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Sleep apnea could favour tumor growth at young ages

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The lecturer Isaac Almendros, in the Faculty of Medicine and Health Sciences of the University of Barcelona. Credit: UB-CIBERES

A scientific study, conducted with animal models, states that sleep apnea

can favour lung cancer growth in young individuals. Thus, aging would be a protecting factor against the fast tumor development, induced by this sleep alteration.

The study, published in the journal *Americal Journal of Respiratory and Critical Care Medicine*, has been carried out by research teams led by the lecturers Ramon Farré, from the Faculty of Medicine and Health Sciences and the Institute of Nanoscience and Nanotechnology (IN2UB) of the University of Barcelona, and Josep María Montserrat, from the same Faculty and Hospital Clínic de Barcelona, also linked to the Respiratory Diseases Networking Biomedical Research Centre (CIBERES).

The younger, the more vulnerable to cancer's aggressiveness

Obstructive sleep apnea syndrome is a chronic disease that affects about the 10 percent of adult population worldwide. In recent years, researchers have shown interest in the study of the potential relation between obstructive sleep apnea syndrome and its immediate consequence, intermittent hypoxia, with the appearance of tumors. The new study, led by the lecturer Isaac Almendros, from the Faculty of Medicine and Health Sciences—UB Clinic Campus and IDIBAPS, illustrates the potential effects of obstructive sleep apnea in cancer. In this field, the research team reports the first evidence of the role of intermittent hypoxia in cancer development.

This new study was conducted on young mice of equivalent ages to teenagers, and old mice corresponding to people aged over 65. The study shows that the lack of oxygen during sleep (hypoxia) speeds up tumour growth in the youngest mice only.

The research team relates these results to a differential immune response to intermittent hypoxia in tumor-associated macrophages and regulator lymphocytes. Almendros says, "We should consider the importance of the research conducted on animals aged equally to patients with respiratory chronic diseases, such as obstructive sleep apnea. Our challenge is to identify and prove sleep apnea's physiopathological consequences and contribute to the development of personalized medicine to work on its comprehensive handling."

More information: Marta Torres et al, Aging Reduces Intermittent Hypoxia-induced Lung Carcinoma Growth in a Mouse Model of Sleep Apnea, *American Journal of Respiratory and Critical Care Medicine* (2018). DOI: 10.1164/rccm.201805-0892LE

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