

POSSIBLE ROLE OF THE IMPLANTABLE LOOP RECORDER IN THE EVALUATION OF PATIENTS AFFECTED BY CRYPTOGENIC STROKE

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Introduction and objective

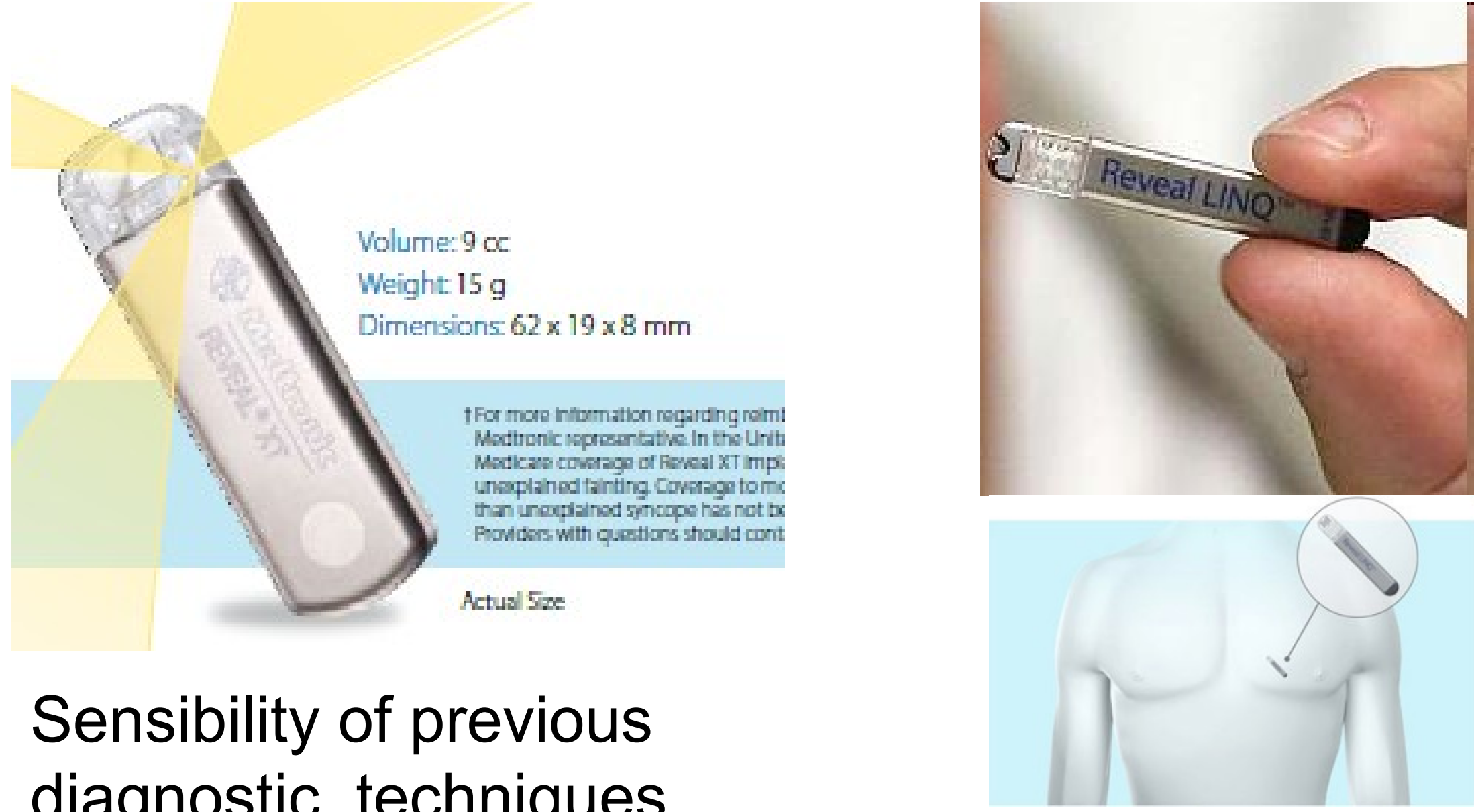
It is well known that a high percentage of strokes remains of undetermined origin in spite of an accurate workup. The implantable loop recorder allows a prolonged registration of the cardiac electric activity. Our study aims to evaluate the efficacy of the device in detecting a paroxysmal atrial fibrillation in a cohort of patients affected by a cryptogenic stroke

Patients and Methods

As a first step the patients affected by cryptogenic stroke were identified among the ones admitted for ischemic stroke to the S.C. Neurologia 3 of the Molinette Hospital in Turin from 2011 to 2014. According to the TOAST classification a cryptogenic stroke was defined as a brain non lacunar infarction not attributable to a source of definite cardioembolism or large artery atherosclerosis (stenosis >50% or dissection), despite extensive vascular, cardiac, and serologic evaluation. Diagnostic workup included brain MRI, carotid color doppler of the supraortic vessels, transthoracic echocardiography, Holter ECG, lab tests including a screening for coagulopathy. As a second step the patients with cryptogenic stroke were evaluated with the STAF Score (Score for the Targeting of paroxysmal Atrial Fibrillation Mahagne 2011). Only the patients with score > 4 were considered for implantation

