

Associations between BMI, serum uric acid, serum glucose, and blood pressure with urinary tract stone opacity

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Abstrak

Urolithiasis refers to formation of stone in the kidney, ureter, or bladder. Several studies showed metabolic abnormalities were common in urolithiasis patients. The aim of this study was to describe the association between body-mass-index (BMI), serum uric acid, serum glucose, and blood pressure toward stone opacity in urinary tract stone patients. This study was done retrospectively by reviewing registry data of urinary tract stone patients that had undergone ESWL on January 2008 - December 2013 in Department of Urology Cipto Mangunkusumo Hospital. Data concerning body mass index, serum uric acid, serum glucose, blood pressure, and urinary tract stone opacity were recorded. Associations between body mass index, serum uric acid, serum glucose and blood pressure with urinary tract stone opacity were analyzed using chi-square test. There were 2,889 patients who underwent ESWL on January 2008-December 2013. We analyzed 242 subjects with complete data. Mean age was ± 12.78 (48.02 years). Male -to-female ratio was 2.27:1 Mean BMI was ± 3.78 (29.91 kg/m²). High risk BMIs were found in 161 patients (66.52%). The proportion of radioopaque stone was 77.69% (188 patients). Twenty two patients (9.1%) had normal blood pressure. Patients with high serum uric were 34.30% (83 patients). We found a significant association between random serum glucose level and stone opacity ($p < 0.05$). There is an association between random serum glucose level and stone opacity in urolithiasis patients. Hyperglycemia patients tend to have radiolucent stone, whereas normoglycemia patients tend to have radioopaque stone.