WESTERGREN SEDIMENTATION RATE USING K₃EDTA

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Abstract
Background: The (ESR) measures the sedimentation rate of aggregated erythrocyte in plasma, the (ICSH) recommendation published in 1977 on measurement of the ESR was for a selected (routine) method based on that of Westergren.

Objectives: This study describes the use of K₃EDTA as an alternative anticoagulant to sodium citrate in measuring the ESR by the Westergren technique. We have therefore used this method to compare the results of ESR by both the classic and modified methods, in addition, to establish the normal limits for the modified method. And to assess the storage stability of whole blood preserved with K₃EDTA at 4°C.

Subjects & methods: The erythrocyte sedimentation rate (ESR) values determined by the classic and the modified Westergren methods were recorded in 84 persons.

Results: There was no significant difference between the two methods using paired t-test (0.5>p>0.1), with a mean ESR in the classic method of 24.69 mm/hr, and 25.01 mm/hr in the modified Westergren method. Also the normal values of ESR using the modified method had been recorded in 74 apparently healthy persons, women tend to have a higher sedimentation rate values than men of comparable age. The storage stability of ESR of whole blood anticoagulant with K₃EDTA was determined; there was excellent storage stability up to 12 hours.

Conclusion: The modified method is an excellent method for measuring ESR using K₃EDTA anticoagulant, and it can be used in routine work because using the same anticoagulant used in routine hematological work. There was no significant difference between this method and the classic Westergren method.

Key Words: Westergren Sedimentation Rate, K₃EDTA

Introduction
The erythrocyte sedimentation rate (ESR) test measures the sedimentation rate of aggregated erythrocytes in plasma. The international committee for standardization in hematology (ICSH) recommendation published in 1977 on measurement of the ESR was for a selected (routine) method based on that of Westergren method which proved a greater precision than the Wintrobe method¹-⁴. Measurement of the ESR is frequently used non specific test which may indicate the presence of inflammation. The Westergren method for measuring the ESR has greater clinical precision than the Wintrobe method¹-⁴. Measurement of the ESR is a frequently used non-specific test which may indicate the presence of inflammation or occult disease and confirm the presence of disease diagnosed by other means, or serve as a guide in following the course of a disease.

The ESR may be significantly increased suggesting an organic disease, when clinical and other laboratory findings are negative. Conversely, a normal ESR is reassuring in a patient believed to have no organic disease, although a normal ESR does not rule out the presence of organic disease⁵.

This study described the use of K₃ EDTA as an alternative anticoagulant to sodium citrate in measuring the ESR by the Westergren technique following the exact procedure of the classic method.

Aim of the study:
This study is designed to:
1. Compare the results of ESR read by both the classic and modified methods.
2. Establishing the normal limits for the modified method.
3. Assessing the storage stability of whole blood preserved with K₃EDTA at 4°C.

Patients & Methods
Prospectively, during the period from February 2001 to March 2002, the blood samples of 84 patients with different clinical disorders (42 males and 42 females, their ages range between 10-75 years) along with 74 apparently healthy individuals, no systemic illness, non pregnant and on no medications, utilized as control (37