



Science Lunch at the Center for Public Health

Using genetic data to better understand the role of sleep and circadian rhythm disruption in chronic disease

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Date & Time: Friday, April 5, 2024, 12:00 pm – 1:00 pm

Venue: Zentrum für Public Health, Seminarraum 3 (Hofgebäude), Kinderspitalgasse 15, 1090 Vienna

Host: Eva Schernhammer

Biography

Rebecca is a Senior Research Fellow in Molecular Epidemiology at the University of Bristol. Her research aims to highlight the relative importance and inter-relationships of health behaviours and to identify molecular pathways linking health behaviours with chronic disease. Her major areas of focus are on the large-scale integration of genetic and molecular data in population-based and clinical health science as well as the development and application of causal inference methods, including Mendelian randomization, she has specific interests in cancer, women's health and lifecourse epidemiology.

Abstract

Poor sleep is a common feature of modern society, with some 13% of adults reporting poor sleep quality and 19% reporting insomnia symptoms. In turn, poor sleep and circadian rhythm disruption have been strongly associated with both physical and mental health problems. The causes and mechanisms underlying these links remain unclear. Genetic data from large-scale population-based studies, along with sleep measures derived from self-reported questionnaires, accelerometer devices and medical records, can be used to better understand these relationships. Numerous genetic variants have now been identified in relation to both subjective and objective measures of sleep, including chronotype (morning/evening preference), sleep duration and insomnia. These genetic variants can be used in what is known as a Mendelian randomization approach, to evaluate the effects of sleep traits on disease risk free from confounding and reverse cause and overcoming issues of measurement error and small sample size. In this presentation, I will demonstrate how this approach has been used to implicate sleep traits in the development of cancer, cardiovascular disease, diabetes, depression and cognitive decline. I will also discuss extensions of the approach which may allow us to investigate: circadian rhythm disruption (as a gene-by-environment interaction); the interplay between sleep traits; and the common molecular pathways underlying sleep-related multimorbidity.

This lecture is accredited with 1 DFP-point for members of the Austrian Medical Chamber.

For further information please contact: epi-office@meduniwien.ac.at