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Melatonin and pancreatic cancer: Current knowledge and future perspectives

Omid Reza Tamtaji ¹, Naghmeh Mirhosseini ², Russel J Reiter ³, Morteza Behnamfar ⁴,
Zatollah Asemi ⁵

Affiliations

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Abstract

Pancreatic cancer has a high mortality rate due to the absence of early symptoms and subsequent late diagnosis; additionally, pancreatic cancer has a high resistance to radio- and chemotherapy. Multiple inflammatory pathways are involved in the pathophysiology of pancreatic cancer. Melatonin an indoleamine produced in the pineal gland mediated and receptor-independent action is the pancreas and other where has both receptors. Melatonin is a potent antioxidant and tissue protector against inflammation and oxidative stress. In vivo and in vitro studies have shown that melatonin supplementation is an appropriate therapeutic approach for pancreatic cancer. Melatonin may be an effective apoptosis inducer in cancer cells through regulation of a large number of molecular pathways including oxidative stress, heat shock proteins, and vascular endothelial growth factor. Limited clinical studies, however, have evaluated the role of melatonin in pancreatic cancer. This review summarizes what is known regarding the effects of melatonin on pancreatic cancer and the mechanisms involved.

Keywords: apoptosis; inflammation; melatonin; oxidative stress; pancreatic cancer.

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