LifeWatch Corp.
Executive Healthcare Management

Recent Innovations for Management of Patients with Atrial Fibrillation

Faster, more Significant Diagnostic Yields using Recent Innovations and EMR Integration… Anywhere, Anytime

In the United States, close to 5.1 million individuals have Atrial Fibrillation (source: Miyasaka Y, Barnes ME, et al. Circulation. 2006; 114:119-125). This number is expected to increase to 5.9 million by 2050. Atrial Fibrillation (AF) is recognized as a major source of strokes and a precursor to potentially fatal deterioration of the heart. Medicare and private insurers spend billions of dollars annually for AF. Physicians believe that the best hope for a cure is an expensive procedure known as catheter-based ablation. In the "Survey of Physician Experience, Trends and Outcomes with Atrial Fibrillation Ablation", the investigators state that 72,575 total ablation procedures were performed in the US between 2000 and 2003. Advocates of the procedure say it is less invasive than open-heart surgery, and will be more cost-effective than drugs. Federal regulators have not approved any of the devices used, thus hospitals and doctors are not being fully reimbursed for the procedure, for which typical charges range from $25,000 to $50,000.

The American Heart Association, the American College of Cardiology, The Heart Rhythm Society and four other US and European doctors' groups recommend atrial ablation as standard care for patients who do not respond to drug therapy. Doctors believe that the number of ablation procedures would surge, if the time could be cut to less than two hours. This is a limiting factor and as technology advances, so will the number of procedures as a first line of care. This would make current reimbursements more cost effective, and enhance insurance coverage. Patients may also have to continue taking some or all of their drugs or, in some cases, need to have a pacemaker implanted. Moreover, about 2% of patients suffer strokes or other serious complications during procedures.

While most physician practices have Holter monitoring available there is clearly a need for pre and post procedure telemedicine evaluation. These physicians have the ability to generate additional revenues streams within their offices to offset decreasing reimbursements. However, the feedback from EP's in major medical centers such as the Cleveland Clinic and The University of Utah is that 24 hours of information is only the beginning and they need to provide extended monitoring at 3, 6, 12, 18 and 24 months post ablation. These time frames are consistent with the Heart Rhythm Society Executive Summary which was developed at the 2007 AF Summit sponsored by HRS. There is clearly a move on the part of the Electrophysiologist for long term monitoring with a preference toward ambulatory cardiac telemetry technology.

In the executive summary of the HRS/EHRA/ECAS Expert Consensus Statement on Catheter and Surgical Ablation of Atrial Fibrillation, there is a consensus among the Task Force that the primary indication for catheter AF ablation is the presence of symptomatic AF refractory or intolerance to at least one Class 1 or Class 3 antiarrhythmic medication. Also recognized, in rare clinical situations, is that it may be appropriate to perform catheter ablation of AF as first line therapy. Catheter ablation of AF is also appropriate in selected symptomatic patients with heart failure and/or reduced ejection fraction.

Careful attention to anticoagulation of patients before, during, and after ablation for AF is critical to avoid the occurrence of a thromboembolic event, which is recognized as one of the most serious complications of AF and also of AF ablation procedures. The Task Force recommends that the anticoagulation guidelines published as part of the ACC/AHA/ESC 2006 Guidelines for the Management of Patients with Atrial Fibrillation be adhered to. In particular, the guidelines for anticoagulation, both for long-term management and also those that apply to cardioversion procedures should be followed.

In 2007, new cardiac telemetry services and technologies were introduced which help individuals remain in the comfort of their home and catch life threatening events, before they occur.

Ambulatory Cardiac Telemetry

Ambulatory Cardiac Telemetry is also referred to as Real-Time Outpatient Cardiac Telemetry Monitoring. These out-patient services offer physicians, their patients, and payors a comprehensive solution for better diagnostic yield and improved management of patients with arrhythmia. The application for arrhythmia detection and automatic transmission capability decreases the risk of complications that may occur when patients have an asymptomatic event, cannot manually activate the device to record a symptom, or delay transmitting events over traditional phone lines.

Ambulatory Cardiac Telemetry provides critical ECG information by capturing and transmitting the onset and termination/escape of an arrhythmia to assist in correctly identifying and treating the patient. These arrhythmias include Atrial Fibrillation (any rate), Tachycardia, Bradycardia, and Pause. With an extended memory, physicians can also receive full disclosure ECG recordings for any selected portions (21 days / 500 hours) of the recorded data, allowing them to revisit the past in order to understand the early symptoms and etiology of arrhythmia and determine therapeutic options.

