



Invited Commentary | Oncology

Diet Quality at the Initiation of Treatment for Metastatic Colorectal Cancer

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The Western diet, high in red meat and saturated fats and low in fiber, has long been implicated as an important risk factor in the development of colorectal cancer. The association between diet quality and outcomes after diagnosis of nonmetastatic colorectal cancer is less well studied, but there is hardly any data on diet quality on outcomes in metastatic colorectal cancer. Van Blarigan et al¹ have taken an important first step in addressing this critical gap in the field, using data from a study of patients with metastatic colorectal cancer.

This is a prospective cohort study of participants with metastatic colorectal cancer enrolled in the Cancer and Leukemia Group B/Southwest Oncology Group 80405 trial, a multicenter randomized clinical trial of first-line therapy.¹ Of 2334 patients included in this study, 1284 (55.0%) had completed an optional validated food frequency questionnaire at initiation of first-line treatment. Using this questionnaire, which was based on food intake during the preceding 3 months, the authors calculated scores for 3 validated and widely used diet quality measures (ie, the Alternative Healthy Eating Index, the Alternative Mediterranean Diet, and the Dietary Approaches to Stop Hypertension) and 2 dietary patterns (Western vs prudent). The primary outcome was death from any cause. Higher scores corresponded to healthier diets in all but the Western diet pattern. Participants from both groups of the study were analyzed as 1 cohort. Multivariable Cox proportional hazards regression was used to estimate hazard ratios. The first model adjusted for age, sex, and daily kilocalorie consumption. The second model adjusted for additional factors, including Eastern Cooperative Oncology Group score, chemotherapy type, *KRAS* status, whether the tumor was unresected, recent weight change, body mass index, and physical activity level.

The authors found that while none of the diet scores or patterns were associated with survival in this cohort, there was a statistically significant trend for an association between a lower risk of death and higher scores on the Alternative Mediterranean Diet measure, although the individual point estimates of each quintile did not reach statistical significance. The hazard ratio for those scoring in the highest quintile for this diet, compared with those scoring in the lowest, was 0.83 (95% CI, 0.67-1.04; *P* for trend = .04). A subgroup analysis revealed that the Western diet pattern was associated with longer survival in those with *KRAS*-variant tumors. Those scoring in the highest quintile for the Western diet, considered the least healthy, had longer survival than those scoring in the lowest quintile (HR, 0.50; 95% CI, 0.32-0.77). This association was not seen in those with wild-type tumors. To determine whether there was reverse causation bias, the authors performed analyses in which they excluded patients who died within 90 days of the questionnaire, but this did not change the outcomes. Thus, the authors concluded that this cohort did not demonstrate a strong association between diet quality at the time of first-line treatment initiation for metastatic disease and overall survival.

As this cohort was part of a multicenter randomized clinical trial, the strengths of this study include the large number of patients in the cohort, all of whom had metastatic disease; the large number of outcome events; comprehensive data on other lifestyle factors, such as physical activity; and complete follow-up data. As the authors note, this study has some limitations, as do most observational diet studies. In this case, diet quality could only be assessed at 1 point, ie, when first-line therapy was initiated. Certainly, some patients may have changed their diets, which could have subsequently affected outcomes. Most oncologists do talk about healthy diets to their patients who are actively undergoing cancer treatment; how effective such conversations are in affecting actual lifestyle changes is unclear.²

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It is possible that repeated measures of diet in this patient population would have revealed an association between better survival and more healthful diets—similar to studies on diet quality in patients with nonmetastatic colorectal cancer. For patients with stage 1, 2, or 3 colorectal cancer, a diet high in fiber, omega-3 fatty acids, fish, nuts, and calcium and/or milk has been associated with better cancer-specific and overall survival.³⁻⁵ The Western dietary pattern was associated with significantly higher risk of recurrence and mortality among patients with stage 3 colon cancer.⁶ However, very few studies have examined the association between diet and survival in patients with metastatic disease at diagnosis. A study that merged diet data from the Multiethnic Cohort study with state cancer registry data⁷ showed that higher scores in the Alternative Mediterranean diet scale were associated with lower mortality in women with metastatic disease.

The data available for this cohort of patients allowed the authors to draw conclusions regarding the association between outcomes and diet quality before treatment. More studies are necessary for understanding the associations of diet with outcomes during and after treatment. Answering this question is critical for formulating actionable diet interventions to best support these patients through treatment and to optimize their outcomes.

ARTICLE INFORMATION

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