RDs In Practice: Advancing Practice in Pediatric Nutrition
Supporting the Pediatric Intensive Care Patient

Round Table:

Indirect Calorimetry- *Amanda Legro, MS, RD*
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Program Objectives:
Upon completion of this round table, participants should be able to:

1. Discuss utility and limitations of metabolic monitoring in the PICU
2. Identify patients that meet criteria for metabolic monitoring
3. Discuss strategies for implementing metabolic monitoring in the PICU

INDIRECT CALORIMETRY TESTING: METABOLIC CARTS

Registered Dietitian Preparatory Measures

1. Physician writes an order for indirect calorimetry study.
2. Check ventilator (LTV vents cannot be connected to IC)
    a. If patient has LTV vent, can they be switched for the time of the test?
3. Dietitian communicates with nursing and respiratory to determine appropriate time for testing.
4. Provide General Preparatory Measures handout to nurse, confirm patient meets criteria for steady state
5. Document scheduled time for test in Epic: communication notes
6. Provide Family Education handout to parents/guardian
7. Obtain cart from storage approximately 30 minutes prior to scheduled test
8. Perform calibration per IC P&P
9. Contact RT to connect IC to ventilator
10. Perform test
11. Document results in Epic chart
12. Print hard copy of results, place in remnant chart
13. Sanitize machine and parts per Disinfection Procedures

INDIRECT CALORIMETRY TESTING: METABOLIC CARTS

General Preparatory Measures

1. Physician writes an order for indirect calorimetry study.
2. Dietitian communicates with nursing to determine appropriate time for testing.
3. No invasive or uncomfortable nursing procedures performed during or at least 1 hour prior to the onset of testing.
4. Routine nursing care or activities involving other health care professionals should be avoided during the study.
5. If the patient is in pain or agitated, analgesics or sedatives will be given at least 30 minutes before the study when clinically possible. Analgesics and sedatives administered will be documented, and this information will be considered during the interpretation of the study.
6. The study will be delayed 1 hour after painful procedures have been performed
7. No dialysis during or 4 hours prior to testing.
8. No surgical procedures within 12 hours prior to testing.
9. No general anesthesia within 8 hours prior to testing.
10. The study will be delayed for 90 minutes if changes are required in ventilator settings.
11. For spontaneously breathing patients, remove any supplemental oxygen thirty minutes prior to the study (nasal cannulas, masks, or tracheostomy collars). Monitor the patient's oxygen saturations observing for desaturation (Sp02<90%). Significant desaturation events would preclude the patient from being studied.
12. Patients receiving intermittent feedings (bolus enteral feeding, cyclic enteral or parenteral nutrition, or meals) are studied approximately 1 hour after the feeding if thermogenesis is to be included in the REE or 4 hours after the feeding if it is not.
13. The rate and composition of nutrients being infused on a continuous basis are stable for at least 12 hours before and through the study.
14. Minimize noise and distractions through the duration of the testing. This should include minimizing the number of people in the patient's room during testing, turning off the television, closing the door, drawing the curtains, and dimming the lights when possible.
15. Patients have rested in a supine position (in bed or a recliner) for at least 30 minutes before the study to avoid the effects of voluntary activity on REE.
16. It is preferred that the patient is calm, resting in a supine position but not asleep and in a comfortably warm environment during testing.