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| **Case Title** | 3rd Degree Heartblock |
| **Scenario Name** | Fainting Fred |

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| **Learning Objectives -** [**Use action words**](http://ubccpd.ca/sites/ubccpd.ca/files/Accreditation_Learning%20Objectives_%20Verbs.pdf) | |
| **Knowledge:**   1. Recognize syncopal spell with no warning as red flag. 2. Recognize 3rd degree heart block episode. 3. Know indication for transcutaneous pacing. | |
| **Skills:**   1. Trancutaneous pacing. | |
| **Attitude/Behaviours:**   1. Demonstrate Team skills 2. Demonstrate Situational awareness 3. Demonstrate Graded Assertiveness | |
| **Scenario Environment** | |
| **Location** | ER |
| **Monitors** | Standard ER monitor with ECG tracing |
| **Props/Equipment** | Defibrillator |
| **Make-up/Moulage** | None |
| **Potential Distractors** |  |

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| **Case Introduction:** |
| 59 y.o. male presents to ER with an episode of syncope when he went to let his dog outside. He turned around and took a step then doesn’t recall anything until he awoke on the floor. Abrasion to face. No other symptoms. No warning. Previously well. Only history is a remote back surgery. No medications. |

| **Patient Parameters** | **Effective Management** | **Notes** |
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| **Phase 1: Initial presentation**  **Condition:**  **Initial Assessment**   * **Heart Rhythm: Sinus rhythm** * **HR: 60** * **BP: 144/94** * **RR: 16** * **SP02: 97% RA** * **T: 36.7 C** * **Glucose: 5.8** * **CNS: GCS 15/15** * **Chest: clear** * **CVS: HS N. Well perfused.** * **GI: normal** * **GU: normal** * **Integ: normal** * **Weight:** * **Height:** | 1. **Take a focused history** (see Notes column) 2. **Medical Management**  * order investigations - ECG, basic labs (including troponin, CBC, chemistry).   **Consequences of ineffective management** | 1. **Focused history**  * Was alone but wife heard him hit floor. * Never happened before. * No recent illness and feeling fine earlier.   **PMHx**   * Remote spinal surgery. * No neurologic history. * No cardiac history.   **Meds**   * None   **Allergies**   * None |
| **Phase 2: Transient asystole**  **Condition: 12 seconds of asystole. Patient has sudden loss of consciousness.**  **Physical Examination**   * **Heart Rhythm: 3rd degree HB – no escape beat** * **HR: 0** * **BP: -** * **RR: -** * **SP02: -** * **T:** * **Glucose:** * **CNS: GCS 3/15** * **Chest:** * **CVS:** * **GI:** * **GU:** * **Integ:** | 1. **Patient Reassessment** (see Notes column) 2. **Medical Management**  * Recognize rhythm * Initiate CPR * Call for transcutaneous pacer * Can consider atropine   **Consequences of ineffective management** | 1. **Patient Reassessment**   **Airway**   * GCS 3/15   **Breathing**   * No effort   **Circulation**   * Absent pulse |
| **Phase 3: 2nd Degree Mobitz Type 2 HB**  **Condition: Patient starts waking up.**  **Physical Examination**   * **Heart Rhythm: 2nd degree HB Mobitz type 2** * **HR: 30** * **BP: 89/50** * **RR: 16** * **SP02: 92% if on RA, 100% if on O2** * **T:** * **Glucose:** * **CNS: GCS 10/15 (E2, V3, M5)** * **Chest: clear** * **CVS: cool extremities** * **GI:** * **GU:** * **Integ:**   **Alternative – can alternate between episodes SR and second degree HB. Expect participants to apply transcutaneous pacer and adjust to get capture to have ready for pacing.** | 1. **Patient Reassessment** (see Notes column) 2. **Medical Management**  * Recognize Type 2 2nd degree HB * Recognize that atropine will be ineffective for this rhythm * Apply transcutaneous pacer   + Properly connect pacer   + Need leads applied – can’t use paddles   + Set pacer rate higher than intrinsic rate   + Increase mA until get capture   **Consequences of ineffective management** | 1. **Patient Reassessment**   **Airway**   * GCS 10/15 * patent   **Breathing**   * spontaneous   **Circulation**   * palpable pulse at 30/min * extremities cool |
| **Phase 4: Patient improves**  **Condition:**  **Physical Examination**   * **Heart Rhythm: 2nd degree HB Mobitz type 2 -paced** * **HR: 60 (or whatever pacer rate is set to)** * **BP: 124/79** * **RR: 14** * **SP02: 98% if on RA, 100% if on O2** * **T:** * **Glucose:** * **CNS: GCS 15/15** * **Chest: clear** * **CVS: well perfused** * **GI:** * **GU:** * **Integ:** | 1. **Patient Reassessment** (see Notes column) 2. **Medical Management**  * Ensure proper transcutaneous pacer function * Arrange for transfer - HART * Transvenous pacing if facility capable   **Consequences of ineffective management** | 1. **Patient Reassessment**   **Airway**   * GCS 15/15 * patent   **Breathing**   * spontaneous   **Circulation**   * well perfused * good peripheral pulses |

