0044

ASSOCIATION BETWEEN CHRONOTYPE AND CIRCULATING LEVELS OF INTERLEUKIN-6 IN COLORECTAL CANCER PATIENTS: PRELIMINARY RESULTS FROM THE COLOCARE STUDY

Peoples, A. R.[1,2] Gigic, B.[3] Ose, J.[1,2] Himbert, C.[1,2] Hardikar, S.[1,2] Boehm, J.[1,2] Schrotz-King, P.[4] Ulrich, A. B.[3] Schneider, M.[3] Li, C. I.[5] Shibata, D.[6] Siegel, E. M.[7] Figueiredo, J. C.[8] Toriola, A. T.[9] Ulrich, C. M.[1,2]

[1]Huntsman Cancer Institute, Salt Lake City, UT, [2]Department of Population Health Sciences, University of Utah, Salt Lake City, UT, [3]Department of General, Visceral and Transplantation Surgery, University Hospital of Heidelberg, Heidelberg, GERMANY, [4]Division of Preventive Oncology, National Center for Tumor Diseases (NCT), German Cancer Research Center (DKFZ), Heidelberg, GERMANY, [5]Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA, [6]Department of Surgery, University of Tennessee Health Science Center, Memphis, TN, [7]Cancer Epidemiology Program, Division of Population Sciences, H. Lee Moffitt Cancer Center & Research Institute, Tampa, FL, [8]Department of Medicine, Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, Los Angeles, CA, [9]Department of Surgery, Division of Public Health Sciences, Washington University School of Medicine in St. Louis, St. Louis, MO.

Introduction: Accumulating evidence suggests that chronotype, i.e., circadian topology of an individual indicating morning or evening type, is associated with inflammation. To date, no study has examined the relationship between chronotype and inflammation in colorectal cancer patients. We investigated the associations between chronotype and inflammatory and angiogenesis biomarkers in colorectal cancer patients.

Methods: We used pre-surgery serum samples from n=67 newly diagnosed colorectal cancer patients (stage I-IV) recruited at the ColoCare Study site in Heidelberg, Germany. The ColoCare Study is an ongoing, international, multisite, prospective cohort study in colorectal cancer patients. Inflammatory and angiogenesis biomarkers [c-reactive protein (CRP), interleukin (IL)-6, IL-8, monocyte chemoattractant protein-1 (MCP-1), soluble intercellular adhesion molecule-1 (sICAM-1), soluble vascular cell adhesion molecule-1 (sVCAM-1)] were measured at the Huntsman Cancer Institute, USA using the Meso Scale Discovery platform and were log transformed. Chronotype was assessed prior to surgery with the reduced Morningness-Eveningness Questionnaire (rMEQ; scale 4–25; a higher score indicates more morning-type). Patients were dichotomized, based on the median values for rMEQ, into 2 groups: rMEQ-low (score≤16.0; n=35; indicating more evening-type) or rMEQ-high (score>16.0; n=32; indicating more morning-type).

Results: Using Mann-Whitney U test, we observed that rMEQ-low group (i.e., more evening-type) compared to rMEQ-high group (i.e., more morning-type) had approx. two times significantly higher levels of log transformed IL-6 (mean=2.24 vs. 1.30; U=382.0; Z=-2.23; p=0.03), but not for other inflammatory or angiogenesis biomarkers. This association between chronotype and IL-6 was maintained even after adjusting for age, sex, tumor stage, tumor site, and sleep duration using a generalized estimating equations model (adjusted mean difference=1.10; 95% confidence interval=0.33, 1.88; p=0.01; effect size, Cohen's d=0.69).

Conclusion: These preliminary findings suggest that the evening chronotype is associated with increased IL-6 inflammatory biomarker in colorectal cancer patients. Further research is needed to confirm and understand the mechanistic underpinnings of the observed results.

Support: Funding: NCI U01 CA206110, R01 CA189184, and R01 CA207371.

0045

BIOBEHAVIORAL MARKERS FOR SLEEP/WAKE DISTURBANCE AND FATIGUE IN YOUNG CHILDHOOD BRAIN TUMOR SURVIVORS

Johnson, A. H.[1] Bashore, L.[1,2] Hines, A.[2] Aufricht, J.[1] Smith, A. M.[3] Pearson, H.[2]

[1]Texas Christian University, Fort Worth, TX, [2]Cook Children's Medical Center, Fort Worth, TX, [3]Sam Houston State University, The Woodlands, TX.

Introduction: Survivors of childhood and adolescent brain tumors and subsequent treatment may experience many neurological processes involving the forebrain, brainstem, and hypothalamus as well as the symptom cluster of stress, sleep, and fatigue. As a result, the impact of brain tumor treatment (chemotherapy/biotherapy, radiotherapy, and surgery) may have lasting biobehavioral effects. Description of symptoms during early survivorship is not always evident in the literature.

Methods: Convenience sampling and the following inclusion criteria were utilized: brain tumor survivors ages 8–17 years; ≥6 months, <6 years from completion of treatment; disease free or stable disease. Participants completed polysomnography (PSG) followed by a multiple sleep latency test (MSLT), and subjective measures of sleep, fatigue, stress, and pubertal status. Collection of salivary biomarkers for stress (cortisol) and sleep (melatonin) was completed the evening of and morning after the PSG.

Results: Analysis of the first 12 participants (5 males; 3 Hispanic/Latino; average age 14 years; 9–72 months post treatment) revealed mean (minutes) total sleep time (TST) 442, sleep latency (SL) 42 and waking (WASO) 88; sleep efficiency (SE) mean 83%, There were large magnitude correlations between several variables of interest, notably PM Cortisol with fatigue, TST (r= .472; -.453); AM Cortisol with SL (r=.479); AM Melatonin with SE, SL, WASO (r= -.459; .692; .458). Average AM melatonin level (26.6 pg/dl) was higher than PM (6.66 pg/dl). Seven participants were diagnosed with clinical sleep disorders, including one with narcolepsy and two with hypersomnia.

Conclusion: During early survivorship after pediatric brain tumor treatment, survivors may be at high risk for sleep/wake disturbance (SWD). Morning melatonin and biomarker correlations with sleep and fatigue in this sample warrant further exploration and may be related to first night effect versus circadian rhythm differences or clinical sleep disorder. Recommendations for future practice include developmentally matched protocols and routine screening of biobehavioral markers to assess risk for stress, SWD, and fatigue.

Support: 1. Center for Oncology Education and Research Harris College of Nursing & Health Sciences Texas Christian University 2. Neuro-Oncology Program Hematology/Oncology Center Cook Children's Health Care System 3. Nursing Research and Evidence-Based Practice James A. "Buddy" Davidson Endowed Fund

Downloaded from https://academic.oup.com/sleep/article/43/Supplement_1/A18/5847129 by guest on 23 April 2024