

ABSTRACT

Background: Pre-analytic error is the biggest error in laboratory test, one of which is lipemic serum. Lipemic serum appears cloudy and milky white in color caused by chylomicrons, very low density lipoprotein (VLDL) and triglycerides. The turbidity in lipemic serum causes an increase in light scattering and light absorption in examination using spectrophotometric principles. Chitosan flocculants and high speed centrifugation are several alternatives that can be used to remove turbidity in serum.

Objective: To determine the agreement of total cholesterol levels in lipemic serum treated with chitosan flocculants and high speed centrifugation.

Research Method: This study was true experimental design using pretest-posttest control group design. This research was held in Chemical Laboratory of Poltekkes Kemenkes Yogyakarta on January – March 2022. The lipemic serum used in this study was 20 samples that met the exclusion and inclusion criteria. Data analysis was carried out descriptively and Interclass Correlation Coefficient (ICC) with the provisions of 80% power and α value of 0.05. The ICC calculation using the SPSS 25.0 program for windows.

Research Result: The results of the study were analyzed descriptively and Interclass Correlation Coefficient (ICC). The average difference of total cholesterol level in lipemic serum without treatment with addition of chitosan flocculants, and treated with high speed centrifugation was 24.65 and mg/dl 9.99 mg/dl respectively. The average difference of total cholesterol level in lipemic serum treated with chitosan flocculants and high speed centrifugation was 16.92 mg/dl. The ICC results obtained by 0.841.

Conclusion: The suitability of total cholesterol levels in lipemic serum treated with chitosan flocculants and high speed centrifugation was good.

Keywords: chitosan, high speed centrifugation, lipemic serum, flocculants

ABSTRAK

Latar Belakang: Kesalahan pada tahap pra analitik menyumbang kesalahan paling besar pada pemeriksaan laboratorium, salah satunya serum lipemik. Serum lipemik tampak keruh dan berwarna putih susu yang disebabkan oleh kilomikron, *very low density lipoprotein* (VLDL) dan trigliserida. Kekeruhan pada serum lipemik menyebabkan peningkatan hamburan cahaya dan penyerapan cahaya pada pemeriksaan yang menggunakan prinsip spektrofotometri. Flokulan kitosan dan *high speed* sentrifugasi merupakan beberapa alternatif yang dapat digunakan untuk menghilangkan kekeruhan pada serum.

Tujuan Penelitian: Mengetahui kesesuaian kadar kolesterol pada serum lipemik yang diolah dengan flokulan kitosan dan *high speed* sentrifugasi.

Metode Penelitian: Jenis penelitian ini adalah eksperimen murni dengan rancangan *Pretest-Posttest Control Group Design*. Penelitian ini dilakukan di Laboratorium Kimia Klinik Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Yogyakarta pada bulan Januari – Maret 2022. Serum lipemik yang digunakan berjumlah 20 yang memenuhi kriteria eksklusi dan inklusi. Analisis data dilakukan secara deskriptif dan *Interclass Correlation Coefficient* (ICC) dengan ketentuan kekuatan sebesar 80% dan nilai $\alpha = 0,05$. Perhitungan ICC menggunakan program SPSS 25,0 *for windows*.

Hasil Penelitian: Hasil pemeriksaan dianalisis secara deskriptif dan dianalisis menggunakan (*Interclass Correlation Coefficient*) ICC. Rerata kadar selisih kolesterol total pada serum lipemik tanpa perlakuan dengan penambahan flokulan kitosan, dan yang diolah dengan *high speed* sentrifugasi adalah 24,65 mg/dl dan 9,99 mg/dl. Rerata selisih kadar kolesterol total pada serum lipemik yang diolah dengan flokulan kitosan dan *high speed* sentrifugasi adalah 16,92 mg/dl. Hasil analisis ICC diperoleh sebesar 0,841.

Kesimpulan: Kesesuaian kadar kolesterol total pada serum lipemik yang diolah dengan flokulan kitosan dan *high speed* sentrifugasi adalah bagus.

Kata Kunci: kitosan, *high speed* sentrifugasi, serum lipemik, flokulan