**MCOT Clinical Publications**

Mobile Cardiac Outpatient Telemetry

Peer-reviewed published clinical studies validating the efficacy and value of MCOT

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**MCOT**

First experience with a Mobile Cardiac Outpatient Telemetry (MCOT) system for the diagnosis and management of cardiac arrhythmia

**Authors**

Ajay K. Joshi, MD, Peter R. Kowey, MD, Eric N. Prystowsky, MD, David G. Benditt, MD, David S. Cannom, MD, Craig M. Pratt, MD, Anna McNamara, RN, and Robert M. Sangrigoli, MD.

**Source**

American Journal of Cardiology (April 1, 2005; 95:878-881)

**Study results**

- Retrospective analysis of the first 100 patients monitored on MCOT.
  - 34% of patients required treatment intervention.
  - 12% required surgical procedure (5 pacemakers, 4 ablations, 2 ICD implants).
  - 1/3 of all patients had prior testing with an event or Holter.
- MCOT finds arrhythmias that other modalities have failed to capture, and is a clinically useful, first-line tool for diagnosis and management of patients with suspected arrhythmias.
The diagnosis of cardiac arrhythmias:
A prospective multi-center randomized study comparing Mobile Cardiac Outpatient Telemetry versus standard loop event monitoring

Authors

Study results
• Purpose of study was to compare the relative value of MCOT with a patient-activated loop recorder in a randomized control trial.
• 17-center, 305-subject, prospective parallel clinical trial with patients randomized to either LOOP or MCOT monitors.
• MCOT made a diagnosis in 88%, LOOP in 75%.
  – Syncope or pre-syncope subgroup: Diagnosis made in 89% of MCOT patients and 69% of LOOP patients.

Source
Journal of Cardiovascular Electrophysiology Vol. 18, No. 3, March 2007

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.

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,* Jay C. M. 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

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


*Henry Ford Hospital, Detroit, MI, United States, †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.

Radio-frequency catheter ablation

Symptomatic and asymptomatic atrial fibrillation in patients undergoing radiofrequency catheter ablation

Authors

Chandrasekhar R. Vasamreddy M.D., Darshan Dalal M.D., M.P.H., Jun Dong M.D., Alan Cheng M.D., David Spragg M.D., Sameh Z. Lamiy M.D., Glenn Meininger M.D., Charles A. Henrikson M.D., Joseph E. Marine M.D., Ronald Berger M.D., Ph.D., Hugh Calkins M.D.

From the Division of Cardiology, The Johns Hopkins Hospital, Baltimore Maryland and Cardiovascular Section, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma, USA

Study results

• 390 symptomatic events were triggered by patients, 40% were confirmed as AF events and 60% were confirmed as non-AF events.
• 7 of the 10 patients were free of symptomatic AF recurrences.
**Suspected arrhythmia**

**Initial experience with novel Mobile Cardiac Outpatient Telemetry (MCOT) for children and adolescents with suspected arrhythmia**

**Authors**

Elizabeth V. Saarel, MD,* Shirin Doratotaj, MD,† and Richard Sterba, MD‡

*Primary Children’s Medical Center—Pediatric Cardiology, Salt Lake City, UT, †Oregon Health and Science University—Pediatrics, Portland, Ore, and ‡The Cleveland Clinic—Pediatric Cardiology, Cleveland, Ohio, USA

**Study results**

- MCOT is safe and useful for evaluation of children and adolescents (who weigh ≥ 22 lbs.) with suspected arrhythmia, providing a diagnosis in 61% of patients.
- The diagnostic yield of MCOT was superior to that expected from traditional event and Holter monitors in this pediatric population.

**Source**

Congenital Heart Disease. 2008; 3:33-38

**Retrospective claims analysis**

**Benefits of monitoring patients with Mobile Cardiac Telemetry (MCT) compared with the event or holter monitors**

**Authors**

Jean-Patrick Tsang, Shunmugam Mohan, Bayser Consulting, Skokie, IL, USA

**Study results**

- Retrospective Claims Analysis comparing cardiovascular spending in the hospital setting in the 12 months following diagnosis with MCT, Event, and Holter.
- MCT demonstrated an average cost savings of $9,352 in inpatient cardiovascular costs in comparison with Event monitoring and $6,862 compared with Holter.
- MCOT represents a 10-15 times return on investment in the first 12 months post diagnosis in utilizing MCOT as the primary cardiac monitoring device.

**Source**

Published: 9 December 2013, Volume 2014:7, Pages 1—5
Asymptomatic arrhythmias

Diagnostic yield of asymptomatic arrhythmias detected by Mobile Cardiac Outpatient Telemetry and autotrigger looping event cardiac monitors

Authors
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Source
J Cardiovasc Electrophysiol.
https://doi.org/10.1111/jce.13342

Study results
• MCOT had significantly higher diagnostic yields of all measured asymptomatic arrhythmias than the AT-LER.
• MCOT produced an earlier mean time to diagnosis for all evaluated asymptomatic arrhythmias.
• Wireless connectivity may serve to enhance asymptomatic arrhythmia detection with MCOT compared to non-wireless devices by improving patient compliance in data retrieval.
• MCOT reflected an 8:1 preference over AT-LER’s by ordering providers.
• The increased cost considerations for MCOT must be weighed in the context of potential cost savings from its improved diagnostic yield and earlier arrhythmia diagnosis and treatment.