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| **Case Title** | SVT |
| **Scenario Name** |  |

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| **Learning Objectives -** [**Use action words**](http://ubccpd.ca/sites/ubccpd.ca/files/Accreditation_Learning%20Objectives_%20Verbs.pdf) | |
| **Knowledge:**   1. Apply basic ACLS protocols 2. Recognize Superventricular Tachycardia (SVT) from ECG rhythm 3. Verbalize management of SVT | |
| **Skills:**   1. Demonstrate ability to apply the algorithm for SVT 2. Demonstrate ability to treat refractory SVT 3. Perform synchronized cardioversion | |
| **Attitude/Behaviours**   1. Demonstrate Team skills 2. Demonstrate Situational awareness 3. Demonstrate Graded Assertiveness | |
| **Scenario Environment** | |
| **Location** | ED |
| **Monitors** | Telemtry/Crash Cart/defibrillator |
| **Props/Equipment** | IV, Meds  Lifepack defibrillator  ECG (before and after cardioversion)  ACLS Algorithms on hand |
| **Make-up/Moulage** | None |
| **Potential Distractors** | None |

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| **Case Introduction:** |
| 41 y.o. Caucasian male presenting with complaints of palpitations for the past 30 minutes. |

| **Patient Parameters** | **Effective Management** | **Notes** |
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| **Phase 1: Stable SVT**  **Condition:** Pt lying in bed, appears slightly fatigued. Well developed, and well nourished. Physical exam is normal except for moist, slightly diaphoretic skin and rapid, regular heartbeat heart on auscultation.  **Initial Assessment**   * **Heart Rhythm:** SVT * **HR:** 160 * **BP:** 124/80 * **RR:** 22 * **SP02:** 96% on R/A * **T:** 36.5 C * **Glucose:** 6.5 * **Chest:** Mild expiratory wheeze bilat. Decreased breath sounds to bilat bases. * **CNS:** GCS 15 * **CVS:** Heart sounds normal. Rapid heartbeat. * **GI:** Abd non-tender * **Weight:** 185 lbs * **Height:** 6’3” | 1. **Take a focused history** (see Notes column) 2. **Medical Management**  * Place on cardiac monitor * Order and interpret ECG * IV access * May attempt vagal maneuvers first (will not convert SVT) * Give Adenosine: 6 mg rapid IVP followed by rapid 20 mL NS flush. Repeat with 12 mg IVP in 1-2 mins if needed. Elevate the extremity following dose. (will not convert SVT) * Other medication options: Diltiazem (Cardizem), Verapamil, Metoprolol (Note: BB and CCB cannot be given together) * *Note: No medical intervention will be successful, progress to unstable SVT*   **Consequences of ineffective management**   * If delayed recognition of SVT, may progress to Phase 2 (unstable SVT) sooner | 1. **Focused history**   Was at work washing dishes in the kitchen when he felt heart racing. Has had similar episodes in the past. States he is feeling weak at present. Complains of difficulty catching breath and some nausea. No associated symptoms including fever, cough, recent illness, headache.  **PMHx**   * Smoker 15 cigarettes/day x 10 years * Drinks 2-3 beers/day * Denies further history   **Meds**   * None   **Allergies**   * None |
| **Phase 2: Unstable SVT**  **Condition:** Patient becomes more fatigued, eyes close, BP drops. Patient now unresponsive.  **Physical Examination**   * **HR:** 160 * **BP:** 80/40 * **RR:** 14 * **SP02:** 92% on R/Aand falling * **CNS:** Eyes closed | 1. **Patient Reassessment** (see Notes column)-*Recognizes change in condition* 2. **Medical Management:**  * Perform synchronized cardioversion:   + First dose: 50 J   + Second dose: 100 J * Synchronized cardioversion will be successful (progress to Phase 3). | 1. **Patient Reassessment**   **Airway**   * Patent, but patient has become unresponsive.   **Breathing**   * Breathing on own at present   **Circulation**   * Hypotensive and tachycardic. Unstable and must perform synchronized cardioversion. |
| **Phase 3: NSR, Patient Responsive**  **Condition:** Patient becomes responsive, grabbing a chest, groaning.  **Physical Examination**   * **Heart Rhythm:** NSR * **HR:** 80 * **BP:** 100/50 * **RR:** 16 * **SpO2:** 96% | 1. **Patient Reassessment** (see Notes column)-*Recognizes change in condition* 2. **Medical Management:**  * Orders repeat ECG post cardioversion * Diagnostics: CBC, TSH, cardiac enzymes, toxicology, CXR * Consider Cardiology consult for further work up and possible ablation or discharge home after an appropriate observation period with plans to F/U for electrophysiology testing | 1. **Patient Reassessment**   **Airway**   * Patent   **Breathing**   * Spontaneous   **Circulation**   * Stable |

