

# In the Literature

Stan Deresinski, Section Editor

In 1981, Jack Remington and Steve Schimpf published a statement entitled “Please Don’t Eat the Salads” in which they strongly recommended that neutropenic patients not eat uncooked food in order to avoid ingestion of microorganisms that might subsequently be the cause of bacteremic infection [1]. This statement contributed to the widespread adoption of “neutropenic diets,” which, among other things, generally prohibit fresh vegetables, fruits, and juices. This implementation occurred in the absence of empirical evidence of the benefit of such dietary restriction. Gardener and colleagues have now examined the issue in a randomized trial that compared diets involving cooked and noncooked foods in patients undergoing remission induction therapy for acute myeloid leukemia.

All patients were managed in rooms with filtered air and received prophylaxis with levofloxacin and valacyclovir, as well as with an antifungal agent. A total of 153 patients were randomized. Patients assigned to noncooked food were encouraged to eat fresh fruit and vegetables daily; the fruit and vegetables were washed for 30 s with cold water before they were eaten. The patients were balanced, with limited exception, with regard to their chemotherapeutic regimens.

Major infection (e.g., pneumonia, bacteremia, or fungemia) developed in 23 (29%) of 78 persons who ate only cooked foods and in 26 (35%) of 75 persons who ate some uncooked foods ( $P = .6$ ), as well as in 19 (36%) of 53 patients who refused randomization and were fed cooked diets. There was also no statistically significant difference in the time to major infection, complete response rates to chemotherapy, or mortality between the randomly assigned groups. Pneumonia occurred numerically more frequently in the cooked-food group than in the uncooked-food group (15% vs. 5%;  $P = .06$ ), whereas bacteremia or fungemia occurred less frequently in the former (9% vs. 23%;

## Is the Neutropenic Diet Effective and Necessary?

Gardner A, Mattiuzzi G, Faderl S, et al. Randomized comparison of cooked and noncooked diets in patients undergoing remission induction therapy for acute myeloid leukemia. *J Clin Oncol* 2008;26:5684–8.

$P = .03$ ). The 11 cases of microbemia among patients (4 of whom had pneumonia) who received cooked-food diets included 2 cases due to *Enterococcus* species, 4 due to aerobic gram-negative bacilli, and 1 due to *Candida* species. The 23 cases of microbemia among 22 patients (7 of whom had pneumonia) included 5 cases due to *Enterococcus* species, 8 due to aerobic gram-negative bacilli, and 1 due to *Fusarium* species.

Although this study found no evidence of benefit associated with consumption of cooked-food diets with regard to the incidence of major infections, the overall power of the study was limited by sample size. Furthermore, there appeared to be a possible excess number of cases of bacteremia or fungemia among patients who received uncooked-food diets ( $P = .03$  for the difference). Although this may be considered statistically significant, if adjusted for multiple comparisons (which has become a controversial issue among statisticians), it would not be the case. Furthermore, there were no significant differences between the groups with regard to major infections or mortality. As the authors state, a more definitive trial would be welcome.

## Reference

1. Remington JS, Schimpff SC. Occasional notes: please don't eat the salads. *N Engl J Med* 1981;304:433-5.