Heritable Thrombophilia. Recommendations for Screening. 2001/2

The term thrombophilic is used to describe those patients who:
1. Have developed venous thrombosis either spontaneously or of a severity out of proportion to any recognised stimulus.
2. Have recurrent venous thrombotic events.
3. Develop venous thrombosis at an early age.

Initial assessment of patients with a clinical picture suggestive of thrombophilia should include:
1. Careful personal and family history of thrombosis. Where possible it should be established whether or not the venous thrombosis was objectively confirmed. If this is not the case: was the history plausible and did it result in anticoagulant treatment?
2. Presence of additional risk factors:
   Advancing age, past history of venous thrombosis, immobility, trauma, surgery, nephrotic syndrome, inflammation, hormone use, pregnancy/postpartum, obesity, occult neoplasm and myeloproliferative disorder.

Selection of Patients for testing:

Once the initial assessment (as above) is complete, the following questions should be considered:

Will the result relate to the possibility of preventing a first venous thrombosis in an affected individual or their relatives?
Will the result alter the future management of the patient or their relatives?

It is therefore recommended that thrombophilia screening be requested in the following groups:
1. Venous thrombosis <45 years of age.
2. Strong family history of venous thrombosis.
3. Spontaneous venous thrombosis at any age i.e. in the absence of significant risk factors.
4. Recurrent miscarriage x3.

Heritable thrombophilia screening is NOT believed to be of value in relation to arterial thrombosis: i.e. peripheral vascular disease, TIA’s, CVA’s and ischaemic heart disease.

When to collect samples:

- Best delayed until 1 month after completion of a course of anticoagulants.
- Avoid testing during intercurrent illness, pregnancy or hormone use. If this is not possible the interpreter must be aware of the facts.
- Not during the acute thrombotic state. The results will not influence management of the acute event and can be difficult to interpret.

Practicalities of sampling:

If having considered all of the above, thrombophilia screening is still required this can be accomplished by:

1. Hospital patients: sending 20 ml citrated blood (light green) + 10ml clotted sample (brown) to the haematology laboratory. Request forms and bottles can be obtained from the laboratory
on ext. 2442. The sample should arrive within 1 hr of sampling. If this is not possible patients should be issued with a request form and asked to telephone to arrange a mutually convenient time for sampling (as for GP samples)

2. GP patients: request forms and bottles can be obtained from the laboratory on ext. 2442. The sample should arrive within 1 hr of sampling. If this is not possible patients should be issued with a request form and asked to telephone to arrange a mutually convenient time for sampling.

   a) Shotley Bridge Hospital patients should be requested to telephone the Medical Day Unit on 01207 214190 on Mondays 9am- 4pm, Tuesdays between 1pm and 4pm or Thursdays 9am – 1pm to arrange a time for sampling by nursing staff.

   b) Durham patients should be requested to telephone the laboratory on 0191 333 2442 at any time.

Please ensure the time of sampling is marked on the bottle and that all relevant clinical information is written on the request form. Failure to do this may result in misinterpretation of the results with consequent additional unnecessary work for the lab and anxiety for the patient.

Laboratory Tests:

1. Activated partial thromboplastin time (APTT): may identify some patients with antiphospholipid antibodies.
3. Reptilase time: may allow identification of dysfibrinogenaemia and heparin contamination.
4. Protein C assay. Natural anticoagulant, deficiency of which may result in thrombophilia.
5. Protein S assay. Natural anticoagulant, deficiency of which may result in thrombophilia.
6. Antithrombin 111 assay. Natural anticoagulant, deficiency of which may result in thrombophilia.
7. Activated protein C resistance with factor V deficient plasma. APCR-V. This is a phenotypic test for the Factor-V Leiden mutation. A low APCR-V may need Factor-V Leiden DNA analysis to confirm the presence of this mutation.
8. Prothrombin G20210A mutation. This is a PCR based test

Interpretation of Results:

Interpretation of results can be difficult and is fraught with pitfalls. Detailed clinical information is vital and careful consideration of the above comments is advised. It is recommended that patients with confirmed inheritable thrombophilia are referred to a haematologist for appropriate counselling and consideration of family screening.

It is also important to note that the absence of laboratory evidence of an inherited thrombophilic defect is informative only if a genetic abnormality segregating with clinical thrombosis has already been identified within the kindred. This is of particular relevance in screening women prior to hormone use.


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