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| **Expected Patient Management** | **Debriefing Points** |
| 1. **Student** 2. **R1** 3. **Senior IM resident** |  |

**References:**

**X-RAYS**

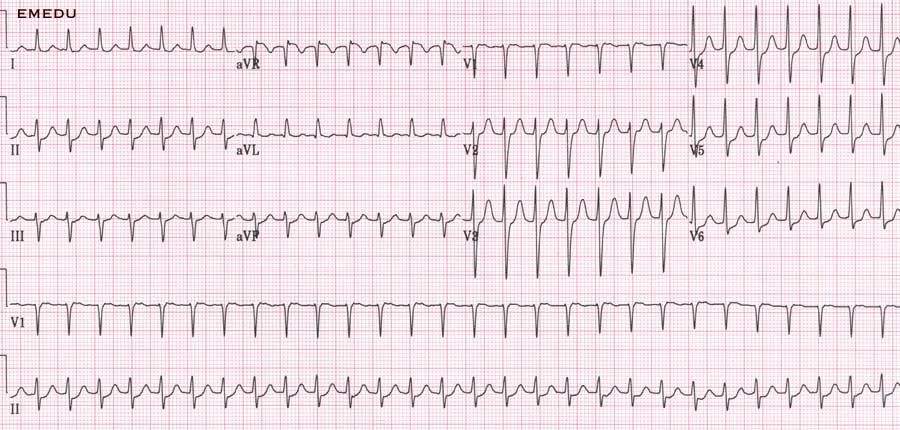


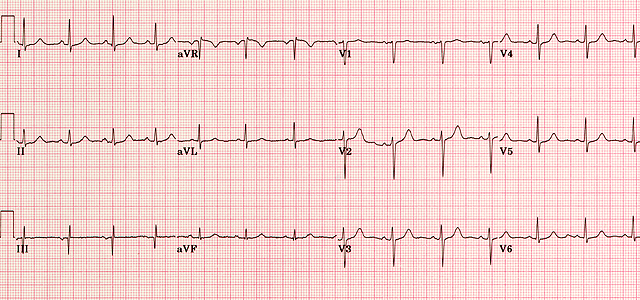
**LABS – click** [here](https://extranet.interiorhealth.ca/IHUBCFaculty/Diagnostics/Forms/AllItems.aspx?RootFolder=%25252FIHUBCFaculty%25252FDiagnostics%25252FLabs&View=%25257bFD97E2FE-FD01-433F-B9CB-D75A4195924E%25257d) **OR fill out below**

LABORATORY \*LIVE\* Lab Summary Report

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| **Test** | **DATE/TIME here** | **Flag** (H or L) | **Reference** |
| **CBC** | | | |
| WBC | 9.2 |  | 3.5 – 10.8 10^9/L |
| RBC |  |  | 4.3 – 5.7 10^12/L |
| Hgb | 130 |  | 130 – 170 g/L |
| HCT | 37 |  | 0.37 – 0.47 L/L |
| Platelets | 227 |  | 150 – 400 10^9/L |
| D-Dimer |  |  | <250 mcg/L |
| **Chemistry** | | | |
| Na | 138 |  | 137 – 145 mmol/L |
| K | 3.9 |  | 3.5 – 5.0 mmol/L |
| Cl | 100 |  | 98 – 107 mmol/L |
| HCO3 | 24 |  | 22-26 mmol/L |
| Urea | 5.3 |  | 2.5 – 6.1 mmol/L |
| Creat | 78 |  | 62 – 106 umol/L |
| GFR Est |  |  | > 60 ml/min |
| Glucose - Random | 6.4 |  | 3.0 – 11.0 mmol/L |
| Lactate |  |  | 0.9 – 1.8 mmol/L |
| CK |  |  | 5 – 130 U/L |
| Troponin | <0.03 |  | <0.03 mcg/L |
| **Coags** |  |  |  |
| INR |  |  | 0.9 – 1.2 |
| PTT |  |  | 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**

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