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ABSTRACT

Comparative Analysis of the ESR Fast Detector Method Versus the Traditional Westergren Method and C-Reactive Protein Tests in Assessing Inflammation Among Palestinian Patients

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Background: The erythrocyte sedimentation rate (ESR) is a widely utilized laboratory test that helps assess various inflammatory conditions by serving as an indirect measure of the acute-phase response. Typically performed alongside C-reactive protein (CRP) testing, which offers more immediate and sensitive detection of inflammation, ESR is valued for its simplicity and low cost. However, it lacks specificity and can yield inconsistent results, particularly when using modified Westergren techniques such as the ESR fast detector. This study aims to evaluate the correlation and comparison between the ESR fast detector and the traditional ESR reference method in Palestinian patients with inflammatory conditions.

Methods: Blood samples were collected from 200 Palestinian patients exhibiting symptoms of inflammation or infection at private hospitals in the Hebron Governorate, including Al-Ahli Hospital and the Palestinian Red Crescent Hospital. The study involved testing using both the traditional ESR method and the ESR fast detector, alongside CRP testing. Patient data and test results were organized and analyzed according to the guidelines established by the International Council for Standardization in Hematology (ICSH). Additionally, an electronic questionnaire was

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distributed to 111 laboratories in the Hebron Governorate to assess the prevalence of ESR and CRP testing methods and the level of awareness regarding these tests.

Results: The analysis revealed significant differences in ESR values between men and women, with the fast detector showing lower median values overall, particularly in higher ESR groups. underscore the necessity for cautious interpretation of results, especially in patients with elevated ESR levels. Spearman's correlation coefficients indicated a strong relationship between the two methods, although subgroup analyses highlighted weaker correlations in lower ESR ranges. The findings underscore the necessity for cautious interpretation of results, especially in patients with elevated ESR levels. Notably, a significant relationship was also observed between ESR values and hospital departments, suggesting variations in underlying clinical conditions. Among individuals with positive CRP levels, there was a strong correlation between ESR measurements, indicating stability in ongoing inflammation.

Conclusion: The study concludes that while the fast detector modified ESR Westergren method may be beneficial for rapid assessments, it tends to underestimate ESR values compared to the traditional reference method, particularly in higher ESR ranges. This underscores the need for careful interpretation of results, especially in patients with elevated ESR. The strong correlation between ESR measurements and CRP levels suggests that ESR can provide valuable insights into ongoing inflammation when interpreted alongside other markers. Furthermore, the variability in ESR values observed across different hospital departments highlights the importance of considering clinical context when interpreting test outcomes. It is recommended that healthcare providers utilize the reference method for accurate measurements in settings with higher ESR levels, while the fast detector may be appropriate for initial screenings in less severe cases. Overall, careful consideration of the testing method and clinical circumstances is essential for optimizing patient care and ensuring the accuracy of inflammation assessments.

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