

Addition of Diet and Lifestyle Factors to Recurrence and Mortality Prediction Models for Patients With Stage III Colon Cancer

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In a study reported in the [Journal of Clinical Oncology](#), Cheng et al found that the addition of patient-reported diet and lifestyle factors to prediction models based on clinical and pathologic characteristics improved predictions of disease recurrence and mortality among patients with stage III colon cancer.

Study Details

The study involved development of predictive models for disease-free survival and overall survival by adding nine self-reported diet and lifestyle factors to predictive models based on clinicopathologic characteristics for 1,024 patients enrolled in the CALGB 89803/Alliance trial, which was investigating adjuvant chemotherapy in patients with colon cancer.

The diet and lifestyle characteristics consisted of: intake of coffee, nuts, dark meat fish, sugar-sweetened beverages, refined grains, and lycopene-rich vegetables; aspirin or COX-2 inhibitor use; physical activity; vitamin D status; smoking behavior; and body mass index (BMI).

Key Findings

Among the 1,024 patients, 394 disease-free survival events and 311 deaths occurred after a median follow-up of 7.3 years.

Incorporation of diet and lifestyle factors to clinicopathologic characteristics improved the performance of prediction models ($P < .001$ for both) for disease-free survival from a c-index of 0.64 (95% confidence interval [CI] = 0.62–0.67) to 0.69 (95% CI = 0.67–0.72) and for overall survival from a c-index of 0.67 (95% CI = 0.64–0.70) to 0.71 (95% CI = 0.69–0.75).

Models were constructed to estimate the changes in disease-free and overall survival in patients with good-risk, average-risk, and poor-risk clinicopathologic features by incorporating the favorable diet and lifestyle factors of:

- Aspirin and COX-2 inhibitor use
- Physical activity \geq 9 MET-hours/week
- Coffee \geq 2 servings/day
- Nuts $>$ 0 servings/week
- Dark meat fish $>$ 1 servings/month
- Lycopene-rich vegetables \geq 2 servings/week
- Sugar-sweetened beverages $<$ 3 servings/week
- Refined grains $<$ 1 serving/day
- BMI $<$ 30 kg/m².

Incorporation of these factors changed 5-year disease-free survival estimates from 91.0% to 97.3% in the good-risk, 69.1% to 97.5% in the average-risk, and 2.1% to 44.7% in the poor-risk categories. For 5-year overall survival, estimated changes were from 95.8% to 99.0%, 78.0% to 94.3%, and 1.3% to 45.8%, respectively.

The investigators concluded, “Diet and lifestyle factors further inform current recurrence and survival prediction models for patients with stage III colon cancer.”

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