

ABSTRACT

Background: Urea level testing is an important parameter in assessing kidney function. In chronic kidney failure, the kidneys' ability to excrete protein metabolic waste decreases, resulting in increased blood urea levels. Routine urea testing is necessary to help establish a diagnosis, monitor disease progression, and evaluate treatment success. The use of the half-volume reagent sample technique in laboratory urea level measurements requires careful consideration of any compromise in the accuracy of the results.

Objective: This study aimed to determine the differences in urea levels between half-volume and full-volume reagent and sample samples.

Methods: The study design was pre-experimental with a static group comparison approach. A total of 40 serum samples from patients with chronic kidney disease (CKD) were collected, each containing half-volume and full-volume reagent and sample samples. Data analysis was performed using a paired-sample T-Test..

Results: The average urea level results with half volume examination were 192.52 mg/dL and full volume were 193.37 mg/dL, these results indicate a decrease in urea levels in half volume examination with an average difference of -0.84. The results of the statistical test using Paired Samples T-Test showed a non-significant value of 0.062 ($p>0.05$), so there was no significant difference. The mean difference value of -0.43%, the lower limit value of -0.02% and the upper limit of 0.89% are still within the maximum clinical deviation tolerance limit of 9% according to CLIA standards.

Conclusion: esting urea levels using half-volume and full-volume testing is permissible.

Keywords: Urea, Half Volume Examination, Chronic Kidney Failure

ABSTRAK

Latar Belakang: Pemeriksaan kadar ureum merupakan parameter penting dalam menilai fungsi ginjal. Pada kondisi gagal ginjal kronik, kemampuan ginjal dalam mengekskresikan sisa metabolisme protein menurun sehingga kadar ureum dalam darah meningkat. Pemeriksaan ureum secara rutin diperlukan untuk membantu menegakkan diagnosis, memantau perkembangan penyakit, serta mengevaluasi keberhasilan pengobatan. Penggunaan teknik setengah volume reagen sampel pada pengukuran kadar ureum di laboratorium perlu diperhatikan ada atau tidaknya pengorbanan dari keakuratan hasil.

Tujuan: Penelitian ini bertujuan untuk mengetahui perbedaan hasil kadar ureum setengah volume dan volume penuh reagen dan sampel.

Metode: Desain Penelitian adalah pre-eksperimental dengan pendekatan static group comparison. Sebanyak 40 sampel serum dari pasien gagal ginjal kronik dengan setengah volume dan volume penuh reagen dan sampel. Analisis data dilakukan menggunakan uji Paired Samples T-Test.

Hasil: Rerata hasil kadar ureum dengan pemeriksaan setengah volume yaitu 192,52 mg/dL dan volume penuh yaitu 193,37 mg/dL, hasil tersebut menunjukkan penurunan kadar ureum pada pemeriksaan setengah volume dengan rerata selisih sebesar -0,84. Hasil uji statistik menggunakan Paired Samples T-Test menunjukkan nilai tidak signifikansi 0,062 ($p > 0,05$), sehingga tidak terdapat perbedaan yang signifikan. Nilai mean difference sebesar -0,43%, nilai batas bawah (lower limit) sebesar -0,02% dan batas atas (upper limit) sebesar 0,89% masih berada dalam batas toleransi deviasi klinis maksimal 9% menurut standar CLIA.

Kesimpulan: Pemeriksaan kadar ureum menggunakan setengah volume dan volume penuh diperbolehkan.

Kata Kunci: Ureum, Pemeriksaan Setengah Volume, Gagal Ginjal Kronik