

Protocol: Adult Burn Nutrition

Category:

Clinical Practice

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Applicable To:

- VUH Children's DOT VMG Off-Site Locations VMG VPH Other

Team Members Performing:

- All faculty & staff Faculty & staff providing direct patient care or contact MD House Staff APRN/PA RN LPN
- Other

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Table of Contents

I.	Purpose:.....	2
II.	Population.....	2
III.	Definitions:.....	2
IV.	Assessment	2
V.	Intervention/Treatment.....	3
VI.	Procedural Considerations:.....	4
VII.	Considerations	5
VIII.	References	5

I. Purpose:

Successful burn treatment can be challenged by the metabolic consequences observed in patients with severe burns. Metabolic rates of burn patients can exceed twice that of baseline and cause wasting of lean body mass within a few weeks of injury.¹

Adequate nutritional support is an essential component of burn care which can reduce mortality and complications, optimize wound healing, minimizing the effects of hypermetabolism and subsequent catabolism.¹

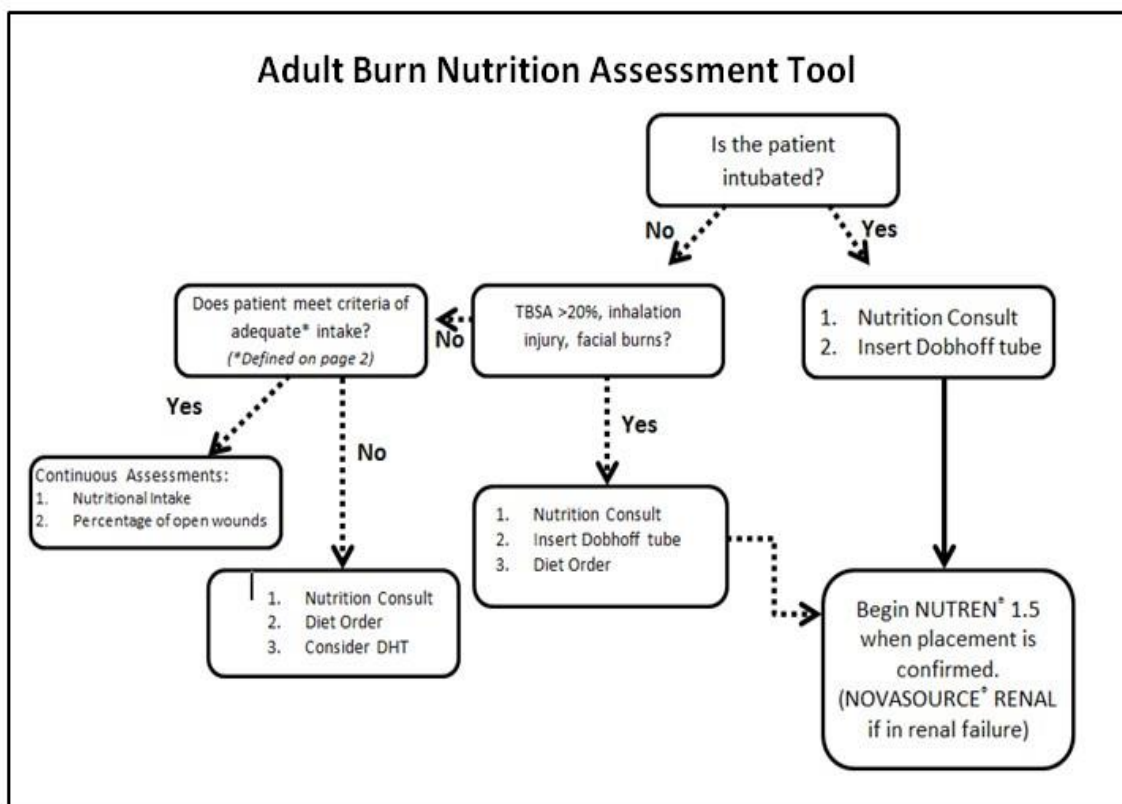
II. Population:

Adult burn patients

III. Definitions:

TBSA- Estimated total body surface area (TBSA) of partial and full thickness burns is needed to calculate fluid requirements. Superficial burns are not included in this calculation.

IV. Assessment:



V. Intervention/Treatment:**Upon Admission**

- All adult patients $\geq 20\%$ TBSA will receive a nutrition consult and diet order unless NPO or contraindicated.
- The following patients should receive a DHT:
 - All intubated patients
 - Patient's with $>20\%$ TBSA burns
 - Patients with inhalation or upper airway injury
 - Any burns to face/oropharynx
 - Any patient with baseline malnutrition

Initiation of Enteral Nutrition (EN):

Enteral nutrition can be started safely within hours of injury in patients of all ages, reducing the accumulated 'calorie deficit' and improving overall nutrition.²⁻⁴

- Post pyloric placement of DHT is recommended.
- Use a maximum of two attempts to place tube post-pyloric; alternatively, gastric DHT may be used
- Confirm appropriate DHT placement and start TF within 6hrs of hospital admission
- Start at continuous rate (20 mL/hr). Choice of tube feeds: start with NUTREN[®] 1.5 unless in renal failure; in this situation start NOVASOURCE[®] RENAL
- Do not advance TF during first twelve hours. After the first 12 hours, advance incrementally (20-25mL/hr) to goal (50 ml/hr), preferably within 24 hours after arrival, unless below relative contraindications are present:
 - Patient is hemodynamically unstable (MAP < 60 mm of mercury or increasing vasopressor requirements).
 - Patient is not tolerating tube feedings.
- Check gastric residuals before each intermittent feeding and every 4 to 6 hours during continuous feedings.
 - Return aspirated contents to the stomach unless it exceeds 500 ml or amount determined by practitioner.

