

Analisis 8-ISO-prostaglandin F2 dan kidney injury molecule-1 (kim-1) urin serta hubungannya dengan laju filtrasi glomerulus pada pasien diabetes melitus tipe 2 = Analysis 8-ISO-prostaglandin F2 dan kidney injury molecule-1 (kim- 1) urine and its corelation with glomerular filtration rate of type 2 diabetes mellitus patients

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Abstrak

Gangguan fungsi ginjal merupakan salah satu komplikasi yang sering terjadi pada pasien diabetes melitus tipe 2. Pendeteksian dini dengan menggunakan senyawa 8-iso-Prostaglandin F2 dan KIM-1 diperlukan untuk mencegah progresifitasnya. Dalam penelitian ini dilakukan analisis hubungan antara kadar 8-iso-Prostaglandin F2 dan KIM-1 urin dengan estimasi laju filtrasi glomerulus (eLFG). Sampel yang dianalisis adalah 40 orang pasien diabetes melitus tipe 2 di Puskesmas Pasar Minggu, dengan teknik total sampling. Nilai eLFG diperoleh berdasarkan nilai kreatinin serum yang diukur menggunakan metode kinetik Jaffe, sedangkan kadar 8-iso-Prostaglandin F2 dan KIM-1 diukur dengan menggunakan metode ELISA (Enzyme Linked Immunosorbent Assay). Kadar 8-iso-Prostaglandin F2 diperoleh $6633,87 \pm 1292,62$ pg/mg kreatinin, kadar KIM-1 diperoleh $8,23 \pm 3,23$ ng/mL dan nilai eLFG diperoleh $99,65 \pm 41,12$ (Cockroft-Gault); $96,59 \pm 41,90$ (MDRD study); dan $100,79 \pm 40,07$ (CKD-EPI).

Hubungan antara kadar 8-iso-Prostaglandin F2 dengan nilai eLFG berdasarkan persamaan Cockroft-Gault ($r = 0,520$; $p = 0,001$), MDRD ($r = 0,477$; $p = 0,004$) dan CKD-EPI ($r = 0,403$; $p = 0,013$), serta setelah perokok dieksklusi, berdasarkan ketiga persamaan, yaitu Cockroft-Gault ($r = 0,595$; $p = 0,001$), MDRD ($r = 0,554$; $p = 0,003$) dan CKD-EPI ($r = 0,559$; $p = 0,003$). Hubungan antara kadar KIM-1 dengan nilai eLFG berdasarkan persamaan Cockroft-Gault ($r = -0,155$; $p = 0,339$), MDRD ($r = -0,173$; $p = 0,285$) dan CKD-EPI ($r = -0,024$; $p = 0,883$). Sehingga diketahui terdapat hubungan yang bermakna antara kadar 8-iso-Prostaglandin F2 dengan nilai eLFG dan tidak terdapat hubungan yang bermakna antara KIM-1 dengan nilai eLFG.

Renal dysfunction is one of complication that most common in type 2 diabetes mellitus patients. The earlier detection is needed to prevent its progression with 8-iso-Prostaglandin F2 and KIM-1. The aim of this study was to analyze concentration of 8-iso-Prostaglandin F2 and KIM-1 urine and its correlation with estimated glomerular filtration rate (eGFR). Samples analyzed were 40 type 2 diabetes mellitus patients at Pasar Minggu Local Government Clinic, used total sampling method.

eGFR was obtained based on the measurement of serum creatinine on kinetic Jaffe method, 8-iso-Prostaglandin F2 and KIM-1 was measured by ELISA (Enzyme Linked Immunosorbent Assay) method. Concentration of 8-iso-Prostaglandin F2 was $6633,87 \pm 1292,62$ pg/mg creatinine, concentration of KIM-1 was $8,23 \pm 3,23$ ng/mL and the eGFR values were $99,65 \pm 41,12$ (Cockroft-Gault); $96,59 \pm 41,90$ (MDRD study); and $100,79 \pm 40,07$ (CKD-EPI).

The correlation between 8-iso-Prostaglandin F2 concentration and eGFR is based on Cockroft-Gault ($r = 0,520$; $p = 0,001$), MDRD ($r = 0,477$; $p = 0,004$) and CKD-EPI ($r = 0,403$; $p = 0,013$), and the correlation between 8-iso-Prostaglandin F2 concentration after smoker exclusion and eGFR based on Cockroft-Gault ($r = 0,595$; $p = 0,001$), MDRD ($r = 0,554$; $p = 0,003$) and CKD-EPI ($r = 0,559$; $p = 0,003$). But the correlation

between KIM-1 concentration and eGFR based on Cockcroft-Gault ($r = -0,155$; $p = 0,339$), MDRD ($r = -0,173$; $p = 0,285$) and CKD-EPI ($r = -0,024$; $p = 0,883$). So there was a significant correlation between 8-iso-Prostaglandin F2 concentration and eGFR, and also there were no significant correlation between KIM-1 concentration and eGFR.