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2017

Evidence based nutritional management of adult patients with severe burns

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Recommended Citation

Lazarz, Ashley and Waller, Samantha, "Evidence based nutritional management of adult patients with severe burns" (2017). *Interprofessional Research and Innovations Council*. 16.
<https://knowledgeconnection.mainehealth.org/iric/16>

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Clinical Scholars Abstract 2017

Title: Evidence based nutritional management of adult patients with severe burns.

Presenters: Ashley Lazarz RD, LD and Samantha Waller MS, RD, LD

Background/Literature: It is estimated that more than 2 million people suffer burns in the United States annually, resulting in approximately 3400 deaths. Burns cause pathological alterations in nearly every system of the body and changes in both metabolism and immunity in the burned patient contribute to adverse outcomes. (1) Hyper-metabolism leads to severe catabolism and loss of lean body mass in the severely burned patient making nutrition intervention critical. (2) Literature indicates that enteral nutrition and excision alone do not prevent hyper-metabolism after a major burn injury, but nutrition intervention can improve outcomes. (3) Although nutrition supplementation is widely regarded as beneficial, controversy regarding the amount and type continues to challenge health care providers. (1)

Purpose: Develop and implement an evidence based nutrition protocol for adult burn patients with >20% TBSA for use thorough the continuum of care.

Design: With help of mentor, Michele Creech, developed a list of topics to include in our protocol (energy needs, indirect calorimetry, vitamin and mineral supplementation, etc.) Lazarz and Waller initiated a literature search for peer reviewed journal articles and reviews and care guidelines about nutrition care for burn patients. No Cochrane reviews have been published on this topic. First consulted the American Society for Enteral and Parenteral Nutrition (ASPEN) Critical Care Guidelines 2016 and reviewed their references. (4) This led to the most recent European Society for Enteral and Parenteral Nutrition (ESPEN) Guidelines and American Burn Association Care Guidelines; Maine Medical Center does not have access to the latter. (5) Met with librarian Amy Moore who assisted with a comprehensive literature search and found limited articles and limited access to burn related journals as barriers to investigation. Current work continuing reading current literature and looking for common themes to develop nutrition care protocol.

Results: Identified general consensus for defining 'major burns' needing possible nutrition intervention as those >20% TBSA. (4-7) Indirect calorimetry (IC) is the well-established 'gold standard' for determining energy needs in patients with major burns. IC should be completed as soon as possible, done in the 'fed state' and rechecked 2 times per week to weekly. (4,8,9) Research varies about whether to then multiply the value obtained from indirect calorimetry by an activity factor to get estimated energy needs. The studies that support using an activity factor agree on 1.2-1.4 or 30% as the activity factor. (6,8,10) Further investigation into this component is needed before making recommendations. When indirect calorimetry cannot be performed, predictive equations can be used to determine energy needs. Significant variability exists amongst research in which formulas are most accurate for burn patients and traditional formulas have been shown to overestimate needs. Several studies support using the Toronto or Milner equations and several studies suggest not using the Harris Benedict or KKD formulas. (2,5-7,10-12) Estimated protein need recommendations are well established at 1.5-2.0 g/kg. (1,4,5,9). Research also suggested that no further benefit is seen in providing > 2.2 g/kg of protein. (4,5) Further investigation into using ideal versus actual body weight in this calculation is needed. (10)

Time Frame: Literature search started at beginning of Clinical Scholars program in March 2017. Plan for continued literature search to fill gaps and ongoing collaborative review of findings to develop recommendations for burn nutrition protocol by the end of 2017.

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