

THE EFFECT OF SERUM STORAGE LENGTH IN CHRONIC KIDNEY
DISEASE PATIENTS AT TEMPERATURE OF 2 – 8 ° C ON TOTAL
BILIRUBIN LEVELS

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ABSTRACT

Background of The Study: Storage of samples from patients with chronic kidney disease is carried out because it is feared that there will be additional tests that will not allow for blood collection again. Serum from pre-hemodialysis chronic kidney disease patients contains a toxic substance, namely Guanidine, a denaturant that produces a strong denaturing effect. The denaturation process that occurs can cause an increase or decrease in the color complex formed, which will affect the examination results.

Objective: To determine the effect of storage time for serum from patients with chronic kidney disease at a temperature of 2–8°C on total bilirubin levels.

Method of Analysis: The method for checking bilirubin levels uses the Colorimetric Diazo method. This research was carried out in November 2023 in the clinical laboratory of Sleman Hospital, Yogyakarta. The number of respondents was 40 with the sample inclusion criteria not being lysed, icteric and lipemic, negative for HBsAg and anti-HCV, and patients with stage 5 renal failure. Data analysis used the Friedman test followed by a posthoc test using the Wilcoxon test.

Results: The research found that the average total bilirubin level for immediate examination was 0.411 mg/dl, 4 hour storage was 0.399 mg/dl and 8 hour storage was 0.405 mg/dl.

Conclusion: There is a significant effect of storage time for serum from patients with chronic kidney disease failure at a temperature of 2–8°C for 4 hours on total bilirubin levels (p value=0.01) and there is no significant effect of storage time for serum from patients with chronic kidney disease failure for 8 hours on bilirubin levels total (p value=0.06).

Keywords: Total bilirubin, Denaturation, Sample storage.

PENGARUH LAMA PENYIMPANAN SERUM PASIEN GAGAL GINJAL KRONIK PADA SUHU 2 – 8 ° C TERHADAP KADAR BILIRUBIN TOTAL

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ABSTRAK

Latar Belakang : Penyimpanan sampel pasien gagal ginjal kronik dilakukan karena dikhawatirkan akan ada tambahan pemeriksaan yang tidak memungkinkan untuk pengambilan darah kembali. Serum pasien gagal ginjal kronik *pre* hemodialisa mengandung substansi toksik yaitu *Guanidine*, dimana *guanidine* merupakan denaturasi yang menghasilkan efek denaturasi yang kuat. Proses denaturasi yang terjadi dapat menyebabkan peningkatan atau penurunan kompleks warna yang terbentuk sehingga akan mempengaruhi hasil pemeriksaan.

Tujuan : Untuk mengetahui pengaruh lama penyimpanan serum pasien gagal ginjal kronik pada suhu 2–8°C terhadap kadar bilirubin total.

Metode : Pemeriksaan kadar bilirubin total pada serum pasien gagal ginjal kronik yang di simpan pada suhu 2-8 °C dibagi menjadi 3 kelompok, yaitu kelompok segera diperiksa, diperiksa setelah simpan 4 jam dan setelah 8 jam. Penelitian ini dilaksanakan pada bulan November 2023 di laboratorium klinik RSUD Sleman Yogyakarta. Jumlah responden sebanyak 40 dengan kriteria inklusi sampel tidak lisis, ikterik, dan lipemik, HbsAg dan anti HCV negatif, serta merupakan pasien gagal ginjal stadium 5. Analisis data menggunakan uji *Friedman* dilanjutkan uji *posthoc* menggunakan uji *Wilcoxon*.

Hasil : Penelitian didapatkan rata-rata kadar bilirubin total pemeriksaan segera adalah 0,411 mg/dl, penyimpanan 4 jam adalah 0,399 mg/dl dan penyimpanan 8 jam adalah 0,405 mg/dl.

Kesimpulan : Ada pengaruh signifikan lama penyimpanan serum pasien gagal ginjal kronik pada suhu 2–8°C selama 4 jam terhadap kadar bilirubin total (*p value*=0,01) dan tidak ada pengaruh signifikan lama penyimpanan serum pasien gagal ginjal kronik selama 8 jam terhadap kadar bilirubin total (*p value*=0,06).

Kata Kunci : Bilirubin total, Denaturasi, Penyimpanan sampel.