عنوان مقاله:

Melatonin Mitigates the Progression of Chemically Induced Hepatocellular Carcinoma in Rats via Targeting Wnt/Β-Catenin Pathway, and Small Noncoding miR-let-۷b

محل انتشار:

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خلاصه مقاله:

Background: Melatonin, the controlling hormone of the sleep-wake cycle, has acquired attention due to its role in immunomodulation, anti-inflammation, as well as its proapoptotic effects. Wnt/β-catenin signaling can modulate cancer progression by promoting cell division and migration, while miR-let-۷b may inhibit cell growth, migration, and invasion by affecting the function of adaptive immune cells. This work was designed to detect the effect of using melatonin as an immunomodulating therapeutic approach to control the progression of chemically induced hepatocellular carcinoma (HCC). Methods: Thirty male rats were equally divided into control, HCC, and melatonin-HCC groups. Animals in the HCC and melatonin-HCC groups were injected with diethylnitrosamine (intraperitoneal single dose) followed by repeated carbon-tetrachloride subcutaneous injection once weekly for six weeks. Melatonin was given from the first week of the study and continued during the process of HCC induction. Results: In the HCC group, the levels of tumor necrosis factor-α (TNF-α), vascular endothelial growth factor (VEGF), and Wnt/β-catenin expression significantly increased, while there was a downregulation of microRNA Let۷b. Melatonin administration reversed these changes, along with an increase in hepatic content of interleukin-۲ (IL-۲) and caspase-۳. Conclusions: Melatonin exerted hepatic immunomodulating changes, in addition to proapoptotic and antiangiogenic effects, illustrated by increased IL-۲, caspase-۳, and decreased VEGF levels, respectively. Moreover, the use of melatonin during hepatocarcinogenesis positively modulated the disrupted .expression of microRNA let۷b and Wnt/β-catenin significantly

کلمات کلیدی:

.Hepatocellular carcinoma, Melatonin, IL-۲, miRNA Let۷b, Wnt pathway, β-catenin