Peer-reviewed published clinical studies validating the efficacy and value of MCOT to monitor post cryptogenic stroke patients

University of Pennsylvania study

Predictors of finding occult atrial fibrillation after cryptogenic stroke

**Authors**

Christopher G. Favilla, MD*; Erin Ingala, MD*; Jenny Jara, BA; Emily Fessler, BA; Brett Cucchiara, MD; Steven R. Messé, MD; Michael T. Mullen, MD; Allyson Prasad, CRNP; James Siegler, MD; Mathew D. Hutchinson, MD; Scott E. Kasner, MD. From the Department of Neurology and Division of Cardiology at University of Pennsylvania

*Dr. Favilla and Ingala contributed equally.

**Study results**

- 28-day MCOT detected AF in a substantial proportion (14%) of cryptogenic stroke patients.
- 250 patients in a single center study - retrospective analysis of patients who underwent a 28 day MCOT.
- 84% (26 patients) were anticoagulated regardless of AF episode duration. All patients without bleeding history were offered anticoagulation regardless of duration of AF.

**Source**

Stroke. 2015;46:1210-1215.
DOI:10.1161/STROKEAHA.114.007763.
https://www.ahajournals.org/doi/10.1161/STROKEAHA.114.007763

Case-control study

Paroxysmal atrial fibrillation in cryptogenic stroke

**Authors**

Alejandro A. Rabenstein, MD,* Jennifer E. Fugate, DO,* Jay Mandrekar, PhD,† Joseph D. Burns, MD,‡ Raymond C.S. Seet, MD,§ Stefan A. Dupont, MD,|| Timothy J. Kauffman, MD,‖ Samuel J. Asirvatham, MD,** and Paul A. Friedman, MD**

**Study results**

- 128 patients enrolled within 3 months of suffering first stroke.
- Paroxysmal Atrial Fibrillation (PAF) of any duration detected in 25% of total patients with MCOT monitoring.
- ALL episodes were asymptomatic.
- Nearly 20% of all patients (1 in 5) had AF detected in < 30 second episodes.

**Source**

Journal of Stroke and Cerebrovascular Diseases, 2013

From the *Department of Neurology, Mayo Clinic, Rochester, MN; †Department of Biomedical Statistics, Mayo Clinic, Rochester, MN; ‡Department of Neurology, Boston University, Boston, MA; §Department of Neurology, National University of Singapore, Singapore, Singapore; ||Department of Neurology, Cleveland Clinic, Cleveland, OH; ‖Department of Radiology, Mayo Clinic, Rochester, MN
**MCOT**

**Atrial fibrillation detected by Mobile Cardiac Outpatient Telemetry (MCOT) in cryptogenic TIA or stroke**

**Authors**

A.H Tayal, MD; M. Tian, RN; K.M Kelly, MD; PhD; S.C. Jones, PhD; D.G. Wright, MD; D. Singh, MD; J. Jarouse, CRNP; J. Brillman, MD; S. Murali, MD; R. Gupta, MD

**Study results**

- 68 patients in a single center study — retrospective analysis of patients who underwent a 21 day MCOT.
- AF was detected in 13/56 patients = 23%.
  - 5.3% of patients had runs of AF >30 seconds in duration.
  - 85% of patients had runs of AF <30 seconds in duration.

**Source**

Neurology®
Volume 71, Number 21, November 2008

---

**Atrial fibrillation In cryptogenic stroke**

**Outpatient cardiac telemetry detects a high rate of atrial fibrillation in cryptogenic stroke**

**Authors**

Daniel J. Miller\(^a\), Muhib A. Khan\(^a\), Lonni R. Schultz\(^a\), Jennifer R. Simpson\(^b\), Angelos M. Katramados\(^a\), Andrew N. Russman\(^a\), Panayiotis D. Mitsias\(^a\)

\(^a\)Henry Ford Hospital, Detroit, MI, United States; \(^b\)University of Colorado, Denver, CO, United States

**Study results**

- Retrospective analysis of all MCOT records for a period of 18 months (June 2009-January 2011) prescribed by Neurologists at a single Stroke Center.
- AF detected in 27 of 156 patients = 17.3%.
  - Two-thirds (n=18) developed episodes of PAF lasting less than 30 seconds.
  - 26% (n=7) lasting equal to or greater than 30 seconds.
  - 7% (n=2) had persistent AF.
- Mean time to first occurrence of AF was 8.8 days.
- Rate of PAF detection significantly increased from:
  - 3.9% in the initial 48 hours to
  - 9.2% at 7 days,
  - 15.1% at 14 days, and
  - 19.5% by 21 days
- MCOT provides a high rate of detection of AF in patients with cryptogenic stroke or TIA, and length of monitoring time is strongly associated with an increase in detection rate.

**Source**

Journal of the Neurological Sciences 324 (2013), p. 57-61
https://www.ahajournals.org/doi/10.1161/str.43.suppl_1.A150
Original Research

Mobile Cardiac Outpatient Telemetry patch vs Implantable Loop Recorder in cryptogenic stroke patients in the US – cost-minimization model

Authors

Goran Medic,1,2 Nikos Kotsopoulos,3 Mark P Connolly,2,3 Jennifer Lavelle,4 Vincent Norlock,4 Manish Wadhwa,4 Belinda A Mohr,5 Wayne M Derkac4

1Chief Medical Office, Philips Healthcare, Eindhoven, Netherlands; 2Department of Pharmacy, University of Groningen, Groningen, Netherlands; 3Global Market Access Solutions LLC, Charlotte, NC, USA; 4BioTelemetry, Inc., A Philips Company, Malvern, PA, USA; 5Chief Medical Office, Philips, Cambridge, MA, USA

Study results

• An initial strategy of 30-day electrocardiogram (ECG) monitoring with MCOT in diagnosis of AF in cryptogenic stroke patients realizes significant cost-savings compared to proceeding directly to ILR only.
• Almost 8 times lower costs were achieved with improved detection rates and reduction of secondary stroke risk due to new anticoagulant use in subjects with MCOT detected AF.
• In the base case modeling, the MCOT arm detected 4.6 more patients with AFs compared to the ILR alone arm in a cohort of 1000 patients (209 vs 45 patients with detected AFs, respectively).
• Using MCOT followed by ILR in half of the patients initially undiagnosed with AF leads to significant cost savings of $4,083,214 compared to ILR alone in a cohort of 1000 patients.
• Cost per patient with detected AF was significantly lower in the MCOT arm $29,598 vs $228,507 in the ILR only arm.
• Almost 8 times lower costs were achieved with improved detection rates and reduction of secondary stroke risk due to new anticoagulant use in subjects with MCOT detected AF.
• These results strengthen emerging recommendations for prolonged ECG monitoring in secondary stroke prevention.

Source

https://doi.org/10.2147/MDER.S337142