ABSTRACT

Background: Hemolysis is one of the major pre-analytical errors that can affect the accuracy of laboratory test results, including *Aspartate Aminotransferase* (AST) examination. The addition of anti-Rh reagent has been reported to reduce hemolysis interference in several clinical chemistry parameters; however, its effect on AST examination remains unclear.

Objective: To evaluate the effect of anti-Rh addition to moderately hemolyzed serum on Aspartate Aminotransferase (AST) activity and to determine the mean AST activity.

Methods: This study employed a *quasi-experimental* design using a *post-test only control group design*. Samples consisted of venous blood collected from 29 healthy respondents who met the inclusion criteria. Samples were divided into three groups: normal serum with 0.9% NaCl addition, moderately hemolyzed serum with 0.9% NaCl addition, and moderately hemolyzed serum with anti-Rh addition. AST activity was measured using the IFCC kinetic enzymatic method at a wavelength of 340 nm. Data were analyzed using the *Friedman* test followed by the *Wilcoxon Signed Rank Test.*

Result: The mean AST activity was 9,09 U/L in normal serum, 17,46 U/L in moderately hemolyzed serum, and 19,55 U/L in moderately hemolyzed serum with anti-Rh addition. Friedman test showed a significant difference among groups ($p=0.000$), but no significant difference was found between moderately hemolyzed serum with and without anti-Rh addition ($p=0.148$).

Conclusion: The addition of anti-Rh was not effective in reducing hemolysis interference in Aspartate Aminotransferase (AST) measurement, and AST activity was higher in moderately hemolyzed serum than in normal serum

Keywords: *Aspartate Aminotransferase* (AST), *Moderate hemolysis*, Anti-Rh

ABSTRAK

Latar Belakang: Hemolisis merupakan salah satu penyebab utama kesalahan praanalitik yang dapat memengaruhi akurasi hasil pemeriksaan laboratorium, termasuk *Aspartate Aminotransferase* (AST). Penambahan reagen anti-Rh telah dilaporkan dapat mengurangi interferensi hemolisis pada beberapa parameter kimia klinik, namun pengaruhnya terhadap pemeriksaan AST belum diketahui.

Tujuan: Mengetahui pengaruh penambahan anti-Rh pada serum hemolisis sedang terhadap aktivitas enzim *Aspartate Aminotransferase* (AST) serta mengetahui rerata aktivitas AST.

Metode: Penelitian ini menggunakan desain *quasi experimental* dengan pendekatan *post test only control group design*. Sampel berupa darah vena dari 29 responden sehat yang memenuhi kriteria inklusi. Sampel dibagi menjadi tiga kelompok, yaitu serum normal dengan penambahan NaCl 0,9%, serum hemolisis sedang dengan penambahan NaCl 0,9%, dan serum hemolisis sedang dengan penambahan anti-Rh. Pemeriksaan AST dilakukan menggunakan metode kinetik enzimatik IFCC pada panjang gelombang 340 nm. Analisis data menggunakan uji *Friedman* dan uji lanjut *Wilcoxon Signed Rank Test.*

Hasil: Rerata aktivitas AST pada serum normal sebesar 9,09 U/L, serum hemolisis sedang sebesar 17,46 U/L, dan serum hemolisis sedang dengan penambahan anti-Rh sebesar 19,55 U/L. Uji *Friedman* menunjukkan adanya perbedaan bermakna antar kelompok (p=0.000), namun tidak terdapat perbedaan signifikan antara serum hemolisis sedang dengan dan tanpa penambahan anti-Rh (p=0.148).

Kesimpulan: Penambahan anti-Rh belum efektif dalam menurunkan interferensi hemolisis pada pemeriksaan AST dan Aktivitas AST pada serum hemolisis sedang lebih tinggi dibandingkan serum normal.

Kata kunci: *Aspartate Aminotransferase* (AST), Hemolisis sedang, Anti-Rh