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Equally high detection rates of atrial fibrillation in patients after a TIA and stroke by systematic ECG monitoring with an implanted device: SPIDER AF study

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Introduction: The risk of neurovascular and cardiovascular morbidity is substantially increased by undetected atrial fibrillation (AF). Therefore, early detection of AF is crucial to initiate appropriate therapy in persons at risk and may improve outcome. An implantable loop recorder (ILR) can monitor the heart rhythm for up to three years, modern devices provide dedicated algorithms to detect AF.

Hypothesis: We aimed to investigate the AF detection rate by the use of an ILR in patients after a recent cerebrovascular event (TIA n=137 or stroke n=363) presenting in sinus rhythm and no history of AF in the ambulatory setting by office based cardiologists.

Purpose: Observational study in patients with no prior diagnosis of AF, who had presumably thromboembolic) transient ischemic attack (TIA) or stroke within 12 months and were implanted an ILR in the last 6 months. Follow-up visits every 3 months for 1 year overall.

Results: In 34 outpatient cardiology centers in Germany, a total of 500 patients were documented (mean age 63.1±12.7 years, 35.4% >70 years; 60.8% males). The qualifying event - diagnosed by neurologists - was a TIA in 137 (27.4%) and a stroke in 363 (72.6%) with typical thromboembolic pattern in NMR imaging (29.2% TIA/45.2% stroke, p = 0.001), in CT imaging (7.3% TIA/7.7% stroke, n.s.), in both (6.6% TIA/19.6% stroke, p = 0.001).

During follow-up, AF was newly detected by the device in TIA patients in 29.9% and in stroke patients in 25.6% (n.s.). The mean screening period until detection of AF with the Reveal LinQ device was 170±134 days in TIA, 145±128 in stroke respectively (n.s.). 95.7% had paroxysmal and 4.3% persistent AF in stroke, TIA patients had 100% paroxysmal AF (n.s.), median duration was 5.0 min in TIA and 5.2 min in stroke, respectively (n.s.). Most AF patients were asymptomatic (68.3% TIA/ 83.9% stroke, p = 0.03).

The mean CHA2DS2Vasc score in patients with AF was 4.0 and 4.1 in those with TIA and stroke (n.s.), for patients in sinus rhythm 3.7 and 3.9, respectively (n.s.). Arterial hypertension was present in 71.5% with TIA/76.0% with stroke (n.s.), diabetes mellitus in 15.3% with TIA/25.1% with stroke (p = 0.05), coronary artery disease in 12.4% with TIA/14.6% with stroke (n.s.), vascular disease in 3.6% with TIA/5.0% with stroke (n.s.).

Conclusions: In patients in sinus rhythm and no history of AF after a TIA or stroke, during 1-year follow-up AF could be newly detected in a quarter of patients by means of systematic continuous screening with an implantable ECG device. As AF diagnosis usually leads to immediate secondary prevention with long-term anticoagulation, such screening is useful not only in stroke but also in TIA patients and may substantially reduce the risk of recurrent stroke and cardiovascular morbidity.

Months between ILR implantation (n=500) and AF detection (n=134)

