Does Melatonin Kill Human Neuroblastoma?

Summary

Melatonin is a hormone secreted by the pineal gland that regulates the sleep-wake cycle. Melatonin acts as an antioxidant directly as a radical scavenger and indirectly through the regulation of antioxidant enzymes, and its protection against cancer has been shown in cancer types such as breast cancer.

It is a subject that has been researched by scientific studies that cancer is less common in patients who experience blindness from an early age, and that this may be due to increased melatonin secretion. This situation has been studied mostly on breast cancer.

In our study, it is suggested that the protective effect of melatonin may also be effective in different types of cancer. For this reason, the effect of 3 different doses of melatonin applied on human brain cancer cells for 6 hours on cell viability and cell death was investigated in our project.

Our study was inspired by studies investigating the reasons for the reduced incidence of cancer in people who experience blindness from an early age. Although the protection of melatonin in this regard is mostly tested in breast cancer studies, we thought that it may also be effective on different cancer cells. For this reason, we examined the effects on cell death and cell viability with 3 different doses of melatonin using neuroblastoma (human brain cancer) cells. According to our results, only 1000uM dose of melatonin showed a negative effect on brain cancer cells and reduced viable cell count, according to our study. This is a result that supports the correctness of our hypothesis. It is also compatible with the results of previous studies with other cancer types. Other doses were not effective in our study. The study can be enriched by repeating with a larger number of samples, including different times, and including different cell activities and types of death.

We found no significant difference in the number of dead cells and the percentage of dead cells. PI dye is a dye that determines apoptotic death, these cells may be dying from apoptosis in different ways. To explain this better, it might be good to look at different types of cell death and different cell activities. Or they may have died during the application period, disintegrated and may no longer be there at the end of the application, so they are not painted. A study can be done by doing experiments at different times (time course).