (9.8 ± 3.1 vs. 8.2 ± 1.3 vs. 8.0 ± 0.8; p < 0.05) and serum concentration of: total cholesterol (165.3 ± 27.5 vs. 195.4 ± 30.5 vs. 203.5 ± 45.6 mg/dL; p < 0.05), albumin (3.6 ± 0.6 vs. 4.1 ± 0.4 vs. 4.0 ± 0.4 mg/dL; p < 0.05), hemoglobin (11.1 ± 2.0 vs. 12.0 ± 1.4 vs. 12.6 ± 1.2 mg/dL; p < 0.05), NT-proBNP (15198.8 ± 16149.8 vs. 5930.4 ± 9256.1 vs. 2599.6 ± 3907.4 pg/mL; p < 0.05), troponin T (0.15 ± 0.17 vs. 0.07 ± 0.09 vs. 0.04 ± 0.03 ng/mL; p < 0.05). Surprisingly, no statistical significant differences in serum CRP concentration were demonstrated (13.8 ± 12.5 vs. 6.1 ± 8.5 vs. 9.7 ± 15.2 mg/L).

Conclusions

Interestingly, the tendency for overhydration and the strain on the circulatory system, determined by a presence of biochemical markers, is visible even in patients with only a slightly decreased diuresis (1000-2000mL/day) and with no relevant clinical sign or symptoms. These factors suggest that even moderate decrease in residual renal function in PD patients may result in overhydration.

