Penentuan Cut-off Rasio Protein/Kreatinin Urin Sewaktu untuk Evaluasi Proteinuria pada Pasien Sindrom Nefrotik = Determination of The Cut-off of The Urinary Protein/Creatinine Ratio to Evaluate Proteinuria in Nephrotic Syndrome Patient

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Abstrak

Latar belakang: Pengukuran proteinuria kuantitatif sewaktu (rasio protein/kreatinin urin sewaktu) merupakan metode terbaik untuk evaluasi proteinuria sebagai penanda remisi komplit dan nephrotic-range proteinuria pada pasien anak sindrom nefrotik (SN), karena dianggap lebih praktis dibandingkan baku emas (protein urin tampung 24 jam).
Tujuan: Mencari cut-off optimal rasio protein/kreatinin urin sewaktu untuk evaluasi nephrotic-range proteinuria dan remisi komplit dalam penelitian kami serta membandingkan sensitivitas, spesifisitas, nilai duga positif, dan nilai duga negatif antara cut-off yang ditemukan dalam penelitian versus KDIGO (Kidney Disease: Improving Global Outcomes) untuk evaluasi nephrotic-range proteinuria dan remisi komplit.
Metode: Penelitian ini merupakan studi potong lintang dengan uji diagnostik yang melibatkan 96 sampel urin 24 jam dan urin sewaktu yang diambil dari anak dengan sindrom nefrotik berusia 318 tahun. Subjek penelitian selain diambil sampel urin untuk pemeriksaan protein urin tampung 24 jam dan rasio protein/kreatinin urin sewaktu, juga dilakukan pemeriksaan antropometri untuk menentukan status nutrisi. Analisis menggunakan kurva ROC untuk menentukan cut-off optimal rasio protein/kreatinin urin sewaktu untuk evaluasi nephrotic-range proteinuria dan remisi komplit dalam penelitian kami, kemudian dihitung nilai sensitivitas, spesifisitas, nilai duga positif, dan nilai duga negatif serta dibandingkan nilainya dengan cut-off yang telah ditetapkan oleh KDIGO.
Hasil: Cut-off optimal rasio protein/kreatinin urin sewaktu dalam peneltian kami untuk evalusi proteinuria yang menandai remisi komplit adalah <0,4 g/g dan yang menandai nephrotic-range proteinuria (tidak remisi/relaps) adalah >1,5 g/g. Perbandingan nilai sensitivitas, spesifisitas, PPV, dan NPV antara cut-off rasio protein/kreatinin urin sewaktu <0,4 g/g (temuan penelitian) berturut-turut 80,1%, 82,3%, 89,1%, dan 68,3% versus cut-off rasio protein/kreatinin urin sewaktu <0,2 g/g (KDIGO) berturut-turut 95,2%, 44, 1%, 75,6 %, dan 83,3%. Perbandingan nilai sensitivitas, spesifisitas, PPV, dan NPV antara cut-off rasio protein/kreatinin urin sewaktu >1,5 g/g (temuan penelitian) untuk evaluasi nephrotic-range proteinuria berturut-turut 88,5%, 84,3%, 67,7%, dan 95,2% versus cut-off rasio protein/kreatinin urin sewaktu >2 g/g (KDIGO) berturut-turut 84,6%, 91,4%, 78,6%, dan 94,1%.
Kesimpulan: Cut-off rasio protein/kreatinin urin sewaktu untuk evaluasi proteinuria nephrotic-range proteinuria (tidak remisi/relaps) pada penelitian kami memperkuat cut-off yang telah dikeluarkan oleh KDIGO sebesar >2 g/g, sementara cut-off untuk evaluasi remisi komplit lebih tinggi nilainya dibandingkan KDIGO sebesar <0,4 g/g.
.....Background: Quantitative measurement of proteinuria while (urinary protein/creatinine ratio) is the best method for evaluating proteinuria as a marker of complete remission and nephrotic-range proteinuria in nephrotic syndrome (NS) pediatric patients, because it is considered more practical than the gold standard (24 hours urine protein collection). Objective: Finding the optimal cut-off of urinary protein/creatinine ratio

while evaluating nephrotic-range proteinuria and complete remission in our study and comparing sensitivity, specificity, positive predictive value, and negative predictive value between the cut-off found in the study versus KDIGO (Kidney Disease : Improving Global Outcomes) for evaluation of nephrotic-range proteinuria and complete remission.
Method: This study is a cross-sectional study with diagnostic tests involving 96 24-hour urine samples and urine samples taken from children with nephrotic syndrome aged 318 years. The subjects of the study were not only taking urine samples for 24-hour storage of urine protein and urine protein/creatinine ratio, as well as anthropometric examination to determine nutritional status. Analysis used the ROC curve to determine the optimal cut-off of urinary protein/creatinine ratio while evaluating nephrotic-range proteinuria and complete remission in our study, then calculated the values of sensitivity, specificity, positive predictive value, and negative predictive value and compared their values with the cut-off values set by KDIGO.
Result: The optimal cut-off of the urinary protein/creatinine ratio during our study for the evaluation of proteinuria that characterized complete remission was <0,4 g/g and that of nephrotic-range proteinuria (no remission/relapse) was >1,5 g/g. Comparison of the values of sensitivity, specificity, PPV, and NPV between the cut-off ratio of urine protein/creatinine when <0,4 g/g (study finding) were 80,1%, 82,3%, 89,1%, and 68,3% versus cut-off urinary protein/creatinine ratio at <0,2 g/g (KDIGO) 95,2%, 44,1%, 75,6%, and 83,3%. Comparison of the values of sensitivity, specificity, PPV, and NPV between the cut-off ratio of urine protein/creatinine when >1,5 g/g (study finding) for evaluation of nephrotic-range proteinuria 88,5%, 84,3%, 67,7%, and 95,2% versus cut-off urinary protein/creatinine ratio at >2 g/g (KDIGO) 84,6%, 91,4%, 78,6%, and 94,1%.
Conclusion: The cut-off of the urine protein/creatinine ratio during the evaluation of nephrotic-range proteinuria (non-remitting/relapsed) in our study reinforces the cut-off that has been issued by KDIGO of >2 g/g, while the cut-off for evaluation of complete remission is more higher value compared to KDIGO of <0,4 g/g.