Thursday June 9, 15:45-17:00

Parallel session 2

Lifestyle

Chairs: Esmée Bakker & Frouwke Veenstra

15:45   A more pro-inflammatory diet is associated with a higher risk of recurrence and all-cause mortality in colorectal cancer patients (O26)
Vera Wesselink

16:00   Longitudinal associations of adherence to lifestyle recommendations and health-related quality of life in patients with non-muscle invasive bladder cancer (O27)
Ivy Beeren

16:15   Beverage quality and risk of all-cause and CVD mortality in the Alpha Omega Cohort (O28)
Maria Jacobo-Cejudo

16:30   Neighbourhood socio-economic inequalities in Body Mass Index: the role of fast-food outlets and pay-for-use physical activity facilities (O29)
Carel-Peter van Erpecum

16:45   Chronic stress as indicated by hair cortisol levels and cancer incidence; including the role of metabolic syndrome components (O30)
An Thanh Pham

O26. A more pro-inflammatory diet is associated with a higher risk of recurrence and all-cause mortality in colorectal cancer patients.

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Background: The inflammatory potential of the diet has been associated with colorectal cancer (CRC) risk, but its association with CRC outcomes is unclear. Therefore, the aim of this study was to investigate the dietary inflammatory potential based on food-groups in relation to recurrence and all-cause mortality.

Methods: Data of the COLON study, a prospective cohort among CRC patients were used. Post-diagnostic dietary intake data, assessed using a food frequency questionnaire, were available for 1781 stage I-IV patients. The Empirically Dietary Inflammatory Pattern (EDIP) score was used as a proxy for the inflammatory potential of the diet. The EDIP score was created using reduced rank regression and stepwise linear regression to identify food groups that explained most of the variation in plasma inflammatory markers (IL6, IL8, CRP and TNFα) measured in a subgroup of the total population (n=451). Multivariable Restricted Cubic Splines as well as Cox proportional hazards regression analyses were used to investigate the relation between the EDIP score and CRC recurrence (n=1314) and all-cause mortality (n=1733). Stratified analyses were performed by sex, BMI and disease stage.

Results: The median follow up time was 2.5 years (IQR:1.6-3.7) for recurrence and 5.5 years (IQR:3.6-6.8) for all-cause mortality, during which 197 and 311 events occurred, respectively. A moderate pro-inflammatory diet (EDIPscore of +1.25), was associated with a higher risk of CRC recurrence (HR 1.33; 95%CI: 1.09-1.62) and all-cause mortality (HR: 1.42; 95%CI: 1.21-1.65). These associations were most pronounced in women, patients who had a normal weight and for patient with stage II or III of disease.

Conclusion: A more pro-inflammatory diet was associated with a higher risk of recurrence and all-cause mortality in CRC patients. However, potential differences between men and women and between patients with a normal weight and overweight as well as between stages of disease should be further explored.

O27. Longitudinal associations of adherence to lifestyle recommendations and health-related quality of life in patients with non-muscle invasive bladder cancer.

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Objectives: Evidence regarding the association between lifestyle and health-related quality of life (HRQoL) is very limited in patients with non-muscle invasive bladder cancer (NMIBC). The present study aimed to evaluate the longitudinal association between adherence to the 2018 World Cancer Research Fund/American Institute for Cancer Research (WCRF/AICR) lifestyle recommendations and HRQoL in patients with NMIBC.

Methods: In the multicenter prospective cohort study UroLife, lifestyle and HRQoL questionnaire data for 1,029 patients diagnosed with NMBIC were collected at six weeks (baseline), three months, and fifteen months after diagnosis. Information on body mass index (BMI), physical activity, diet, and alcohol was used to compute the standardized 2018 WCRF/AICR adherence score (range 0-7). HRQoL outcomes were evaluated by the EORTC QLQ-C30. Generalized linear mixed models were used to investigate longitudinal confounder-adjusted associations between the WCRF/AICR adherence score and HRQoL outcomes.

Results: The mean WCRF/AICR adherence score was 3.3 ± 0.9 at baseline. We observed that higher WCRF/AICR adherence scores were associated with better global quality of life (β=2.00, 95% CI 1.15, 2.84), physical (β=1.42, 95% CI 0.80, 2.04), role (β=1.99, 95% CI 0.84, 3.15), and social (β=1.20, 95% CI 0.29, 2.12) functioning, and less fatigue (β=-1.34, 95% CI -2.29, -0.39). We found stronger inter-individual than intra-individual associations, suggesting that the association was mainly driven by between-subject differences. Higher adherence to the BMI, physical activity, and dietary recommendations was associated with better scores for most HRQoL outcomes, while higher adherence to the alcohol recommendation was associated with worse HRQoL outcomes.

Conclusions: Higher adherence to the WCRF/AICR recommendations was associated with better HRQoL in patients with NMIBC. Following a healthy lifestyle may improve HRQoL in this patient group.

O28. Beverage quality and risk of all-cause and CVD mortality in the Alpha Omega Cohort.

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Background: Alcoholic and non-alcoholic beverages could impact the risk of cardiovascular disease (CVD). In a cohort of post-myocardial infarction (MI) patients, we examined overall beverage intake quality in relation to all-cause and CVD mortality.

