
Readers' Forum

Low ESR

Q. Which is the cut off value to define low erythrocyte sedimentation rate (ESR)? Does low ESR help in arriving at a particular diagnosis or prognosis.

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A. The Westergren method is the standard recommended by the International Council for Standardization in Hematology for measurement of the erythrocyte sedimentation rate (ESR)(1). In this, EDTA blood is sedimented in an open-ended glass tube (30 cm, length, diameter 2.55 mm) at ambient room temperature (18-25°C)(1).

Sedimentation occurs because of the difference in specific gravity between red cells and plasma and is dependent chiefly on the tendency of red cells to form rouleaux, which are aggregates of large volume but have small surface area(1,2). Rouleaux formation is dependent chiefly on the concentration of fibrinogen and other acute phase proteins (e.g., haptoglobin, ceruloplasmin, C-reactive protein) and is retarded by albumin(1,2).

An ESR of 1-10 mm in 1st hour is considered to be normal in children, and in the preadolescent age-group there is no differ-

ence between boys and girls. The ESR is low in newborns(1).

Low ESR (0-1 mm in 1st hour) may be seen in congestive heart failure, spherocytosis, hypofibrinogenemia, polycythemia, sickle cell anemia and poikilocytosis(1,2). Lower values may also be recorded if ambient temperature is very low (1,2). A more accurate method of estimating the ESR is by determining the zeta sedimentation rate (ZSR) which requires a special centrifuge (zetafuge)(2). It can be performed on micro-quantities and the values obtained are not affected by the degree of anemia.

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