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Online Lab B: Pediatric Assessment & Intervention Activity

DUE: Please upload your completed assignment to the Dropbox no later than Thursday, February 25th at 1200.

Orders/Information: You are a nurse working in the pediatric intensive care unit (PICU). You just arrived for your shift and received report on Jimmy John who is under the care of Dr. George.

Scenario:

Patient: Jimmy John is a 7-year old male recovering from a motor vehicle collision where he sustained a severe closed head injury. He was on the ventilator for 2 weeks. He currently has a tracheostomy and is on room air. He has spontaneous respirations. He responds only to painful stimuli. He receives nutrition via his feeding tube but is currently NPO for an MRI of the head later today. He had a chest tube placed 3 days ago for a pneumothorax. His lung sounds are clear and equal bilaterally. Respirations 40 and HR 120. Active bowel sounds X 4 quadrants. Pulse 2+ for all 4 extremities. Skin warm and dry. Weight = 50 lbs. He has NKDA. Urine output for the past 12 hours = 272 mL.

Physician Orders:

NPO
Bedrest
Chest tube to gravity
Foley catheter to gravity
HME to trach as tolerated
Call for O2 saturation less than 89%
Ceftriaxone 575 mg IVPB every 12 hours
D51/4NS + 20 mEq KCL/liter at 85 mL/hr
I & O
Keep G Button site clean and closed when not in use

➢ Are there any physician's orders that you would question and if so, why? (Hmmm.....think about this....and yes, you should have something to list here)

I would question the order to have the chest tube running by gravity. Chest tubes should be connected to suction in order to create negative pressure and reinflate the lungs.

➢ Calculate Jimmy's weight in kilograms: 50lb/2.2 = 22.7 kg

➢ Calculate maintenance fluid requirements for this patient (show your calculations).

First 10kg x 100 = 1,000
Second 10kg x 50 = 500
Remaining 2.7kg x 20 = 54 → 1,000 + 500 + 54 = 1,554 mL/24 hours
1,554mL / 24hr = 64.75 mL/hr

➢ What amount should you set the "volume to be infused" on the IV pump? (Remember, this is a safety measure...if you don't know how to calculate this, look back at the Assessment and Intervention of the Child lecture presentation).
VTBI = 2x primary infusion rate → 85mL/hr x 2 = 170 mL

➢ Calculate minimal urine output for this patient (show your calculations).
Output last 12hr = 272 mL
Minimum = 0.5 mL/kg/hr → 0.5mL x 22.7kg x 12hr = 136.2mL in 12 hours
136.2mL/12 hours = 11.35mL/hr

   o Is the urine output appropriate for the last 24 hours?   (Yes) No

Jimmy is on continuous fluids and was receiving feedings via feeding tube prior to NPO status. This may result in an increased amount of fluid loss through urine. Jimmy meets the minimum urine loss amount; therefore, his urine output is appropriate.

➢ Jimmy has an order for Ceftriaxone 575 mg IVPB every 12 hrs. **The pharmacist has mixed the dose that is due now in 25mL Sodium Chloride 0.9%.** (You will need to use a drug reference when completing the following information.)

- What is the therapeutic range for this medication per the drug reference? Children: 50-75 mg/kg daily or in equally divided doses every 12 hours. Maximum 2g daily.

  - Calculate the therapeutic range for this medication for the BID dose ordered (show your calculations).
    Minimum: 50mg x 22.7kg = 1,135mg daily = 567.5mg BID
    Maximum: 75mg x 22.7kg = 1,702.5mg daily = 851.3mg BID
    - Is the dose ordered within your calculated therapeutic range?
      Yes, 575mg BID falls within range.

- What is the recommended concentration per the drug reference? 10mg/mL-40mg/mL
  - Calculate the concentration of the prescribed medication (look above to see how much fluid the pharmacist sent this medication in and show your calculations).
    575mg/25mL = 23mg/mL
    - Is the prescribed dose within the recommended concentration range?
      Yes, 23mg/mL falls within the range of 10mg/mL-40mg/mL. However, the dose should be further diluted with 50-100mL of the same solution.