



Pretreatment assessment and perioperative nutritional interventions for patients with bladder cancer undergoing radical cystectomy

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Comment on: Hamilton-Reeves JM, Stanley A, Bechtel MD, *et al.* Perioperative Immunonutrition Modulates Inflammatory Response after Radical Cystectomy: Results of a Pilot Randomized Controlled Clinical Trial. *J Urol* 2018;200:292-301.

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In a recent issue of the *Journal of Urology*, Hamilton-Reeves *et al.* (1) reported interesting results of a prospective, randomized study that sought to compare the effects of a short-term specialized immunonutrition (SIM) with those of a standard oral nutrition supplement (ONS) on the acute inflammatory response and arginine status in patients with bladder cancer undergoing radical cystectomy (RC). RC involves several invasive procedures and is associated with high rates of complications and morbidity, partly due to extensive lymph node dissection and urinary diversions using intestinal segments, for example, orthotopic neobladders and ileal conduits. Previous studies demonstrated that preoperative nutritional status, inflammatory status, host immunity, and muscle volume are strongly linked with not only complications, but oncological outcomes as well (2-6). Our group has emphasized the association between poor outcomes and post-RC changes in psoas muscle mass and nutritional index (4). This evidence suggested that prevention of the RC-induced deterioration of skeletal muscle mass and nutrition status could improve the clinical outcome including the complications, health-related quality of life, and cancer prognosis. To date, multiple measurements are available to evaluate the immunonutritional status and physical performance in patients with malignant diseases (*Figure 1*). Physicians should cautiously evaluate the patient condition before, during, and after the treatment.

Although several studies have established the nutritional and immunological benefits of immune-enhancing nutritional supplements for patients undergoing upper and lower gastrointestinal surgery (7,8), there is a significant lack of guidelines and evidence for immunonutrition usage in the urologic oncology field. Munbauhal *et al.* provided an overview of malnourishment in patients with bladder cancer and the clinical role and benefit of immunonutrition at the time of RC (9). In this review, the prevalence of severe malnutrition was found to be 16–33%, which was detected as a strong predictor of 90-day mortality. A clinical trial by Roth *et al.* (10) found that TPN IM (Nutriflex) conferred a significant impact on protein levels (prealbumin and total protein) 7 days after RC compared with those in the control arm (Ringer's lactate), and a lower rate of postoperative ileus (16.2% *vs.* 9.6%). In contrast to the encouraging result, two studies by Maffezzini *et al.* failed to prove the benefit of the Enteral IM (IMPACT) provision (11,12). More robust evidence is needed to establish the guideline-based recommendation of immune-enhancing nutritional supplements for patients undergoing RC.

The results of a well-designed randomized control trial by Hamilton-Reeves *et al.* have been published in the *Journal of Urology* (1). Participants received 3 cartons per day of either Impact Advanced Recovery® (SIM), containing L-arginine, nucleotides, and fish oil, or Boost Plus® (ONS, a control arm) provided from Nestlé Health Science for

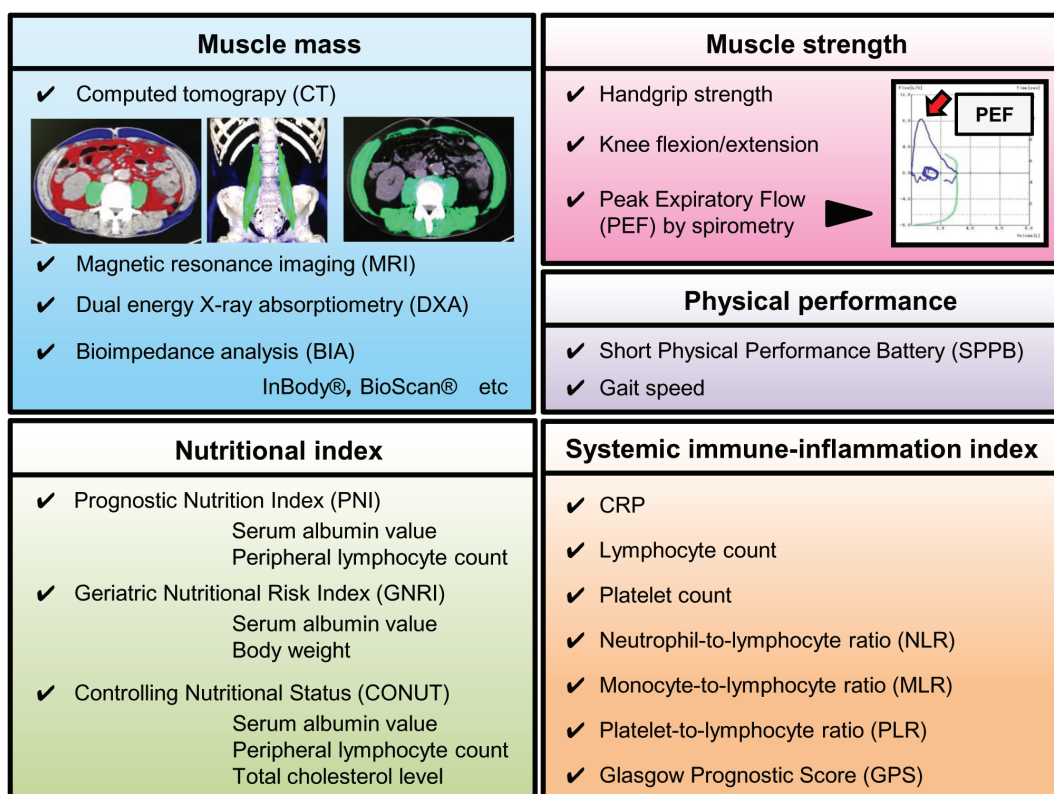


Figure 1 Measurements of immunonutritional status and physical performance in patients with malignant diseases.

5 days before and 5 days after RC. A unique aspect of this study is that the researchers investigated the perioperative changes in multiple parameters, including T helper 1 (Th1)–Th2 balance, interleukin (IL)-6, plasma amino acids, generated subjective global assessment, skeletal muscle, and patient-reported quality of life. In summary, perioperative administration of SIM can preferably modulate the inflammatory response after RC. Thus, results support the intervention of SIM to maintain Th1–Th2 balance and lower plasma IL-6, which could reduce postoperative complications and muscle wasting (13,14). One of the limitations of this study is the lack of detailed information regarding postoperative and long-term complications and oncological outcomes.

Another concern is whether specialized immunonutrition supplements are beneficial for all patients undergoing RC. Although this intervention is simple and noninvasive, a selection of patients who are expected to benefit should be considered. Baseline characteristics, including nutritional index and physical condition (*Figure 1*) before RC, may

be useful for patient selection criteria for appropriate perioperative interventions. Accumulating evidence supports perioperative immunonutrition supplements lead to improved postoperative outcomes in patients undergoing RC; however, there is an absolute need for larger randomized control trials in this population.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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