Diagnostic testing for coagulopathies in patients with ischemic stroke

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Authors' objectives
The authors' stated aim was to estimate post-test probabilities for coagulation tests in general ischaemic stroke patients.

Searching
MEDLINE was searched from January 1996 to December 1999 for English language studies. The authors also searched the references of publications, letters to the editor and abstracts.

Study selection
Study designs of evaluations included in the review
Studies that had a control were eligible, including case-control studies, cross-sectional studies and prospective cohort studies.

Specific interventions included in the review
Studies that used specific diagnostic tests for coagulopathies were eligible. The coagulation tests assessed in the included studies were tests to identify deficiencies in protein C, protein S, antithrombin III, plasminogen, activated protein C resistance/factor V Leiden mutation, anticardiolipin antibodies or lupus anticoagulant.

Reference standard test against which the new test was compared
The reference standard appears to have been the incidence of stroke.

Participants included in the review
Studies that included patients with ischaemic stroke were eligible. Studies that included patients with coronary heart disease were excluded.

Outcomes assessed in the review
Studies that reported the sensitivity and specificity were eligible. The outcomes reported included the post-test probability of disease.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

When the odds ratios and 95% confidence intervals were not reported, the authors calculated them from the numbers of reported cases and controls. The positive likelihood ratio was calculated for each study from the sensitivity and specificity, and was used to calculate the post-test probability of disease.

Methods of synthesis
How were the studies combined?
The findings were presented in a narrative synthesis.
How were differences between studies investigated?
The studies were grouped according to the type of test used.

Results of the review
Fifty-five controlled studies were included: 43 case-control studies, 3 nested case-control studies, 4 prospective cohort studies and 5 cross-sectional studies. Five studies provided data on the sensitivity and specificity.

The cumulative pre-test probabilities of coagulation defects in unselected ischaemic stroke patients were low. The authors calculated pre-test probabilities that ranged from 3 to 21%. The post-test probabilities of anticardiolipin antibodies, lupus anticoagulant and activated protein C resistance increased with increasing pre-test probability, the specificity of the tests, and features of the patients' history and clinical presentation. Data were not available to calculate the pre- and post-test probabilities for protein C, protein S and antithrombin III deficiencies.

Authors' conclusions
The authors concluded 'coagulation tests are often of little value in the evaluation of general patients with ischaemic stroke'.

CRD commentary
The authors posed a clear review question and applied relevant inclusion and exclusion criteria. The search was limited to one database and reference searching, and it is therefore likely that some relevant studies may have been missed. In addition, the study selection and data extraction processes were not described and the validity of the included studies was not formally assessed. Details of the studies were adequately presented in tabular format and the authors provided a narrative synthesis of the results. Despite the limitations outlined, the authors' conclusions appear to follow from the data presented.

Implications of the review for practice and research
Practice: The authors proposed a scheme for testing ischaemic stroke patients for coagulation, full details of which were reported in the paper.

Research: The authors stated that additional prospective, controlled studies in unselected ischaemic stroke patients are needed.

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