Abstracts

1656d WHAT SHOULD WE TELL SHIFT WORKERS TO DO TO REDUCE THEIR CANCER RISK?

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Introduction In 2007, a working group of the International Agency for Research on Cancer classified shift work that involves circadian rhythm disruption as probably carcinogenic to humans. We carried out a review of the human epidemiological and mechanistic evidence, along with relevant health and safety policies and practice, to identify practical measures that should be undertaken to reduce the risk of cancer among shift workers.

Methods A literature search was carried out of the Proquest Dialogue databases, which includes MEDLINE, in order to identify the relevant scientific literature published from 2005–2015. In addition, we carried out an internet search for current health and safety policies and practices for managing shift workers.

Results There is evidence from the epidemiological studies that the increase in breast cancer risk amongst women who have worked night shifts is relatively modest and could be zero. Other risk factors for breast cancer associated with night work, such as poor diet, should be addressed by employers. Evidence for other cancers remains limited and inconsistent. If a mechanism exists, it is most likely to be night-time suppression of melatonin production. There has been limited evaluation of interventions to manage shift workers and research in this area is fragmented. Health and safety policies provide little on prevention.

Conclusion Health and safety practices for shift workers should address reduction of health risks by choosing shift rotations that minimise impact on circadian disruption, by employers facilitating female workers to attend breast cancer screening and by promoting and facilitating a healthy lifestyle.

1656e CURRENT PROGRESS AND STATE OF SCIENCE IN POPULATION STUDIES OF CIRCADIAN/SLEEP DISRUPTION ON CANCER RISK AND SURVIVAL, AND CIRCADIAN PHASE BIOMARKERS

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Melatonin (5-methoxytryptamine) is an indoleamine produced primarily by the pineal gland, which is secreted exclusively during the dark phase of the light-dark cycle in humans. Several decades ago, reports indicated that melatonin possesses oncostatic properties, leading to novel hypotheses that diminished secretion of melatonin might promote the development of cancer. Growing evidence also demonstrates that visible light, including electric light, can acutely suppress melatonin production—a phenomenon often referred to as ‘circadian disruption’ particularly if it occurs at night, as commonly observed in shift workers.

In 2007, the International Agency for Research on Cancer classified shift work as a possible carcinogen, based on convincing experimental evidence and supportive, but still limited, epidemiologic data. Indeed, experimental data has consistently demonstrated that circadian disruption can promote carcinogenesis in animals; specifically, exposure to light at night and phase shifts in the light-dark cycle have accelerated tumour development in rodents. In humans, epidemiologic data continues to accumulate, with the majority of existing studies indicating that shift work is related to a modest increase in the risk of breast cancer. Initial studies have identified links between shift work and other cancers as well, although this evidence is very limited.

In this presentation, I will review epidemiologic studies of circadian disruption/sleep and cancer risk, including some preliminary studies on cancer survival, and with additional emphasis on circadian phase biomarkers (melatonin/cortisol).

1602 SHIFTWORK IN THE 21ST CENTURY: OLD AND NEW PROBLEMS AND APPROACHES

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Aim of special session This session is expected to be interactive, providing the attendees with both an understanding of the social and physical harm than may come with working shifts, and an evaluation of different countermeasures developed to help ameliorate these problems. The question and answer portion is meant to be both ‘ask the expert’ for those who have published in this area recently, and also include input from the audience.