Diet orders

All patients, including those receiving enteral nutrition, will be ordered a diet unless NPO or contraindicated.

Open Wounds: The percentage of open wound, grafts, donors, and burns should be updated after every operation or with observed changes.

Dietary Intake: Adult less than 20% TBSA, but meeting the criteria of "probably inadequate" intake x2 days will receive a nutrition consult.

Nutrition – Usual food intake pattern⁶

Very Poor: Never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day.

Probably inadequate: Rarely eats a complete meal and generally eats only about ½ of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take dietary supplement OR receives less than optimum amount of liquid diet or tube feeding.

Adequate: Eats over half of most meats. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered.

VI. Procedural Considerations:**Elective Procedures**

Best practice to minimize the risk of pneumonitis due to aspiration of particulate and/or acidic gastric contents is to fast all elective surgery patients prior to administration of drugs that may impair the patient's airway protection. Based on currently available evidence, the required duration of fasting before an elective anesthetic of any type (with no distinction between general, regional and sedation) has been standardized across VUMC, as follows:

- Clear liquids: 2 hours
- Everything else in the stomach (solids, non-clear liquids): 6 hours

For Non- intubated Patients:

- Breast milk in pediatric patients: 4 hours
- Infant formula in pediatric patients: 6 hours
- G-tube feeds in non-intubated patients: 6 hours
- Post Pyloric tube feeds in nutritionally sensitive patients (trauma and burn patients, for example) with a functional IV. Continue TF up to procedure. Send TF with patient to procedure. Anesthesia and attending surgeon will discuss intra-op nutrition management.

For Intubated Patients:

- Tube feeds (any location) in intubated patients: Continue TF through OR procedure.

Notes:

- Gum and hard candy, if not swallowed: No wait time

Urgent or Emergent Procedures

There is little evidence of benefit to any delay before anesthesia in the setting of an urgent or emergent procedure. It is believed that gastric emptying is impaired in patients who have a medical or surgical emergency. Therefore, the putative benefit of delaying an urgent or emergent case with the expectation that the risk of aspiration of gastric contents would be lower in a few hours is not established. The final decision about timing of an urgent or emergent procedure should be made collaboratively by the consultant anesthesiologist and surgeon.

Post Procedure: restart TF at goal rate as soon as patient is stable post-procedure.

VII. Considerations:**Documentation**

In burn patients, it is important that documentation of all caloric intake is accurate. Educate patient and family and designate a method of communicating these occurrences.

For accurate TF intake, clear the volume on feeding pump once a shift and chart the volume once a shift for more accurate intake.

Restarting Diets

Burn patients are often NPO daily for procedures. Restart diet order or tube feedings as soon as procedure is complete unless contraindicated. **Tube feeding should be restarted at previously tolerated rate.** “Trickle” feedings are not necessary in most patients.

“Normalizing”

Patients should be encouraged to take medications and consume food by mouth as much as possible. This expedites the removal of the DHT and also prepares them for home. Patients will most likely be prescribed oral medications upon discharge and should become familiar with this process.

DHT discontinuation criteria:

Must meet all three requirements:

1. Patient has less than 15% TBSA (as documented by the provider) remaining open
2. Consistently meets “adequate intake”, as defined above, for >3 days
3. Surgical course complete- future operations are not anticipated

VIII. References:

1. Saffle, J. R., Graves, C., & Cochran, A. (2012). Nutritional support of the burned patient. In Elsevier Inc.
2. Gottschlich M., Jenkins M., Mayes T., et al. (2002). The 2002 Clinical Research Award: An evaluation of the safety of early vs delayed enteral support and effects on clinical nutritional, and endocrine outcomes after severe burns. *J Burn Care Rehabil.* 23:401-415.
3. Trocki O., Michelini J.A., Robbins S.T., et al. (1995). Evaluation of early enteral feeding in children less than 3 years old with smaller burns (8–25 per cent TBSA). *Burns.* Feb;21(1): 17-23.
4. Moore E., Jones T. (1988). Benefits of immediate jejunostomy feeding after major abdominal trauma – a prospective, randomized study. *J Trauma;* 26:874-881.
5. Wilson S.E. (1987). Pediatric Enteral Feeding. In: *Pediatric Nutrition, Theory and Practice.* Grand R.J., Sutphen J.L., et al. eds. Toronto, Ont: Butterworth.
6. Monroe Carell Jr. Children’s Hospital at Vanderbilt. (2016.). *Protocols, Electrolyte Replacement, and Decision Support References for Heo/Wiz Downtime.* Retrieved from <https://edocsprod.mc.vanderbilt.edu/EDocsView.aspx?docList=3362>
7. Vanderbilt University Hospital. (2016.). *Moderate Sedation Guidelines.*