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BioButton®* multi-parameter wearable notifications facilitate recognition of a malfunctioning pacemaker

BioButton®* multi-parameter wearable device, along with BioDashboard™* clinical intelligence solution

Alfonso
76-year-old male

Patient overview

- 76-year-old male with a history of GERD, osteoarthritis with frequent NSAID use, Grade 2 COPD, and atrioventricular (AV) block requiring permanent pacemaker 8 years ago.
- Last pacemaker check 3 months ago.
- Admitted to medical-surgical unit for evaluation and treatment of upper GI bleed

Hospital course

Alfonso is admitted to the medical-surgical unit. The BioButton®* multi-parameter wearable is applied to Alfonso's upper left chest upon admission. The BioButton®* provides continuous measurements of his resting respiratory rate, resting heart rate, skin temperature, and an additional series of biometrics. Data collected by the BioButton®* device flows directly into the BioDashboard™* monitoring solution, which provides automated tools designed to facilitate efficient and actionable clinician decisions. A remote monitoring clinician monitors data and alerts generated by the BioDashboard™* system.

Alfonso receives 1 unit of packed red blood cells for an initial hemoglobin of 6.8 g/dl. An EGD reveals esophagitis and a large peptic ulcer. A proton pump inhibitor is ordered. Alfonso's care team plans to discharge him in the morning if he does not require a second blood transfusion. He reports feeling better and is tolerating a GI soft diet.

Just before 10 pm the remote monitoring clinician calls the nurse to let him know that Alfonso's heart rate has suddenly increased to 141. The nurse obtains a full set of manual vital signs and activates the Rapid Response Team. Alfonso's blood pressure, oxygen saturation and respiratory rate are within expected limits, but he states that he's feeling apprehensive. He has never felt his heart beating so fast.

04:27 a.m.
ADMISSION, SPOT CHECK
Oral Temp: 36.8
HR: 87
RR: 16
BP: 104/68

09:57 p.m.
NOTIFICATION
Heart rate median high alert, heart rate medium term increase alert
HR: 138-142

10:16 p.m.
ASSESSMENT
Rapid Response Team at bedside
12-lead EKG

10:46 p.m.
INTERVENTION
Pacemaker magnet applied
Plans for electrophysiology intervention ASAP in the morning

Outcome

The Rapid Response Team suspects Pacemaker Mediated Tachycardia (PMT) and contacts the Electrophysiology Fellow on call. A 12-lead EKG helps to confirm the diagnosis. A beta-blocker is ordered, and a pacemaker magnet is used to temporarily switch the pacemaker into asynchronous pacing mode. This terminates the tachycardia. Continuous cardiac telemetry is initiated to capture any additional arrhythmias in the overnight hours. In the morning, Alfonso is taken to the electrophysiology suite for reprogramming of the pacemaker. He remains in the hospital for an additional night. His discharge plan includes an oral proton pump inhibitor, minimizing NSAID use, and a follow up with cardiology.

Discussion

The BioButton®* delivers personalized data and clinically relevant, actionable alerts. The notifications generated by the dramatic change in Alfonso's heart rate helped to facilitate recognition and diagnosis of an unexpected complication of pacemaker therapy, which was unrelated to his admitting diagnosis.

When used in Acute Care Mode, the BioButton® multi-parameter wearable device provides visualization of resting heart rate, resting respiratory rate, skin temperature, activity level and sleep tracking

When used in Post Acute Mode, the BioButton® multi-parameter wearable device provides visualization of resting heart rate, resting respiratory rate, skin temperature, activity level, sleep tracking, step and gait, body position, and incline angle while sleeping

Please consult the product IFU prior to use. Results and outcomes vary for patients. This story reflects a real patient from an anonymized hospital. Patient monitoring products should not be used as the sole basis for diagnosis or therapy and are intended only as an adjunct in patient assessment.

Want to learn more about the BioButton®*?
Contact your Medtronic sales representative or visit our site: www.medtronic.com/healthcast_biobutton

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