The Neutropenic Diet....Still Ageless?

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As practicing doctors and a practicing nutritionist in a large pediatric oncology program, we applaud Nicole Fox and Alison Freifeld for questioning the utility of the neutropenic diet. Not only is this diet poorly defined, with wide institutional variability, but it also places an added burden on an already at-risk population. We have seen the confusion among both families and practitioners trying to understand a seemingly arbitrary set of rules. The lack of evidence behind these diets makes it difficult for practitioners to be consistent within and across institutions. Even within our institution, patients not undergoing stem cell transplant receive no particular dietary prohibitions regardless of how long they are neutropenic, whereas those undergoing autologous transplant have significant limitations even though the duration of their neutropenia may be shorter.

Fox and Freifeld cite numerous studies demonstrating lack of clinical efficacy of the neutropenic diet, several of which date back to 2008 and earlier. Furthermore, after both a literature search and a brief survey of other oncology practitioners at this institution, we could find no data in support of the neutropenic diet. With so little to support it, why are doctors still reluctant to move away from the neutropenic diet?

Straus and McAllister[1] note several reasons that doctors may be hesitant to incorporate evidence-based medicine into their practice. These include a shortage of coherent, consistent scientific papers, as well as limited time and resources to review the literature. Many practitioners are well aware that it is important to review the details of a particular study before giving credence to the conclusions, but they do not have the time to do this. We hope that review articles such as the current article by Fox and Freifeld will help to eliminate this particular hurdle.

However, other concerns regarding the use of evidence-based medicine still exist. A common criticism is that the available literature may not be applicable to an individual patient. This is certainly a valid concern when reviewing the data on the neutropenic diet. Most of the studies are small and limited to a specific population such as patients with a particular diagnosis or those not undergoing stem cell transplant, making it difficult to extrapolate. For example, the study by Moody and colleagues[2] was specifically limited to 19 pediatric patients not undergoing stem cell transplant. Furthermore, two of these patients did not even become neutropenic during this study. This would obviously make most practitioners reluctant to rely solely on these data. Furthermore, a careful review shows that the two populations did not actually differ in terms of the composition of their diets, which leads us to question the validity of the study in the first place.

We are, however, intrigued by the results of a recent study by Trifilio et al,[3] which lend credence to the arguments put forth by Fox and Freifeld. Trifilio et al studied 726 consecutively treated stem cell transplant patients. Of these, 363 received a neutropenic diet and 363 received a general hospital diet. Interestingly, there were significantly fewer microbiologically confirmed infections in the general diet group than in the patients receiving a neutropenic diet. These infections included diarrhea due to Clostridium difficile as well as urinary tract infections. Interestingly, the difference between these groups was more pronounced after resolution of neutropenia. Furthermore, acute grade II to IV gastrointestinal graft vs host disease occurred in 47% of those on the neutropenic diet compared with 20% on the general hospital diet, although this result did not reach statistical significance. There was no difference in survival between the groups. The authors hypothesized that the drastic diet change in patients on the neutropenic diet significantly altered their intestinal flora, putting them at increased risk for infection, and that this difference became more pronounced over time.

While the data from the above study are certainly suggestive, they are limited by the fact that the study was retrospective. In 2006, the hospital studied by Trifilio et al discontinued the neutropenic diet. Thus, the 363 patients receiving the neutropenic diet were treated prior to those on the general hospital diet. As a result, it is possible that the increased infection rate observed for that group may...
have been secondary to other changes during that time. It is encouraging, however, that the authors found no increased risk to those patients receiving the general hospital diet. We are hopeful that the article by Fox and Freifeld will spur debate about the utility of the neutropenic diet and result in a large randomized trial to provide much needed answers. Based on the currently available data, we suspect that the neutropenic diet may simply be folklore passed down through generations of oncology practitioners. In a population in which nutritional status is essential for keeping treatment on time and guarding against infection, why limit the options for nourishment? We hope that this article and others like it will finally cause oncologists to question long-held beliefs and make necessary changes for the benefit of their patients.

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**References: References**


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