Title	Thrombophilia Testing in People with Venous Thromboembolism: Systematic Review and Cost-Effectiveness Analysis
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Aim

To assess whether thrombophilia testing following a venous thrombotic event is clinically and cost effective in managing thrombosis compared to no testing for thrombophilia.

Conclusions and results

In terms of determining the duration of anticoagulation management, scenarios were found in which the cost per QALY of thrombophilia testing was below 20 000 pounds sterling (GBP). However, these results are subject to great uncertainty, largely due to lack of knowledge about the increased risk of recurrence with each type of thrombophilia. Results are influenced by the fact that men have a greater risk of recurrence than women and by the fact that the frequency of adverse events associated with warfarin treatment increases with age. Further research, eg, on the likely sensitivity and specificity of the tests for specific types of thrombophilia, is needed to reduce the uncertainty associated with these results. Studies comparing patients with a venous thromboembolic event (VTE) tested for thrombophilia against those whose risk assessment was based on personal and family history of thrombosis would also be beneficial. No clinical studies were identified that met the inclusion criteria for the systematic review. Further literature searches and clinical opinion were therefore used to inform the cost-effectiveness analysis. Thrombophilia testing in patients with pulmonary embolism (PE) had an estimated mean cost per quality-adjusted life-year (QALY) of below GBP 20 000 regardless of sex or age. In patients with a previous deep vein thrombosis (DVT), thrombophilia testing had an estimated mean cost per QALY of below GBP 20 000 in men aged 69 years or less and in women aged 49 years or less. The estimated duration of warfarin treatment (lifelong, 20 years, 10 years, or no extended treatment) that was most cost-effective is presented for each age, sex, initial VTE, and type of thrombophilia.

Recommendations

No clinical studies were identified that met the inclusion criteria for the review. Our mathematical model estimates that undertaking thrombophilia testing on patients with PE has a mean cost per QALY below GBP 20 000 regardless of sex or age, although these values are uncertain. In patients with a previous DVT, thrombophilia testing has an estimated mean cost per QALY below GBP 20 000 in men aged 69 years or less and in women aged 49 years or less, but again the values are uncertain.

Methods A comprehensive search was undertaken to systematically identify literature on clinical and cost effectiveness that compared thrombophilia testing of patients with thrombosis with no testing, and the resulting long-term anticoagulation management and outcomes. A discrete event simulation model was constructed that assessed the cost effectiveness of changing the standard 3-month duration of warfarin treatment to 10 years, 20 years, or lifelong. The model was run for both sexes, using hypothetical cohorts of patients assumed to be 30, 40, 50, 60, and 70 years of age. Separate analyses were conducted for patients in whom the initial VTE was a DVT and for those in whom the initial VTE was a PE.

Further research/reviews required

See Executive Summary link at www.hta.ac.uk/project/1552.asp.

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