

Is sleep related to cancer in murine models of obstructive sleep disorder?

To the Editors:

The recent article by ALMENDROS *et al.* [1] brings to light an interesting, but yet rarely discussed, relationship: the association between sleep disordered breathing and cancer. Overall, the study found that high-rate intermittent hypoxia (an animal model that mimics obstructive sleep apnoea) contributed to melanoma tumour growth in mice. There was an increase in the size and degree of necrosis, which were, on average, two times higher in mice exposed to intermittent hypoxia compared with the normoxia group. We would like to congratulate the authors for this study and emphasise the relevance of this research, as well as their results, by making some brief remarks. The issue addressed in this study, sleep apnoea and melanoma, has great clinical importance and relevance in a remarkable public health matter due to the high incidence and severity of both diseases. In general, sleep is a biological phenomenon characterised by a reversible and active state, and is part of a major physiological and psychological need of human beings. However, the prevalence of sleep disorders are increasing markedly, especially sleep apnoea [2]. The impact of sleep disorders on the health of humans has not been fully clarified; it is still the subject of research. Since sleep has a bidirectional relationship with most systems, changes in its pattern can generate negative consequences for the organism, as well as diseases can impair sleep. Studies have shown that sleep apnoea can impair the health of individuals affected by this disease [2], such as by causing cardiovascular complications [3]. Melanoma is a specific cancer that affects the epithelial tissue, and it can metastasise if not detected and treated in the early stages. Its incidence rate is high. For instance, in 1973, the incidence rate was 7.5 cases per 100,000 inhabitants and in 2002, this figure rose to 21.9 cases per 100,000 [4]. More recent data indicate that in 2012, we will see ~76,250 new cases of melanoma of the skin, causing 9,180 deaths on average [5]. Notably, sleep apnoea has also been a disease of great clinical relevance because it is a syndrome with a relative incidence and prevalence of ~33% of the population [2]. Given the magnitude of the severity of apnoea and melanoma, we would like to highlight the clinical implications of the findings of ALMENDROS *et al.* [1], as well as their

contribution of this relevant scientific evidence regarding sleep and cancer. These findings provide further knowledge about the mechanisms involved in tumour progression associated with sleep apnoea. Furthermore, it shall be mentioned that, despite being conducted in laboratory animals, the background and discussion provided by the authors ensure a translational applicability to this study. In conclusion, this study highlights the importance of diagnosis and treatment of sleep apnoea, especially in patients with cancer; thus, a better prognosis and a better quality of life for patients can be achieved.

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Primary lung adenocarcinoma: characteristics by smoking habit and sex

To the Editors:

The recent article by NAGY-MIGNOTTE *et al.* [1] focused on a relevant and still open issue about lung carcinogenesis, which

is how sex and smoking habit could affect lung cancer onset and progression. Through an observational, retrospective, single-centre study, the authors analysed the epidemiological features of an extraordinarily large and well recorded cohort of