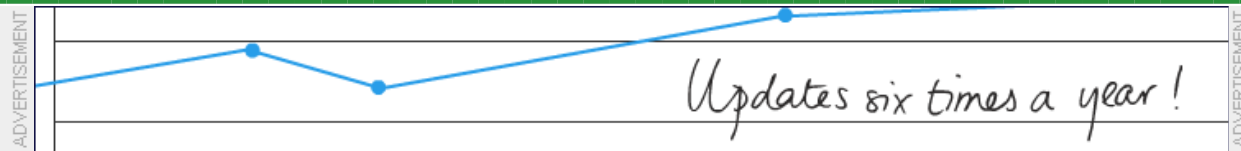


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The effect of tianeptine in the prevention of radiation-induced neurocognitive impairment

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Summary

Radiation-induced neurocognitive impairment is an undesirable radiation-induced toxicity and a common health problem in patients with primary or metastatic brain tumor. It greatly impairs quality of life for long-term brain tumor survivors. Hippocampus is the most important brain structure for neurocognitive functions. It has been shown that radiation affects the hippocampal neurogenesis due to either induce the apoptosis or reduce the precursor cell proliferation in the hippocampus. Radiation-induced microglial inflammatory response is also negative regulator of neurogenesis. Tianeptine is a clinically effective antidepressant that induces neurogenesis. It has also been shown that tianeptine is able to reduce apoptosis and cytoprotective against the effects of proinflammatory cytokines in the hippocampus. Given the putative role of impaired hippocampal neurogenesis in radiation-induced neurocognitive impairment we think that tianeptine can be effective for preventing radiation-induced neurocognitive impairment by increasing hippocampal neurogenesis.

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