powered by



Contribution ID: 14

Type: TALK

Epigenetic indicators of body mass predict survival outcomes in colorectal cancer patients: patient cohort analysis

Background and Aims: The prognostic value of body mass index (BMI) in colorectal cancer (CRC) remains debated, partly due to disease-related weight loss. DNA methylation (DNAm)-based biomarkers that reflect long-term adiposity may offer more stable prognostic insights. We aimed to evaluate whether blood-based DNAm-BMI scores are associated with mortality in CRC patients and how they compare to self-reported BMI.

Methods: We analyzed data from 2,126 newly diagnosed CRC patients (41.2% women, median age 69) in the population-based DACHS cohort in Germany. Self-reported BMI at diagnosis and up to 14 years earlier, prediagnostic weight loss, and five DNAm-BMI scores derived from blood samples were assessed. Outcomes included all-cause, CRC-specific, and non–CRC-specific mortality. Associations were evaluated using Cox proportional hazards models, adjusting for demographic, lifestyle, clinical, and treatment factors.

Results: All DNAm-BMI scores correlated with self-reported BMI (Spearman r = 0.15-0.41, p < .0001). Underweight at diagnosis was linked to higher all-cause mortality (adjusted hazard ratio [aHR] 1.42, 95% CI 1.07– 1.88), while obesity was associated with lower risk (aHR 0.83, 0.70–0.99). Weight loss >5 kg before diagnosis was associated with increased CRC-specific mortality (aHR 1.24, 1.04–1.49). Four DNAm-BMI scores showed consistent linear associations with mortality. The 135-CpG score was most predictive (highest vs. lowest quartile for CRC mortality: aHR 1.57, 1.23–1.99).

Conclusions: Blood-based DNAm-BMI scores, reflecting cumulative adiposity exposure, are associated with CRC mortality and may improve risk stratification beyond self-reported BMI.

Research type

Translational research

Primary author: YUAN, Tanwei (Deutsches Krebsforschungszentrum)

Co-authors: MANDIC, Marko (Deutsches Krebsforschungszentrum); LI, Xianzhe (Deutsches Krebsforschungszentrum); BEWERUNGE-HUDLER, Melanie (Deutsches Krebsforschungszentrum); BRENNER, Hermann (Deutsches Krebsforschungszentrum); HOFFMEISTER, Michael (Deutsches Krebsforschungszentrum)

Presenter: YUAN, Tanwei (Deutsches Krebsforschungszentrum)

Session Classification: Short talks #3