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### Scientific comment

# Comment on “Nutritional status of patients submitted to transplantation of allogeneic hematopoietic stem cells: a retrospective study”<sup>☆</sup>



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Adult patients undergoing hematopoietic cell transplantation (HCT) vary widely in terms of their requirement for nutrition intervention and assessment of nutrient needs. Multiple factors throughout the HCT process impact nutritional status and the need for nutrition intervention such as type of conditioning regimen, degree of regimen-related toxicity, infection and graft-versus-host disease (GVHD).

As demonstrated in the study by Ferreira et al. entitled “Nutritional status of patients submitted to transplantation of allogeneic hematopoietic stem cells: a retrospective study”, nutrition status is adversely affected early post-HCT by high-dose conditioning regimens requiring hospitalization and parenteral nutrition (PN) support.<sup>1</sup> However, regardless of the patient’s early post-HCT toxicities, their nutrition status can also be drastically affected by later complications such as acute/chronic GVHD and/or cytomegalovirus (CMV) enteritis. Long-term complications resulting from immunosuppressive medications such as steroid-induced diabetes mellitus, osteoporosis, hyperlipidemia and metabolic syndrome can also affect nutrition status for months to years after HCT.

We recommend an initial nutrition assessment by a registered dietitian for all patients undergoing allogeneic HCT due to the anticipated nutrition issues associated with the conditioning regimen. Ideally, the initial nutrition assessment occurs prior to starting the conditioning regimen and includes anthropometrics, laboratory data, diet composition/preferences, oral/gastrointestinal symptoms and comorbidities. If a patient is identified as high nutrition risk pre-HCT, intensive diet counseling and/or nutrition support may be recommended in the pre-HCT time frame in order to maximize nutrition status at time of hospital admission. Additionally, serial nutrition assessment is necessary to address post-HCT complications that alter nutrient intake, absorption, and utilization.<sup>2</sup>

Parenteral nutrition is not uniformly indicated for all patients with less use among reduced-intensity and non-myeloablative patients.<sup>3-7</sup> Length of time on PN in this study may be influenced by the fact that the majority of patients received bone marrow infusion vs. peripheral blood stem cell infusion which is associated with shorter graftment and

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<sup>☆</sup> See paper by Ferreira et al. on pages 420–3.

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decreased days of parenteral nutrition support.<sup>8</sup> Close monitoring by a nutrition support team, including a dietitian, helps prevent overfeeding and minimizes hyperglycemia particularly while a patient may still be meeting a percentage of their calorie needs orally. The dietitian can also determine appropriate timing to discontinue PN thereby minimizing length of days on nutrition support and cost.<sup>9</sup> As regimen-related toxicities resolve, it is important to stress tolerable foods such as low fiber, and soft or pureed foods to increase calorie-protein intake and allow safe discontinuation of PN. PN can be safely discontinued once patients meet 30% of estimated needs without signs of malabsorption.<sup>10,11</sup>

Controversy exists regarding “neutropenic diet precautions”. Many hospitals continue to restrict fresh fruits/vegetables, yogurts, spices and herbs despite the fact that studies have shown that strict “neutropenic diets” do not decrease infection rates.<sup>2,12,13</sup> Greater availability of these foods may, in fact, improve flavor, palatability and tolerance as oral and gastrointestinal symptoms resolve allowing expedited calorie-protein intake.

With later onset GVHD, whether acute or chronic, nutrition counseling is important to help patients make food choices for best tolerance and symptom management while still meeting calorie-protein goals to preserve lean body mass. Often diet and/or texture modification are required for oral and gastrointestinal GVHD. In some cases, particularly with chronic GVHD, enteral nutrition may be the best option to meet calorie-protein goals whenever feasible. Enteral nutrition is more cost effective and maintains mucosal integrity with lower risk of infection.<sup>14,15</sup>

We agree that nutrition status is compromised in allogeneic HCT patients during their hospital stay. However, for all allogeneic HCT patients, it is important to consider that their lifelong nutrition status may continue to be influenced by sequelae resulting from HCT.

## Conflicts of interest

The authors declare no conflicts of interest.

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