DETECTING ATRIAL FIBRILLATION AT HOME WITH A NOVEL BLOOD PRESSURE MONITOR WITH ATRIAL FIBRILLATION DETECTION FUNCTIONALITY

ACC Poster Contributions
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Background: Asymptomatic atrial fibrillation (AF) is a common cause of strokes. Detecting asymptomatic AF prior to a stroke requires long term monitoring of patients at risk for AF. The Microlife home blood pressure monitor with the AF detection function (HBPM-AF) is designed to detect the irregular rhythm of AF and has previously demonstrated the capability to detect AF well in a physician’s office. This study assessed the sensitivity and specificity for detecting AF of the HBPM-AF device when used by patients at home.

Methods: Patients over age 64, or with hypertension, diabetes, CHF or previous stroke were given the HBPM-AF device and an ECG event monitor (Heartrak 2) to use at home. They were instructed to log the HBPM-AF readings and transmit their ECG daily for 30 days. The HBPM-AF reading was compared to the ECG monitor reading to calculate the sensitivity and specificity of the HBPM-AF for AF.

If the daily HBPM-AF reading showed AF, then the patient was instructed to obtain 2 additional readings at that time. If either of those 2 readings showed AF, then a 4th reading, was to be obtained one hour later. If this final reading showed AF then the patient was given an HBPM-AF diagnosis of AF and a second ECG monitor recording was obtained. The second ECG reading was used to determine if the HBPM-AF diagnosis of AF was correct.

Results: A total of 160 patients were enrolled with 11 withdrawing, 2 excluded and 9 with no logs. Of the 138 patients included in the analysis, 15 had a history of AF. There was a total 3859 HBPM-AF readings with comparative ECG monitor readings (average 28 readings/patient, range 1-81). The HBPM-AF demonstrated a 98.5% sensitivity and a 91.7% specificity for detecting AF. The HBPM-AF detected AF in every patient who had at least one episode of AF documented by the ECG monitor. The HBPM-AF correctly diagnosed AF in the 8 patients with AF documented by the ECG monitor who followed the instructions. Two patients with no history of AF had HBPM-AF readings of AF confirmed by the ECG monitor and one was begun on warfarin.

Conclusions: The Microlife HBPM-AF device appears to be accurate for detecting AF at home. The novel HBPM-AF device may be useful for out-of-office screening for AF in patients at risk of stroke due to AF.