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BioButton®* multi-parameter wearable notifications facilitate recognition of symptomatic bradycardia

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

Marc
53-year-old male

Patient overview

- EMS called by witnesses after he fell from standing position, hit his head on the pavement, and lost consciousness outside a convenience store
- History of prostate cancer and frequent use of methamphetamine
- Fever (38.8°C/102°F), altered mental status and tachycardia in ED, urine positive for methamphetamine
- Head and neck CT completed: negative for acute intracranial processes, C-spine cleared
- Diagnosed with acute pyelonephritis intravenous antibiotics and fluids initiated in ED

Hospital course

Marc is admitted to the medical-surgical nursing unit. Bedside clinicians perform intermittent spot checks of his vital signs along with neurological checks every four hours. Intravenous fluids and antibiotics started in the ED are continued. Marc is alert only to self and occasionally complains of generalized body aches.

The BioButton®* multi-parameter wearable is applied to Marc's left upper chest upon admission. The BioButton®* provides continuous measurements of his resting respiratory rate, resting heart rate, skin temperature, and a series of biometrics.† Data collected by the BioButton®* 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 notifications from the BioButton®* and notifications generated by the BioDashboard™* system.

At 10:42 a.m., the BioDashboard™* notifies the remote monitoring clinician that Marc has a low heart rate. The clinicians quickly review data collected since Marc's admission and note that his heart rate has fluctuated between 66 and 82 beats per minute. The remote monitoring clinician contacts the RN providing Marc's care and informs them of the change.

The RN arrives at Marc's bedside and performs an assessment. Meanwhile, the charge nurse contacts the rapid response team and requests immediate evaluation. The rapid response team performs a 12-lead EKG, which reveals junctional bradycardia. Atropine 1mg IV push is given for treatment of Marc's symptomatic bradycardia.[1] Marc's heart rate responds to the dose of atropine and returns to

baseline. Continuous cardiac telemetry monitoring is initiated per American Heart Association guidelines.[2] Cardiology is consulted for recommendations on long term management.

05:18 a.m.
ADMISSION
Spot check, vital signs

10:42 a.m.
NOTIFICATION
Heart rate median low alert for heart rate of 42

10:44 a.m.
ASSESSMENT
Oral temperature: 36°C (96.8°F)
Heart rate: 38
Respirations: 24
Blood pressure: 90/66
Oxygen saturation: 89% on room air
Pain: 5/10
Mental status: opens eyes spontaneously, withdraws from painful stimulus, disoriented and confused

10:50 a.m.
EVALUATION AND INTERVENTION
Rapid response team arrives
STAT EKG: junctional bradycardia
Oxygen, 2 LPM is administered via nasal

Outcome

Marc is diagnosed with sick sinus syndrome, believed to be the cause of his initial fall and loss of consciousness, and undergoes an evaluation for a permanent pacemaker. He is offered substance abuse management resources and counseled on the impact of continued use of methamphetamines.

Discussion

The BioButton®* multi-parameter wearable device helps clinicians provide high-quality care for all their patients, while prioritizing those who need their help most. In Marc's case, the BioButton®* notified clinicians of a low heart rate, which ultimately revealed junctional bradycardia. Timely notifications from the BioButton®* and trends intuitively displayed on the BioDashboard™* led to actionable clinical decision making and initiation of treatment.

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

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.

The BioButton®* multi-parameter wearable device is not indicated for use in critical care or patients under 18 years of age.

Please consult the product IFU prior to use.
Results and outcomes vary for patients.

This story reflects a real patient from an anonymized hospital.

† 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.

1. American Heart Association. Advanced Cardiovascular Life Support Provider Manual. Dallas, Texas: American Heart Association; 2020.
2. Sandau KE, Funk M, Auerbach A, et al. Update to practice standards for electrocardiographic monitoring in hospital settings: a scientific statement from the American Heart Association. *Circulation.* 2017;136(19):e273-344.

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