

ABSTRAK

Ahsana Azka Mufidati

STABILITAS KADAR hs-CRP PADA PASIEN HIPERKOLESTEROLEMIA
BERDASARKAN VARIASI WAKTU PEMROSESAN SERUM DI SUHU
RUANG (20–25 °C) MENGGUNAKAN METODE FLUORESCENCE
IMMUNOASSAY

xvii + 47 Halaman + 6 Tabel + 13 Lampiran

Hiperkolesterolemia merupakan kondisi peningkatan kadar kolesterol dalam darah yang dapat memicu proses inflamasi sistemik melalui peningkatan kadar LDL dan pelepasan sitokin proinflamasi. Kondisi tersebut berperan dalam meningkatkan produksi C-reactive protein (CRP) sebagai penanda inflamasi sistemik. Pemeriksaan high-sensitivity C-reactive protein (hs-CRP) menggunakan metode *fluorescence immunoassay* (FIA) mampu mendeteksi kadar CRP dalam konsentrasi rendah, namun hasil pemeriksaan dapat dipengaruhi oleh faktor praanalitik seperti keterlambatan pemrosesan serum pada suhu ruang. Penelitian ini bertujuan untuk menilai stabilitas kadar hs-CRP serta pengaruh variasi waktu pemrosesan serum pada suhu ruang (20–25 °C) terhadap kadar hs-CRP pada pasien hiperkolesterolemia. Desain penelitian yang digunakan adalah *quasi experimental* dengan pendekatan *one-group repeated measures*. Sampel penelitian berupa serum dari 6 pasien hiperkolesterolemia yang memenuhi kriteria inklusi. Pemeriksaan kadar hs-CRP dilakukan menggunakan metode *fluorescence immunoassay* pada waktu pemrosesan serum 2 jam, 4 jam, 6 jam, dan 8 jam pada suhu ruang (20–25 °C). Analisis data dilakukan secara deskriptif dengan menghitung persentase deviasi (PD%) terhadap nilai *baseline* dan membandingkannya dengan batas toleransi $\pm 20\%$, serta secara inferensial menggunakan uji Friedman yang dilanjutkan dengan uji post hoc apabila diperoleh perbedaan yang bermakna. Hasil penelitian menunjukkan bahwa lama waktu pemrosesan serum pada suhu ruang berpengaruh signifikan terhadap kadar hs-CRP ($p = 0,001$). Uji post hoc menunjukkan adanya perbedaan yang signifikan antara waktu pemrosesan 2 jam dan 4 jam ($p = 0,044$). Secara deskriptif, kadar hs-CRP menunjukkan kecenderungan menurun seiring bertambahnya waktu pemrosesan, dan sebanyak 83,3% sampel mengalami perubahan melebihi batas toleransi $\pm 20\%$, sehingga dinyatakan tidak stabil selama penyimpanan pada suhu ruang hingga 8 jam.

Kata kunci : hs-CRP, hiperkolesterolemia, stabilitas serum, *fluorescence immunoassay*

Daftar bacaan : 12 buku, 55 artikel ilmiah, 3 sumber lainnya (2016–2026)

ABSTRACT

Ahsana Azka Mufidati

THE STABILITY OF *hs*-CRP LEVELS IN HYPERCHOLESTEROLEMIC PATIENTS BASED ON VARIATIONS IN SERUM PROCESSING TIME AT ROOM TEMPERATURE (20–25 °C) USING THE FLUORESCENCE IMMUNOASSAY METHOD

xvii + 47 Pages + 6 Tables + 13 Appendices

*Hypercholesterolemia is a condition characterized by elevated blood cholesterol levels that can trigger systemic inflammation and increase the production of C-reactive protein (CRP). Measurement of high-sensitivity C-reactive protein (*hs*-CRP) using the fluorescence immunoassay (FIA) method is capable of detecting CRP at low concentrations; however, the results may be affected by preanalytical factors such as delayed serum processing at room temperature. This study aimed to evaluate the stability of *hs*-CRP levels and the effect of variations in serum processing time at room temperature (20–25 °C) on *hs*-CRP levels in hypercholesterolemic patients. This study used a quasi-experimental design with a one-group repeated measures approach. Serum *hs*-CRP levels were measured using the fluorescence immunoassay method after serum processing delays of 2, 4, 6, and 8 hours at room temperature (20–25 °C). Data were analyzed descriptively by calculating the percentage deviation (PD%) from the baseline value and comparing it with the $\pm 20\%$ allowable bias limit, and inferentially using the Friedman test followed by a post hoc test when a statistically significant difference was detected. The results showed that serum processing delay at room temperature had a significant effect on *hs*-CRP levels ($p = 0.001$). Post hoc analysis demonstrated a significant difference between the 2-hour and 4-hour processing times ($p = 0.044$). Descriptively, *hs*-CRP levels tended to decrease as the serum processing delay increased, and 83.3% of the samples exceeded the $\pm 20\%$ allowable bias limit, indicating that *hs*-CRP was unstable at serum processing delays of 4, 6, and 8 hours at room temperature.*

Keywords : *hs*-CRP, hypercholesterolemia, serum stability, fluorescence immunoassay

References : 12 books, 55 scientific articles, 3 other sources (2016–2026)