

Point-of-care testing devices for myocardial infarction markers

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INTRODUCTION

Point-of-care (POC) testing refers to simple, user-friendly and quick testing systems that are available at the patient bedside.¹

Rapid diagnosis and risk stratification for timely critical treatment decisions to be made is important in myocardial infarction (MI), which can be facilitated by POC testing near the site of patient care.²

AIM

To review POC testing devices for MI biomarkers available on the market in Malta

METHOD

- POC devices for MI biomarkers (TnI, TnT, CK-MB, Myoglobin) available on local market were identified through communication with product specialists.
- Performance and operational characteristics of the devices were reviewed, including test principle, accuracy, sensitivity, specificity, minimum detection limit, measurement range, sample type and volume, time for result, quality controls, storage requirements and costs.

RESULTS

- Five devices were identified; 2 test cassette devices and 3 portable bench-top analysers using test strips.
- Accuracy of the devices ranges from 97.5 to 99.7%, sensitivity 67.9 to >99.9% and specificity 68.5% to 99.4%.
- Test cassettes provide qualitative results and a minimum detection limit is indicated for each biomarker, while the bench-top analysers provide quantitative results with a measurement range specified for each biomarker.
- Test cassettes have built-in quality controls (QC) and bench-top devices have additional external QC solutions or test strips.
- No explicit storage requirements for the tests are specified.
- Bench-top analysers can be connected to a laboratory information system for documentation of test results.

Table 1: Comparison of POC testing device characteristics

	Combo Rapid Test Cassette (Acro Biotech)	PreventID TnI Test Cassette (Preventis)	Triage Cardiac Panel (Quidel)	Cobas Cardiac T (Roche Diagnostics)	AQT90 Flex Cardiac Risk Test Panel (Radiometer)	
Biomarkers tested	TnI, CK-MB, Myoglobin	TnI	TnI, CK-MB, Myoglobin	TnT	TnI, CK-MB, Myoglobin	
Test principle	Chromatographic immunoassay		Fluorescence immunoassay			
Sample type	Venous or fingerstick whole blood		Venous whole blood			
Sample volume	50µL		250µL	150µL	2,000µL	
Time for result	10 minutes		20 minutes	12 minutes	18 minutes	
Cost	Analyser	Not applicable		€6,000	€2,000	Not available
	Per Test	€10.50	€10.00	€28.00	€11.45	

CONCLUSION

Various POC testing devices for MI biomarkers are available on the local market with a cost per test ranging from 10 Euro to 28 Euro and a maximum turnaround time of 20 minutes. Identification of a POC test that may be implemented in practice requires evaluation of performance and operational characteristics.

References

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