

# **Thromboelastography: a new test for targeting anticoagulant therapy in women with repeated implantation failure**

Gavin Sacks, Sylvia To, Rosalie Gemmell, Michael Chapman

Repeated implantation failure (RIF) encompasses both recurrent miscarriage and repeated IVF failure and is the cause of considerable distress. This has led to the empirical use of anticoagulants, although most randomised trials have failed to demonstrate significant benefit. Nevertheless it is possible that such therapy might still be beneficial in a particular subgroup of patients. Thromboelastography (TEG) is a quick and reliable test to determine coagulation status of whole blood. It is widely used in acute and surgical hospital care. A previous report has demonstrated its potential use in women with recurrent miscarriage.

800 women with a history of RIF had a TEG test performed, in conjunction with a comprehensive conventional thrombophilia screen including full blood count, cardiolipin antibodies, lupus anticoagulant, activated protein C resistance, factor V Leiden, prothrombin gene mutation, MTHFR, homocysteine, protein C, protein S and antithrombin III. 310 (39%) were found to have an increased clotting tendency (maximum amplitude (MA)>64), and 52 (6.5%) had an MA>69. In this sample, all specific thrombophilias were detected at higher frequencies than would be expected in a general population. The most common abnormality found was the presence of raised cardiolipin antibodies (13.4%) followed by the MTHFR mutation (12.1%). In women with mildly raised clotting tendency (TEG MA 64-68.9) 33.6% had at least one positive result on the thrombophilia screen, and in women with more severe clotting dysfunction (MA>69) 46.2% had an abnormality.

In women with RIF the cost-effectiveness of a TEG test as a screening test for specific (more expensive) thrombophilic tests should be explored. Moreover, the global clotting dysfunction detected in 39% of women with TEG indicates that those patients might be targeted for anticoagulant therapy (regardless of other tests). This should be the basis of future anticoagulant trials in women with RIF.