

## Association between empirical dietary inflammatory pattern (EDIP) and survival in patients with stage III colon cancer: Findings from CALGB/SWOG 80702 (Alliance).

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**Background:** Systemic inflammation has been implicated in colon cancer progression. We examined whether intake of a proinflammatory diet is associated with survival among patients (pts) with stage III colon cancer. **Methods:** This prospective cohort study was nested within a randomized phase III trial of adjuvant therapy in pts with stage III colon cancer who had undergone curative-intent resection. EDIP score – a validated tool to classify the inflammatory nature of diets – was derived as a cumulative exposure using data from food-frequency questionnaires completed within 6 weeks of randomization and 14–16 months (mo) after randomization. Cox proportional hazards regression was used to assess the associations of EDIP with disease-free survival (DFS) and overall survival (OS). **Results:** Of 1625 included pts, the mean (SD) age was 60.9 (10.5) years (yrs). Compared to pts in the lowest EDIP quintile, pts in the highest quintile (a more inflammatory diet) were younger ( $58.7 \pm 10.8$  vs  $61.3 \pm 9.5$  yrs old) and more likely to be female (64.0% vs 48.9%) and have worse performance status (ECOG 1–2: 35.7% vs 19.4%). Pts in the highest quintile were less likely to be White (76.6% vs 92.0 %) and more likely to be Black (15.4% vs 3.7%). Baseline aspirin use, assigned chemotherapy (3 mo vs 6 mo), and assigned pharmacotherapy (celecoxib vs placebo) were not significantly different across EDIP quintiles. Compared with pts in the lowest EDIP quintile, pts in the highest quintile had significantly worse OS (multivariable hazard ratio [HR] 1.87, 95% confidence interval [CI] 1.26–2.77,  $P_{\text{trend}}=0.01$ ), but not DFS (HR 1.36, 95% CI 0.99–1.86,  $P_{\text{trend}}=0.22$ ). Diet and physical activity jointly influenced OS. Those with lower EDIP scores (quintiles 1–4, 80% of the study population) and higher physical activity ( $\geq 9$  MET-h/wk) had the best OS (HR 0.37, 95% CI 0.25–0.53) compared with pts in the highest EDIP quintile (20% of the study population) and lower physical activity ( $< 9$  MET-h/wk) ( $P_{\text{interaction}} < 0.001$ ). The association between higher EDIP and OS was consistent when analyzed by celecoxib and placebo treatment arms ( $P_{\text{interaction}} 0.54$ ). The relationship between EDIP and OS did not differ significantly according to aspirin use, with HR 1.60 (95% CI 0.71–3.60) among aspirin users and HR 2.01 (95% CI 1.27–3.16) among aspirin non-users ( $P_{\text{interaction}} 0.06$ ). **Conclusions:** Our findings suggest that greater intake of a proinflammatory dietary pattern is associated with worse OS in pts with stage III colon cancer. Regular physical activity may attenuate the association, and further investigation of diet and physical activity intervention is warranted. Support: U10CA180821, U10CA180882, U24CA196171, U10CA180863, CCS 707213, UG1CA233234, U10CA180820, U10CA180868, U10CA180888; <https://acknowledgments.alliancefound.org>. Pfizer; ClinicalTrials.gov Identifier: NCT01150045. Research Sponsor: None.