

COMPARISON OF PV AND ESR CLINICAL ASPECTS

Plasma viscosity	ESR
Normal range the same for both sexes	Normal range different for both sexes
Unaffected by physiological stimuli (except in pregnancy)	Influenced by age and haematocrit (Red cell concentration)
Increased result due to change in protein concentration (mainly fibrinogen and/or globulins)	No exact cause can be stated for increase in ESR (Changes in Red cell shape/concentration and protein changes)
Abnormal results detected earlier	Abnormal results detected later
Low incidence of false negative results	High incidence of false negative results
Serial tests in an individual responding to therapy would show a fall in PV on a continuous curve	ESR results show irregular peaks and troughs without clinical explanation
High dose steroids do not normalise the PV. (Inflammation must be reduced)	High dose steroids will return ESR to normal. (Underlying disease may not be improved)
Salicylates have no effect on PV	Salicylates can lower the ESR result without improving the underlying condition of the patient
Polycythaemia does not interfere with measurements	Haematocrit >50% will produce a normal ESR irrespective of the underlying disease
Results in myeloma and macroglobulinaemia are characteristic and can be diagnostic	ESR cannot distinguish between protein abnormalities and inflammatory conditions

TECHNICAL ASPECTS

Plasma viscosity	ESR
Unaffected by time-induced deterioration and can be analysed up to 1 week post sampling	Must be analysed within 4 hours of sampling unless EDTA sample, which has a 24 hour time limit
Unaffected by anaemia	Affected by anaemia
Variations in red cell size and shape have no effect	Red cell size and shape variations affect the rate of sedimentation
All results are universally comparable. Calibration using fully traceable, CE marked reagents	Results not universally comparable due to different anticoagulants, tubes and timing methods.
External Independent Quality Control is available (Central Quality Assurance Scheme QEHL Birmingham UK.)	No Independent Quality Control possible.
Time factor: from receipt of sample, centrifugation and testing takes 10 minutes if lab is notified in advance	Time factor: from receipt of sample, setting up and reading of result takes 65 minutes