Methods: We included 4,363 patients aged 60-80 years from the Alpha Omega Cohort. Food and beverage intakes were estimated at baseline using a 203-item validated food-frequency questionnaire. A Beverage Quality Index (BQI) was created based on six beverage categories (including alcohol) and the components "sugar added to beverages" and "total calories from beverages". These eight components were scored with a range from 0-80 with a higher score reflecting better adherence to the recommendations. Vital status and causes of death were obtained from May 2002 through December 2018. Multivariable Cox models were used to study BQI in tertiles with risk of all-cause and CVD mortality. Confounders included socio-demographic, lifestyle, dietary and health-related variables.

Results: The average age of the patients was 69.0 y (5.6) and 80% were men. During a median of 12.4 y of follow up (IQR: 8.8-13.8 y), 2034 patients died; 629 of those died of CVD. BQI ranged from 7.7 to 79.2 with a mean (SD) of 47.6 (12.5). Coffee was the most consumed beverage with a median of 375 grams/day and sugar sweetened beverages (SSB) the least consumed beverage with a median of 42 grams/day. Beverages accounted for 19% of the total daily caloric intake. Multivariable adjusted associations showed that patients in the highest tertile of the BQI had a 20% (HR: 0.80; CI: 0.66-0.97) lower CVD mortality risk and a 10% lower (HR: 0.90; CI: 0.81-1.00) all-cause mortality risk than patients in the lowest tertile.

Conclusion: A higher beverage quality score was associated with lower risks of CVD and all-cause mortality in post-MI patients.

O29. Neighbourhood socio-economic inequalities in Body Mass Index: the role of fast-food outlets and pay-for-use physical activity facilities.

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Background: Previous studies found that people living in lower neighbourhood socio-economic status (NSES) areas have a higher Body Mass Index (BMI), but did not take into account individual socio-economic status and the availability of fast-food (FF) outlets and pay-for-use physical activity (PA) facilities. We examined to what extent the association between NSES and BMI is moderated by the availability of FF outlets and pay-for-use PA facilities.

Methods: Baseline adult data (N=146,629) from the Lifelines Cohort were linked to Statistics Netherlands to compute NSES (based on the percentage receiving social assistance benefits, average income, average value of a house, and percentage owner-occupied houses). Also, we linked these data to an employment register using geo-coding to compute the number of FF outlets and pay-for-use PA facilities within 1km of the residential address. We performed multivariable multilevel linear regression analyses adjusting for five individual socio-economic status indicators, age, sex, partner status, and address density. If interaction terms between NSES and moderators were significant (p<0.05), stratified analyses were conducted.

Results: Participants had a mean (SD) age of 44.9 (13.0) years and 57.3% was female. Participants living in low NSES areas had a higher BMI than participants living in high or middle NSES areas (B=0.76, 95% Confidence Interval(CI): 0.65,0.87; B=0.40, 95% CI: 0.28,0.51, respectively). Also, participants living in middle NSES areas had on average a higher BMI than participants from high NSES areas (B=0.37, 95% CI: 0.27,0.46). Irrespective of the availability of FF outlets and/or PA facilities, differences in BMI between different NSES groups were observed.

Conclusions: People living in lower NSES areas had a higher BMI than people living in higher NSES areas, independent of their individual SES. This pattern was observed irrespective of the availability of FF outlets or pay-for-use PA facilities. This study highlights neighbourhood socio-economic inequalities in BMI.

O30. Chronic stress as indicated by hair cortisol levels and cancer incidence; including the role of metabolic syndrome components.

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Background: Although earlier molecular and cellular studies have suggested various mechanisms in which chronic stress can contribute to cancer initiation, epidemiological research has not provided consistent evidence to support this relation. One of the reasons for this inconsistency is that measuring chronic stress objectively is challenging. Recently, hair cortisol (HairF) has been shown to be a useful biomarker for chronic stress. Additionally, other factors, such as metabolic syndrome (MetS) components, may impact the relation between chronic stress and cancer development. Our study aims to investigate the relation between chronic stress, as measured in HairF levels, and cancer incidence, and to adjust for MetS components.

Methods: Hair samples for cortisol analysis were collected in 6,341 Lifelines participants in 2014. HairF was classified into two groups indicating low or high level. Cancer incidence between 2015 and 2021 was derived from a linkage with Pathological Anatomy National Automated Archive (PALGA). MetS components included hypertension, diabetes, dyslipidemia, and obesity. The association between HairF level and cancer incidence was estimated by using logistic regression analysis. Multivariable logistic regression analyses were performed to determine whether age, gender, and MetS components were confounders or moderators of this association.

Results: A total of 5,733 participants were eligible for analyses. 34.9% had high HairF level, and 9.1% developed cancer. There was no association between HairF level and cancer incidence (p=0.74). Age and hypertension were potential confounders. In a multivariable model including HairF, age and hypertension, only age remained statistically significant associated with cancer incidence (OR=1.043 (95%CI 1.033-1.053)). Moderation was not observed in the association between HairF level and cancer incidence.

Conclusion: Despite using a better chronic stress measurement as HairF and taking MetS components into consideration, our preliminary findings did not indicate an association between chronic stress and cancer incidence.