

CLINICAL, ECG AND BLOOD BASED BIOMARKERS ASSOCIATED WITH AF DETECTION DURING CARDIAC MONITORING AFTER STROKE OR TIA: A SYSTEMATIC REVIEW AND META-ANALYSIS



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INTRODUCTION

- Cardiac monitoring is performed to search for AF after ischaemic stroke or TIA.
- There are delays to obtaining cardiac monitoring and the yield is low.
- Prolonged cardiac monitoring detects many more cases of AF but is costly.

Aims

- To identify clinical, ECG and blood based biomarkers associated with AF detection after ischaemic stroke or TIA, to help inform patient selection for cardiac monitoring strategies.

METHODS

- Systematic review and meta-analysis:

Population	People with ischaemic stroke or TIA and no known AF
Intervention	Clinical, ECG and blood based biomarkers
Comparison	Not applicable
Outcome	AF detection ≥ 30 seconds duration
Timing	Prognostic factors at time of stroke/TIA AF detection within 1 year after stroke/TIA
Setting	Inpatient or outpatient

- Random effects models were used to create summary estimates of risk.
- Variables with odds ratio >3.00 were considered strongly associated with AF detection.
- Risk of bias was assessed using the QUIPS tool.

CONCLUSIONS

- We have identified multi-modal biomarkers that could guide patient selection for prolonged cardiac monitoring after stroke.
- The prognostic utility of these biomarkers should be assessed in real world practice.

RESULTS

- 8503 studies** were retrieved and **34 studies** were selected after screening.
- 69 prognostic biomarkers** were assessed (**42 clinical**, **20 ECG based** and **7 blood based**)
- The **34 studies** included **11569 people** and **AF was detected in 1478 people (12.8%)**
- Overall, **risk of bias** was **moderate**.
- 21 variables** were associated with AF detection and **5** were associated with no AF detection.

Variable	Odds ratio	95% CI	P-value
Age	3.26	2.35-4.54	<0.001
Female	1.47	1.23-1.77	<0.001
Heart failure	2.56	1.34-2.42	<0.001
Hypertension	1.42	1.15-1.75	0.001
Ischaemic heart disease	1.80	1.34-2.42	<0.001
Modified Rankin Scale score	6.13	2.93-12.84	<0.001
NIHSS score	2.50	1.64-3.81	<0.001
No significant ($\geq 50\%$) intracranial or carotid artery stenosis	3.02	1.67-5.46	<0.001
Smoking	0.52	0.40-0.68	<0.001
Statin	2.07	1.14-3.73	0.016
Systolic BP	1.61	1.16-2.22	0.004
Thrombolysis	4.63	1.43-15.00	0.011
TIA as index event	0.61	0.44-0.85	0.003
AV conduction block	2.12	1.08-4.17	0.029
Left ventricular hypertrophy on ECG	2.21	1.03-4.74	0.043
Maximum P-wave duration	3.19	1.40-7.25	0.006
Minimum P-wave duration	0.53	0.29-0.98	0.041
Premature atrial contraction	3.90	1.74-8.74	0.001
PR interval	2.32	1.11-4.83	0.025
P-wave dispersion	7.79	4.16-14.61	<0.001
P-wave index	3.44	1.87-6.32	<0.001
QTc interval	3.68	1.63-8.28	0.002
Brain natriuretic peptide	13.73	3.31-57.07	<0.001
HDL-Cholesterol	1.49	1.17-1.88	0.001
LDL-Cholesterol	0.73	0.57-0.93	0.012
Triglycerides	0.51	0.41-0.64	<0.001

Blue = associated with AF detection; Red = associated with no AF detection; Bold = Odds ratio >3.00

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