

Viscoelastic point-of-care testing to assist with the diagnosis, management and monitoring of haemostasis: a systematic review and cost-effectiveness analysis

Some further sensitivity analyses

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Background

In the comments received from various commentators, it was mentioned that the assays used in ROTEM and TEG were not fully comparable. In order to address this issue, we have explored how the results would change if other combinations of assays are used in VE testing. Since the comments received only addressed the comparability of ROTEM versus TEG, we have made no changes to the Sonoclot arm of the model. However, it is likely that these assays should be changed as well, so the results of Sonoclot should be seen as indicative only.

We first present a table listing the various scenarios for which the costs of assays was calculated. Then we present the result of the sensitivity analyses, separately for the cardiac and the trauma population.

In addition, the results are presented for 2 other scenarios. One is where VE testing is not done instead of SLT but additional to SLT, the other is a worst case scenario where transfusion rate in SLT is low, and the relative risk of reducing this rate is high.

Scenarios ROTEM assays

	Cardiac 1		Cardiac 2		Cardiac 3		Trauma 1		Trauma 2		Trauma 3		
	Cost per assay	Number	Costs	Number	Costs	Number	Costs	Number	Costs	Number	Costs	Number	Costs
EXTEM	£ 4.28	3	£ 12.84					5	£ 21.40	5	£ 21.40	3	£ 12.84
FIBTEM	£ 5.37	3	£ 6.11					5	£ 26.85				
INTEM	£ 4.28	1	£ 4.28	3	£ 12.84	2	£ 8.56	1	£ 4.28				
HEPTEM	£ 5.58	1	£ 5.58	3	£ 16.74	2	£ 11.16	1	£ 5.58				
Total			£ 38.81		£ 29.58		£ 19.72		£ 58.11		£ 21.40		£ 12.84

Scenarios TEG assays

	Cardiac 1		Cardiac 2		Cardiac 3		Trauma 1		Trauma 2		Trauma 3		
	Cost per assay	Number	Costs	Number	Costs	Number	Costs	Number	Costs	Number	Costs	Number	Costs
Rapid TEG	£ 11.25	3	£ 33.75					5	£ 56.25	5	£ 56.25	3	£ 33.75
Funct. Fibrogen	£ 8.75	3	£ 26.25					5	£ 43.75				
Standard kaolin	£ 4.08	1	£ 4.08	3	£ 12.24	2	£ 8.16	1	£ 4.08				
Heparinase	£ 10.11	1	£ 10.11	3	£ 30.33	2	£ 20.22	1	£ 10.11				
			£ 74.19		£ 42.57		£ 28.38		£ 114.19		£ 56.25		£ 33.75

Additional Scenarios cardiac surgery patients	Tec hnology	LYs	QALYs	Cost	Incr. QALY vs. SLT	Incr. Cost vs. SLT	ICER vs. SLT
Base case	ROTEM®	0.9660	0.8773	£2,588	0.0047	-£43	Dominance
	TEG®	0.9660	0.8773	£2,552	0.0047	-£79	Dominance
	Sonoclot®	0.9660	0.8773	£2,499	0.0047	-£132	Dominance
	SLT	0.9624	0.8726	£2,631			
VE testing in addition to SLTs	ROTEM®	0.9660	0.8773	£2,666	0.0047	£35	£7,487
	TEG®	0.9660	0.8773	£2,630	0.0047	-£1	Dominance
	Sonoclot®	0.9660	0.8773	£2,577	0.0047	-£54	Dominance
	SLT	0.9624	0.8726	£2,631			
Lower probability of transfusion=0.429 Higher RR of transfusion=0.96	ROTEM®	0.9715	0.8845	£2,511	0.0011	£10	£8,698
	TEG®	0.9715	0.8845	£2,475	0.0011	-£26	Dominance
	Sonoclot®	0.9715	0.8845	£2,422	0.0011	-£79	Dominance
	SLT	0.9707	0.8833	£2,501			
3 sets of tests performed: first test 4 assays (extem, fibtem, intem, heptem), then second and third tests 2 assays (extem, fibtem) 3 sets of tests performed: first test 4 assays (rapid TEG, Fibrinogen, Standard Kaolin, Heparinase), then second and third tests 2 assays (rapid TEG, Fibrinogen) 3 sets of tests performed: assays as in Base Case As in base case	ROTEM®	0.9660	0.8773	£2,568	0.0047	-£63	Dominance
	TEG®	0.9660	0.8773	£2,575	0.0047	-£56	Dominance
	Sonoclot®	0.9660	0.8773	£2,499	0.0047	-£132	Dominance
	SLT	0.9624	0.8726	£2,631			
3 sets of tests performed: 2 assays (intem, heptem) 3 sets of tests performed: 2 assays (Standard Kaolin, Heparinase) 3 sets of tests performed: assays as in Base Case As in base case	ROTEM®	0.9660	0.8773	£2,559	0.0047	-£72	Dominance
	TEG®	0.9660	0.8773	£2,543	0.0047	-£87	Dominance
	Sonoclot®	0.9660	0.8773	£2,499	0.0047	-£132	Dominance
	SLT	0.9624	0.8726	£2,631			
2 sets of tests performed: 2 assays (intem, heptem) 2 sets of tests performed: 2 assays (Standard Kaolin, Heparinase) 2 sets of tests performed: assays as in Base Case As in base case	ROTEM®	0.9660	0.8773	£2,522	0.0047	-£98	Dominance
	TEG®	0.9660	0.8773	£2,512	0.0047	-£108	Dominance
	Sonoclot®	0.9660	0.8773	£2,482	0.0047	-£138	Dominance
	SLT	0.9624	0.8726	£2,620			

