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Excess Body Fat as a Store Toxin Affecting the Glomerular Filtration and Excretory Function of the Liver in Patients after Renal Transplantation

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Abstract : Introduction: Adipose tissue is a typical place for storage water-insoluble toxins in the body. It's connective tissue, where the intercellular substance consist of fat, which level in people with low physical activity should be 18-25% for women and 13-18% for men. Due to the fat distribution in the body we distinquish two types of obesity: android (visceral, abdominal) and gynoidal (gluteal-femoral, peripheral). Abdominal obesity increases the risk of complications of the cardiovascular system diseases, and impaired renal and liver function. Through the influence on disorders of metabolism, lipid metabolism, diabetes and hypertension, leading to emergence of the metabolic syndrome. So thus, obesity will especially overload kidney function in patients after transplantation. Aim: An attempt was made to estimate the impact of amount fat tissue on transplanted kidney function and excretory function of the liver in patients after Ktx. Material and Methods: The study included 108 patients (50 females, 58 male, age 46.5 +/- 12.9 years) with active kidney transplant after more than 3 months from the transplantation. An analysis of body composition was done by using electrical bioimpedance (BIA) and anthropometric measurements. Estimated basal metabolic rate (BMR), muscle mass, total body water content and the amount of body fat. Information about physical activity were obtained during clinical examination. Nutritional status, and type of obesity were determined by using indicators: Waist to Height Ratio (WHR) and Waist to Hip Ratio (WHR). Excretory functions of the transplanted kidney was rated by calculating the estimated renal glomerular filtration rate (eGFR) using the MDRD formula. Liver function was rated by total bilirubin and alanine aminotransferase levels ALT concentration in serum. In our patients haemolitic uremic syndrome (HUS) was excluded. Results: In 19.44% of patients had underweight, 22.37% of the respondents were with normal weight, 11.11% had overweight, and the rest were with obese (49.08%). People with android stature have a lower eGFR compared with those with the gynoidal stature ($p = 0.004$). All patients with obesity had higher amount of body fat from a few to several percent. The higher amount of body fat percentage, the lower eGFR had patients ($p < 0.001$). Elevated ALT levels significantly correlated with a high fat content ($p < 0.02$). Conclusion: Increased amount of body fat, particularly in the case of android obesity can be a predictor of kidney and liver damage. Due to that obese patients should have more frequent control of diagnostic functions of these organs and the intensive dietary proceedings, pharmacological and regular physical activity adapted to the current physical condition of patients after transplantation.

Keywords : obesity, body fat, kidney transplantation, glomerular filtration rate, liver function
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