Ambulatory Cardiac Telemetry systems are typically small and are worn on the patient's body. They do not require patient interaction to record and transmit significant arrhythmias. The most advanced systems utilize advanced bio-sensors and algorithms that can automatically detect and record cardiac arrhythmias such as atrial fibrillation, bradycardia, tachycardia and pause. The systems can also store patient-activated recordings. Portable telemetry sensors are able to continuously record and transmit ECG waveforms to a portable cell phone monitor where real-time analysis occurs. When an ECG breaches the programmable notification limits, the ECG strip is automatically sent to an attended clinical monitoring center using an integrated cell phone. If there is inadequate cellular coverage, a land-line modem is automatically utilized. Healthcare providers at the monitoring center review all incoming ECGs in real-time, and at any time during a patient's monitoring session, and notify the patient's physician of any ECG abnormalities based on the notification criteria. The integrated cell phone also allows immediate, two-way communication between a patient, the monitoring center and the prescribing physician and can provide patient location information in an emergency.

Ambulatory Cardiac Telemetry systems also generate Daily Summary reports that contain accurate and significant reporting information such as a 24-Hour Heart Rate Trend Report, Arrhythmia Sample Analysis of sample strips for AF, Bradycardia, Tachycardia, and Pause Analysis, the number and duration of any recorded episodes and the daily averages of each event. End of Session reports are also generated for the notifying physician.

Ambulatory Cardiac Telemetry solutions + EMR Integration = Real-time data, Anywhere, Anytime.

A sophisticated EMR integration should flow seamlessly with any enterprise system. By providing a single connection point for faster clinical data integration of patients ECGs, EMR integration will result in better decision making and treatment options.

EMR Integration for ambulatory cardiac monitoring offers a web-based clinical management solution that streamlines enrolling, reporting, over-reading and ordering of supplies. It empowers physicians with a single connection point for integrating patient and device data with their healthcare management systems:

- Personalized Portal with interactive reporting and editing features
- Report retrieval anytime and anywhere
- Email notification of alerts
- Enhanced physician over read features
- Comprehensive audit trail
- Optimized workflow for enrollment and report processing with multiple security levels to report, review, edit and generate final reports

AF Patient Management Programs
The unique monitoring needs of Post AF Ablation and AF Surgical Procedure Patients require exceptional AF Patient Care Programs that are designed as an extension of a physician's practice. Ambulatory Arrhythmia Monitoring Centers can support the physician by providing a better, safer and more effective diagnostic service and comprehensive management of patients with Atrial Fibrillation. Such programs should include:

- Comprehensive and extended patient enrollment and service
- Provision of patient educational materials on post-AF ablation care
- Timely reporting solutions for physicians.

Key Components of AF Telemedicine Patient Care Program:

- Trained clinicians who can meet the unique needs of the Pre and Post AF Ablation and AF Surgical Procedure Patients, Clinics and Physicians.
- Customized Patient Education explaining the monitoring services, multiple dates of service and LifeWatch contact information for the account to provide specific patient care information that is individual to that practice, such as phone numbers and post-procedure care.
- Physician Reports with Notification Criteria
- Daily Summary Reports with AF Burden will need to be provided with the Histogram Report.
- End of Session Reports
- Convenient Patient Enrollment Process with multiple dates of service for 3, 6, 9, 12, 18 and 24 months post-procedure.
- Monitoring period for up to 7 days at each of the 6 monitoring periods post-procedure (The length of monitoring, the schedule and the technology utilized may be customized by physician practice or to meet individual patient needs).

Conclusion

Ambulatory Cardiac Telemetry systems are in use throughout the United States, and are becoming the new standard for remote arrhythmia monitoring needs. Ambulatory Cardiac Telemetry Systems allow patients to be diagnosed in a very short timeframe, potentially saving their lives in the process. Using the sophisticated yet simple to use technologies will empower healthcare providers and individuals to manage health conditions, improve quality of life, strengthen patient-physician communication and facilitate timely treatment. The value can be demonstrated through lower healthcare costs due to a reduction in unnecessary hospital admissions and emergency room visits.