Guidance on Plasma Viscosity (PV)

Background

Plasma Viscosity (PV) is a laboratory test to assess the viscosity of a patient's blood. It is affected by the presence of proteins produced in normal response to infection or inflammation, or abnormally in certain diseases (paraproteins).

The normal range is 1.50 -1.72 mPa.s. PV is not specific for rheumatological conditions and there are many other conditions that can lead to a raised PV level.

Conditions to consider:

- Infections including HIV, Hepatitis B and C (which can cause hypergammaglobulinaemia), bronchiectasis, recurrent UTIs
- Malignancy (especially haematological/ lymphoproliferative, multiple myeloma)
- Inflammatory bowel disease
- Endocrine disease (Grave's, autoimmune thyroiditis)
- Liver disease
- Inflammatory bowel disease
- Polycystic ovarian syndrome
- Hyperlipidaemia/ vascular disease
- Sarcoidosis
- Autoimmune conditions (rheumatoid arthritis, Sjogrens, psoriatic arthritis, SLE, polymyalgia rheumatica, sarcoidosis etc)
- Obesity

Be aware

- Patients with Sjogren's syndrome will have high PV due to raised IgG, so PV will be chronically elevated.
- Obesity causes raised PV, possibly due to insulin resistance and high fibrinogen levels.

Referring to secondary care

Referral to rheumatology should be on the basis of clinical suspicion of an inflammatory rheumatological process rather than isolated raised PV. CRP is a more sensitive marker of inflammation than PV.

What to do with a raised PV

In the first instance, repeat the test 2 weeks later and check CRP.

If it remains raised:

1) Review patient's clinical signs/symptoms - any red flags eg weight loss, fevers, sweats, joint swelling, altered bowel habit, jaundice, rash, muscle pain/ weakness
2) Review patient's previous blood results to see if longstanding
3) Other investigations to check:
    - FBC, U&Es, LFTs
    - Thyroid Function
    - Lipids (cholesterol, triglycerides)
    - Immunoglobulins
    - Serum electrophoresis
    - Urinary Bence-Jones proteins
    - Urinalysis

If risk factors/ symptoms suggestive, consider:

- Infection screen (including CXR, cultures eg sputum, urine)
- Hepatitis B, C, HIV serology
- Immunology
    - Cyclic Citrullinated Peptide antibody if symmetrical small joint swelling, pain and stiffness
    - CTD (connective tissue disease) screen **only** if features of a CTD
- Imaging/GI investigations - as guided by red flag symptoms
- If suspect giant cell arteritis, see referral pathway and information about diagnosis and management

This list is by no means exhaustive and should be led by the patient's symptoms. PV should not be done as routine screening without considering the patient's underlying presentation.

Written by Dr. Su Tan
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