

ABSTRACT

Background: The erythrocyte sedimentation rate (ESR) test is an important laboratory procedure for detecting and monitoring inflammation and the progression of chronic diseases. The conventional Westergren method is performed with the tube in a vertical position for 1 hour. However, the need for faster results in healthcare facilities has led to modifications of this method, one of which involves tilting the tube at a 45° angle for 7 minutes.

Objective: This study aims to determine the the results, the difference in results and the percentage difference in the mean results of the ESR Westergren method between the vertical position for 1 hour and the tilted 45° position for 7 minutes in samples from healthy individuals.

Methods: This research used an analytical observational design with a cross-sectional approach. The samples consisted of venous blood from 16 students of the Medical Laboratory Technology Department at Poltekkes Kemenkes Yogyakarta, selected using quota sampling. Data were analyzed descriptively and statistically using the Shapiro-Wilk normality test and Paired Samples t-Test.

Results: The mean ESR value in the vertical position for 1 hour was 12.1 mm/hour, while in the tilted 45° position for 7 minutes it was 15.9 mm/hour. The mean difference was 3.9 mm/hour, representing a 24.3% increase. Statistical analysis showed a significant difference between the two methods ($p=0.000$; $p<0.05$).

Conclusion: There is a significant difference between ESR results using the Westergren method in the vertical position for 1 hour and the tilted 45° position for 7 minutes, with the tilted position yielding higher ESR values.

Keywords: Erythrocyte Sedimentation Rate (ESR), Westergren method, vertical ESR for 1 hour, tilted position 45° for 7 minutes.

ABSTRAK

Latar Belakang: Pemeriksaan laju endap darah (LED) merupakan salah satu tes laboratorium yang penting dalam mendeteksi dan memantau proses peradangan serta perjalanan penyakit kronis. Metode westergren secara konvensional dilakukan dengan posisi tabung vertikal selama 1 jam. Namun, kebutuhan hasil yang lebih cepat di fasilitas kesehatan mendorong penggunaan modifikasi metode, salah satunya dengan memiringkan tabung pada sudut 45° selama 7 menit.

Tujuan: Penelitian ini bertujuan untuk mengetahui hasil, perbedaan hasil dan persentase selisih rerata hasil pemeriksaan LED metode westergren antara posisi vertikal selama 1 jam dan posisi miring 45° selama 7 menit pada sampel orang normal.

Metode: Penelitian ini menggunakan desain analitik observasional dengan pendekatan cross sectional. Sampel berupa darah vena dari 16 mahasiswa Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Yogyakarta, diambil menggunakan *quota sampling*. Data dianalisis secara deskriptif dan statistik menggunakan uji normalitas *Shapiro-Wilk* dan *Paired Samples t-Test*.

Hasil: Rerata hasil LED pada posisi vertikal selama 1 jam adalah 12,1 mm/jam, sedangkan pada posisi miring 45° selama 7 menit sebesar 15,9 mm/jam. Terdapat selisih rerata sebesar 3,9 mm/jam atau peningkatan 24,3%. Uji statistik menunjukkan perbedaan yang signifikan antara kedua metode ($p=0,000$; $p<0,05$).

Kesimpulan: Terdapat perbedaan bermakna antara hasil pemeriksaan LED dengan metode westergren posisi vertikal selama 1 jam dan posisi miring 45° selama 7 menit, di mana posisi miring menghasilkan nilai LED yang lebih tinggi.

Kata Kunci: Laju Endap Darah (LED), metode westergren, LED vertikal selama 1 jam, posisi miring 45° selama 7 menit.