THE DIFFERENCE OF INCUBATION TIME VARIATION ON SERUM TRIGLYCERIDE LEVELS AT 15 MINUTES AND 75 MINUTES AT ROOM TEMPERATURE

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ABSTRACT

Background: Incubation time is an analytical factor in clinical chemistry testing, specifically in the enzymatic Glycerol-3-Phosphate Oxidase Para-Aminophenazone (GPO-PAP) method for measuring serum triglyceride levels. Triglyceride testing generally uses an incubation time of 15 minutes at room temperature in accordance with Standard Operating Procedures. An incubation time of up to 75 minutes is suspected to affect enzyme activity and the accuracy of test results.
Objective: To determine the difference in serum triglyceride levels between 15minute and 75 minute incubations at room temperature.
Methods: This study used a quasi-experimental design with a static group comparison. The study sample consisted of 42 serum samples from participants who met the inclusion criteria. Triglyceride testing was performed using the GPO-PAP method with two incubation times: 15 minutes and 75 minutes at room temperature. The data were analyzed using the Shapiro-Wilk test for normality and the Wilcoxon test to determine differences in triglyceride levels.
Results: The mean triglyceride level at the 15-minute incubation time was 127.25 mg/dL, while at the 75-minute incubation time it was 123.96 mg/dL. The difference in mean triglyceride levels between the two treatment groups was 3.28 mg/dL, or approximately 2.58%. The results of the Wilcoxon test showed a significant difference in triglyceride levels between the 15-minute and 75-minute incubation times ($\alpha < 0.05$). The relative percentage bias based on the total allowable error (TEa) was 1.93% and remained below the CLIA limit.
Conclusion: There is a difference in serum triglyceride levels between incubation times of 15 minutes and 75 minutes at room temperature. The 75-minute incubation showed a decrease in test results, making it less effective for use because it exceeded the optimal time for the enzymatic reaction.

Keywords: *Triglycerides, Incubation Time, GPO-PAP Enzymatic Method, Room Temperature.*

PERBEDAAN VARIASI WAKTU INKUBASI TERHADAP KADAR TRIGLISERIDA PADA SERUM SELAMA 15 MENIT DAN 75 MENIT DI SUHU RUANG

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ABSTRAK

Latar Belakang : Waktu inkubasi merupakan faktor analitik dalam pemeriksaan kimia klinik, pada metode enzimatik *Glycerol-3-Phosphate Oxidase Para-Aminophenazone* (GPO-PAP) untuk pengukuran kadar trigliserida serum. Pemeriksaan trigliserida umumnya menggunakan waktu inkubasi 15 menit pada suhu ruang sesuai Standar Operasional Prosedur. Waktu inkubasi hingga 75 menit diduga dapat memengaruhi aktivitas enzim dan akurasi hasil pemeriksaan.
Tujuan : Mengetahui perbedaan kadar trigliserida serum antara inkubasi 15 menit dan 75 menit di suhu ruang
Metode : Penelitian ini menggunakan rancangan *quasi experimental* dengan desain *static group comparison*. Sampel penelitian berjumlah 42 serum responden yang memenuhi kriteria inklusi. Pemeriksaan trigliserida dilakukan menggunakan metode GPO-PAP dua perlakuan waktu yaitu 15 menit dan 75 menit pada suhu ruang. Data yang diperoleh dianalisis menggunakan uji *shapiro-wilk* untuk normalitas dan uji *wilcoxon* untuk mengetahui perbedaan kadar trigliserida.
Hasil : Rata-rata kadar trigliserida pada waktu inkubasi 15 menit sebesar 127,25 mg/dL, sedangkan pada waktu inkubasi 75 menit sebesar 123,96 mg/dL. Selisih rata-rata kadar trigliserida antara kedua perlakuan sebesar 3,28 mg/dL atau sekitar 2,58%. Hasil uji *wilcoxon* menunjukkan terdapat perbedaan signifikan kadar trigliserida antara waktu inkubasi 15 menit dan 75 menit ($p < 0,05$). Nilai persen bias relatif berdasarkan *total allowable error* (TEa) sebesar 1,93% dan masih berada di bawah batas CLIA yaitu ±25%.
Kesimpulan : Terdapat perbedaan kadar trigliserida serum antara waktu inkubasi 15 menit dan 75 menit di suhu ruang. Inkubasi 75 menit menunjukkan penurunan hasil pemeriksaan sehingga kurang efektif digunakan karena telah melewati waktu optimal reaksi enzimatik.

Kata Kunci : Trigliserida, Waktu Inkubasi, Metode Enzimatik GPO-PAP, Suhu Ruang.