**Insert more lines if more phases required.**

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| **Expected Patient Management** | **Debriefing Points** |
| 1. **Student** 2. **Junior Resident** 3. **Senior Resident** | * **Recognize syncope without warning is more concerning**   + **Discuss causes of syncope without warning**   + **San Fransisco Syncope Rule vs Canadian Syncope Risk Score** * **ACLS guidelines for symptomatic bradycardia**   + **HR<60 and symptoms attributable to slow HR**   + **Consider atropine but don’t delay TCP** * **Know how to put on the TCP and set it – review common pitfalls**   + **Pacer pad placement**   + **Need leads applied – can’t use “paddles”**   + **Set the rate above intrinsic HR**   + **Adjust mA up until capture**   + **Patient will need analgesia +/- sedation** |

**References:**

**Heart and Stroke ACLS guidelines Bradycardia**

**LABS – click** [here](https://extranet.interiorhealth.ca/IHUBCFaculty/Diagnostics/Forms/AllItems.aspx?RootFolder=%25252FIHUBCFaculty%25252FDiagnostics%25252FLabs&View=%25257bFD97E2FE-FD01-433F-B9CB-D75A4195924E%25257d) **OR fill out below**

LABORATORY \*LIVE\* Lab Summary Report

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| **Test** | **DATE/TIME here** | **Flag** (H or L) | **Reference** |
| **CBC** | | | |
| WBC | 7.2 |  | 3.5 – 10.8 10^9/L |
| RBC | 4.5 |  | 4.3 – 5.7 10^12/L |
| Hgb | 149 |  | 130 – 170 g/L |
| HCT | 0.44 |  | 0.37 – 0.47 L/L |
| Platelets | 203 |  | 150 – 400 10^9/L |
| D-Dimer | 265 |  | <480 mcg/L |
| **Chemistry** | | | |
| Na | 139 |  | 137 – 145 mmol/L |
| K | 4.1 |  | 3.5 – 5.0 mmol/L |
| Cl | 102 |  | 98 – 107 mmol/L |
| HCO3 | 29 |  | 22-26 mmol/L |
| Urea | 6.1 |  | 2.5 – 6.1 mmol/L |
| Creat | 78 |  | 62 – 106 umol/L |
| GFR Est | 88 |  | > 60 ml/min |
| Glucose - Random | 7.9 |  | 3.0 – 11.0 mmol/L |
| Lactate |  |  | 0.9 – 1.8 mmol/L |
| CK |  |  | 5 – 130 U/L |
| Troponin | < 0.01 |  | <0.03 mcg/L |
| **Coags** |  |  |  |
| INR | 1.2 |  | 0.9 – 1.2 |
| PTT | 32 |  | 28 – 38 s |
| **ABGs** | | | |
| **Arterial** | | | |
| pH |  |  | 7.35- 7.45 |
| pCO2 |  |  | 35 – 45 mmHg |
| PO2 |  |  | 80-100 mmHg |
| BE |  |  | -2.0 to +2.0 mmol/L |
| HCO3 |  |  | 22 – 26 mmol/L |
| O2 Sat |  |  | 95 – 100% |

**EKGs – click** [here](https://extranet.interiorhealth.ca/IHUBCFaculty/Diagnostics/Forms/AllItems.aspx?RootFolder=%25252FIHUBCFaculty%25252FDiagnostics%25252FECGs&View=%25257bFD97E2FE-FD01-433F-B9CB-D75A4195924E%25257d) **or paste**



