Abstract

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Title of diploma thesis: Laboratory diagnostics of kidney injury in patients with diabetes mellitus I and II

Diabetes mellitus is a chronic metabolic disease. This disease leads to develompement of both microvascular and macrovascular complications. In this work we examined a microvascular complication – diabetic nephropathy - and its laboratory diagnostics. We focussed on parameters cystatin C and creatinine. We estimated a glomerular filtration with Grubb, Stevens and MDRD equations. The Grubb and Stevens equations use cystatin C to determine the glomerular fitrlation rate (GFR), MDRD equations use creatinine, albumin and urea. For the asessment of kidney function we evaluated albumin and total protein waste in urine samples collected for 24 hours. The parameters were measured in file of 183 patients. Number of pacients with diabetes I.type was 49 and with diabetes II.type was 134. The main intention of this work was to evaluate equations used for determination of GFR, to compare their pros and cons and put them in contrast with albumin and total proteins waste. In case of the patients suffering from DM1, the moderate correlation between GFR according to Grubb, Stevens and MDRD was established. We found out weak indirect correlation between the total proteins waste and Grubb, Stevens and MDRD and there was no correlation observed between albumin waste. In second file (DM2) we observed very strong correlation between GFR (Grubb, Stevens) and MDRD. Between total proteins waste and determination of GFR (Grubb, Stevens, MDRD) we established weak indirect correlation and between albumin waste and Grubb and Stevens equations we found out moderate indirect correlation, but only weak indirect correlation with MDRD.

Keywords: Diabetes mellitus, diabetic nephropathy, laboratory diagnostics, glomerular filtration, cystatin C, creatinine