Results 58 patients, 33 males 25 females, mean age 66 yrs (\pm 15) were implanted. A paroxysmal atrial fibrillation (PAF) was identified in 21 (37%). In these patients advanced age, atrial premature beats, and supraventricular tachycardia runs were observed more frequently. The mean duration of the monitoring before detection of PAF was 51 days (9-270); in 6 cases the first event occurred more than 6 months after implantation. Duration of the detected episodes was variable, ranging from few minutes to more than 12 hours. In no cases PAF episodes were associated with stroke recurrence

Discussion and conclusions Our study confirms the results of previous studies (CRYSTAL- AF, SURPRISE, Rojo-Martinez), which showed a detection rate for PAF with the implantable loop recorder ranging from 12 to 33 %. In our experience the preliminary screening with the STAF Score seems to further increase the sensibility of the procedure (37%), allowing a more selected employment of the device. The implications for therapy and subsequent prognosis seem very promising.



Volume: 9 cc
Weight: 15 g
Dimensions: 62 x 19 x 8 mm

Actual Size

Sensibility of previous diagnostic techniques
ECG 1-2%
Holter ECG 24 h (3%)
Holter ECG 7 d (6%)
Telemetry 14 d (9%)
Telemetry 21 d (11%)

PAF associated factors
Advanced Age
Left atrial dilation
Premature atrial beats (420 vs 5 per day)

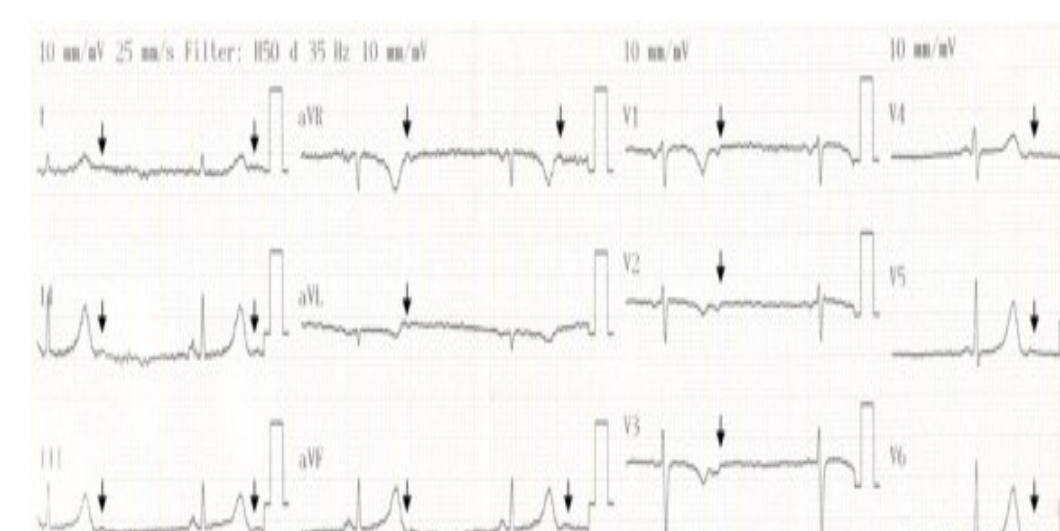


Table 1. Criteria and scoring used in the STAF

		Points
Age	>62 years	2
	≤62 years	0
Baseline NIHSS score	≥8	1
	<8	0
Left atrial dilatation	Yes	2
	No	0
Vascular aetiology ¹	Yes	0
	No	3
Total		0-8

¹ Defined by the absence of symptomatic extracranial stenosis ≥50% or occlusion presumed atherothrombotic, symptomatic arterial dissection, or clinicoradiologic lacunar syndrome.

SURPRISE
PAF incidence study in cryptogenic stroke with ILR
85 pts monitored for a mean duration of 569 d
PAF detected in 16,1%
Always asymptomatic
Mean detection time: 109 d
More frequent duration: 1-4h

EMBRACE
Comparison study between a 30 d external loop recorder monitoring and 24 h Holter for PAF detection in cryptogenic stroke
280 pts ELR 277 controls
PAF > 30" in 16,1% vs 3,2%
PAF > 150" nel 9,9% vs 2,5%

CRYSTAL AF
Comparison study between long term ILR monitoring and traditional follow up for PAF detection in cryptogenic stroke
221 ILR-220 controls
PAF detected in 8,9% in 6 m vs 1,4, in 12,4% in 12 m vs 2., in 30% in 36 m vs 3 Mean detection time 84 d
Mean Duration 4,3'

Rojo-Martinez
PAF incidence study with ILR in cryptogenic stroke
PAF detected in 33,7% in a 282 d mean follow up
Mean detection time: 102 d

References

- 1 T. Sanna et al Cryptogenic stroke and underlying atrial fibrillation NEJM 2014;370:2478-86
- 2 Christensen LM et al. Paroxysmal Atrial Fibrillation occurs often in cryptogenic stroke. Final results from the SURPRISE study EJM 2014;21:884-89
- 3 Rojo-Martinez E et al High performance of an implantable Holter monitor in the detection of concealed paroxysmal atrial fibrillation in patients with cryptogenic stroke and a suspected embolic mechanism Rev Neurol 2013;57(6):251-7