**SIMULATION SCENARIO**

|  |  |
| --- | --- |
| **CASE TITLE:** | Hypertension Emergencies: Autonomic dysreflexia |

|  |  |
| --- | --- |
| **TARGET LEARNING GROUP:** | 3-5yr Emergency Medicine Residents” |

|  |  |  |
| --- | --- | --- |
| **LEARNING OBJECTIVES:** |  |  |
| ***Knowledge:***1. Diagnosis/understand pathophysiology of autonomic dysreflexia2. treatment of autonomic dysreflexia |  |
|  |  |
| ***Attitudes/Behaviours:***1. organization of team  |  |

**SCENARIO ENVIRONMENT:**

|  |  |
| --- | --- |
| ***Location*** | * Emergency department resuscitation room
 |
| ***Monitors*** | * Typical section A resuscitation equipment
 |
|  ***Props/Equipment*** | * If possible, patient presents in wheelchair; they must move him into the bed; put sticker on anal area that says “fecal impaction”
 |
| ***Make-Up/Moulage*** | * Very sweaty from shoulders up; dry below shoulders; flushed face (?makeup); runny nose (Vaseline at nose)
 |
| ***Multi-Media*** | * ECG, CXR, labs,
 |
| ***Personnel*** | * Nurse (doesn’t want to get him out of the chair).
 |
|  |  |

**INITIAL SIMULATOR SETUP:**

|  |  |
| --- | --- |
| ***Mannikin Position*** | Sitting in wheelchair. In street clothes.  |
| ***Pupils****Size:**Reactivity:**Blinking:* | **8mm****normal****normal** |
| ***Breathing****Resp Rate:**Resp Pattern:**Chest Rise:**Breath Sounds:**Airway Sounds:**% Cyanosis:**Oxygen Saturation:* | **20****normal****normal****normal****normal****none****96%** |
| ***Cardiovascular****Heart Rate:**Cardiac Rhythm:**Blood Pressure:* | **70 (intermittently goes sinus brady to 50/min every 3-4 minutes for 30 secs)****sinus rhythm****270/150 (when patient supine); 250/140 (when sitting upright)** |
|  |  |
|  |  |

**SCENARIO PROGRESSION:**

***Case Introduction:*** *(initial information provided to participants)*

|  |
| --- |
| * 27 yo man quadriplegic man presents with throbbing, pulsatile headache, diaphoresis progressing over last 2 hours.
* Nurse says BP is 230/140, HR 70 when patient in chair.
 |

***Available Collateral Information:*** *(information given if requested)*

|  |
| --- |
| * C7 spinal cord injury while snowboarding 2 years ago; have movement and feelings in arms; no fine motor in hands
* Recently well, no new medications
* Just feels sweaty, severe pulsatile headache, slow onset; vision a little blurry; nose is runny; anxious/restless
* Does in/out catheters twice daily
* Has a regular bowel routine
* Meds: Baclofen, Colace, senokot, dulculux supps PRN
* Lives alone; works at St. Lawrence College in graphic design department
* Has PSW support once daily
* BP is normally quite low since the injury: 100/60, rarely gets above 110.

Expect participants to get patient undressed and into the bed for full vitals. Identify BP as a problem, and do appropriate exam (cardiovascular, neuro/eye exam)Expect initiate dropping BP to 200/100 level if unsure of origin, even while pursuing diagnosis.Hope they will identify cause based on history, and treat BP appropriately, while looking for cause.Appropriate Rx:1. sit person upright
2. remove snug clothing
3. Iv access
4. Give direct vasodilator (GTN, NTP, hydralazine, ?nifedipine, ?labetolol)
5. Beta-blocker alone not a good idea (unopposed alpha!)
6. Look for cause. Check bladder/rectal/sores etc.

If participant gives beta-blocker: BP will paradoxically go up 20-30 points, HR drops about 10 beats/minIf does disimpaction/foley without xylocaine, get jump in BP about 20-30 points and HR to 45-50 until painful stimulus stopsOnce patient is disimpacted, BP comes down to 105/70, HR to 80; patient feels better |

***The Script:*** *(Scenario flow & management outcomes)*

|  |  |  |  |
| --- | --- | --- | --- |
| **Scenario Transitions****& Evolution** | **Effective Management** | **Ineffective Management** | **Notes** |
| 1.Sit upright | BP drops to 250/140BP 270/150 is supine |  |  |
| 2. if gives beta-blocker | HR drops to 50, BP 290/170-need to give direct vasodilator | Give more beta blocker |  |
| 3.if gives direct vasodialtor | -BP drops to 160/100 gradually | Not give vasodilator |  |
| 4.if does painful stimulus without analgesia/xylocaine (eg. Foley/disimpaction) | BP goes up 30 points, HR to 45-50Goes back to baseline once painful stimulus stops | Continue painful stimulus with disregard to BP/HR |  |
| 5.disimpaction completed | Patient symptomatically betterBP 110/70, HR 80/min |  |  |

**SUGGESTIONS FOR DEBRIEFING:**

|  |
| --- |
| ***Knowledge:***1. What is the pathophysiology of autonomic dysreflexia?2. How do you manage it?3. What are the common causes of autonomic dysreflexia? |

Common Causes:

-Irritation of bladder wall, urinary tract infection

-Blocked catheter

-Overfilled collection bag

-Over-distended or irritated bowel

-Constipation/impaction

-Hemorrhoids or anal infections

-Skin infection or irritation, cuts, bruises, abrasions

-Pressure sores (decubitus ulcer)

- Ingrown toenails

-Burns (including sunburn, burns from using hot water)

-Tight or restrictive clothing

-Sexual activity

-Menstrual cramps

-Labor and delivery

-Abdominal conditions (gastric ulcer, colitis, peritonitis)

-Bone fractures