

Analysis of urinary hydrogen peroxide and its correlation with estimated GFR in type 2 diabetes mellitus patients consuming sulfonylurea and combination of biguanide-sulfonylurea (article on The 1st International Conference on Pharmacy Education and Research Network of ASEAN, December 2-4, 2015)

Wulandari, author

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Abstrak

Renal dysfunction which frequently occurs in type 2 diabetes mellitus patients caused by oxidative stress. The effectiveness of the type 2 diabetes mellitus treatment to renal dysfunction is unknown. This study compare and analyze the correlation between urinary hydrogen peroxide which is a product of oxidative stress and estimated glomerular filtration rate (eGFR) in the treatment groups of sulfonylurea and combination biguanide-sulfonylurea. This study used a retrospective cohort study design with 50 sampels that was taken in Dr. Sitanala Tangerang hospital with total sampling technique. Estimated GFR value obtained based on serum creatinine values were measured using a kinetic Jaffe method, while the urinary hydrogen peroxide using FOX 1 (Ferrous ion Oxidation Xylenol Orange1). Value of urinary hydrogen peroxide in the two treatment groups did not have significant difference ($p = 0.69$), while the eGFR value of two groups did not have significant differences with the Cockroft Gault is $p = 0.884$; MDRD $p = 0.886$; and CKDEPI $p = 0.490$. Correlation analysis of urinary hydrogen peroxide and eGFR based on the MDRD equation and CKDEPI generate significant positive correlation ($r = 0.326$; $p = 0.021$) and ($r = 0.282$; $p = 0.047$). There is no antioxidant activity in the treatment groups. Urinary hydrogen peroxide may play a role in the pathophysiologic significance of diabetic nephropathy.