LY, life years; QALY, quality-adjusted life year

Additional Scenarios trauma patients	Technology	LYs	QALYs	Cost	Incr. QALY vs. SLT	Incr. Cost vs. SLT	ICER vs. SLT
Base case	ROTEM®	0.8425	0.5713	£6,973	0.0069	-£688	Dominance
	TEG®	0.8425	0.5713	£6,940	0.0069	-£721	Dominance
	Sonoclot®	0.8425	0.5713	£6,842	0.0069	-£818	Dominance
	SLT	0.8343	0.5644	£7,661			
VE testing in addition to SLTs	ROTEM®	0.8425	0.5713	£7,103	0.0069	-£558	Dominance
	TEG®	0.8425	0.5713	£7,070	0.0069	-£591	Dominance
	Sonoclot®	0.8425	0.5713	£6,972	0.0069	-£688	Dominance
	SLT	0.8343	0.5644				
Lower probability of transfusion=0.209 Higher RR of transfusion=0.96	ROTEM®	0.8600	0.5859	£6,395	0.0015	-£346	Dominance
	TEG®	0.8600	0.5859	£6,361	0.0015	-£379	Dominance
	Sonoclot®	0.8600	0.5859	£6,264	0.0015	-£476	Dominance
	SLT	0.8582	0.5844	£6,740			
3 sets of tests performed: first test 4 assays (extem, fibtem, intem, heptem), then second and third tests 2 assays (extem, fibtem) 3 sets of tests performed: first test 4 assays (rapid TEG, Fibrinogen, Standard Kaolin, Heparinase), then second and third tests 2 assays (rapid TEG, Fibrinogen) 3 sets of tests performed: assays as in Base Case As in base case	ROTEM®	0.8425	0.5713	£6,961	0.0069	-£699	Dominance
	TEG®	0.8425	0.5713	£6,970	0.0069	-£690	Dominance
	Sonoclot®	0.8425	0.5713	£6,842	0.0069	-£818	Dominance
	SLT	0.8343	0.5644	£7,661	0.8343		
3 sets of tests performed: 2 assays (intem, heptem) 3 sets of tests performed: 2 assays (Standard Kaolin, Heparinase) 3 sets of tests performed: assays as in Base Case As in base case	ROTEM®	0.8425	0.5713	£6,925	0.0069	-£736	Dominance
	TEG®	0.8425	0.5713	£6,912	0.0069	-£748	Dominance
	Sonoclot®	0.8425	0.5713	£6,842	0.0069	-£818	Dominance
	SLT	0.8343	0.5644	£7,661	0.8343		
2 sets of tests performed: 2 assays (intem, heptem) 2 sets of tests performed: 2 assays (Standard Kaolin, Heparinase) 2 sets of tests performed: assays as in Base Case As in base case	ROTEM®	0.8425	0.5713	£6,863	0.0069	-£746	Dominance
	TEG®	0.8425	0.5713	£6,855	0.0069	-£753	Dominance
	Sonoclot®	0.8425	0.5713	£6,813	0.0069	-£796	Dominance
	SLT	0.8343	0.5644	£7,609	0.8343		

LY, life years; QALY, quality-adjusted life year