

POSTER PRESENTATION

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Association between night shift work, melatonin and estradiol in nurses

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Synthesis of melatonin is regulated through visible light exposure, with peak production during the night. Melatonin regulates various physiological processes including secretion of other hormones, and has anticarcinogenic properties as demonstrated in animal and *in vitro* experiments. It has been suggested that night shift work (exposure to light at night) may disrupt circadian rhythm, and melatonin synthesis leading to other hormonal alterations including increase in estradiol. Few epidemiological studies have investigated an association between night shift work, melatonin secretion and estradiol and their results are inconsistent, with support only from The Nurses Health Study in the US.

In order to clarify the associations between night shift work, melatonin and estradiol we performed analyses of the data collected in the cross-sectional study of 360 nurses working currently on rotating night-shifts and 365 nurses who work currently only during the day. Information on occupational history, use of hormones, menopausal status and breast cancer risk factors was collected in personal interviews. Morning and evening urinary 6-sulfatoxymelatonin (MT6), and estradiol levels in blood were determined.

Preliminary analyses showed no significant associations between current night shift work, melatonin and estradiol in pre-menopausal women. However, significant positive associations were found between total night shift work duration and estradiol in postmenopausal nurses.

Our findings in post-menopausal women support the thesis on alterations in estradiol as a result of prolonged exposure to rotating night shift work in nurses.

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