Artemisinin induces apoptosis in human cancer cells.

BACKGROUND: Artemisinin is a chemical compound extracted from the wormwood plant, Artemisia annua L. It has been shown to selectively kill cancer cells in vitro and retard the growth of implanted fibrosarcoma tumors in rats. In the present research, we investigated its mechanism of cytotoxicity to cancer cells. MATERIALS AND METHODS: Molt-4 cells, in complete RPMI-1640 medium, were first incubated with 12 microM of human holotransferrin at 37 degrees C in a humid atmosphere of 5% CO2 for one hour. This enhanced the iron supply to the cells. The cells were then pelleted and transferred to a complete RPMI-1640 containing 200 microM of an analog dihydroartemisinin (DHA) and incubation was started (0 h). In addition, some culture samples were treated with holotransferrin alone and some (controls) were assayed without neither holotransferrin nor DHA treatment. Cells were counted and DNA diffusion assay was used to evaluate apoptosis and necrosis in each sample at 0 h and at 1, 2, 4 and 8 h of incubation. RESULTS: DHA treatment significantly decreased cell counts and increased the proportion of apoptosis in cancer cells compared to controls (chi^2=4.5, df=1, p<0.035). Addition of holotransferrin significantly further decreased cell counts (chi^2=4.5, df=1, p<0.035) and increased apoptosis (chi^2=4.5, df=1, p<0.035). No necrotic cells were observed. CONCLUSION: This rapid induction of apoptosis in cancer cells after treatment with DHA indicates that artemisinin and its analogs may be inexpensive and effective cancer agents.

Safety of Hypericum extract in mildly to moderately depressed outpatients; A review based on data from three randomized, placebo-controlled trials.

Rationale: Hypericum extracts have been regarded as antidepressant drugs without specific side effects by patients, medical professionals and researchers alike. Recently there has been discussion about potential interactions between St. John's wort and other drugs. Objectives: To investigate the tolerability of Hypericum extract by comparing adverse event rates observed during clinical trials with the herbal drug to those observed under placebo and synthetic antidepressants. Methods: A data review was performed based on the original data of three double-blind, randomised multicenter trials, during which 594 outpatients suffering from mild to moderate depression according to DSM-IV criteria received 3 x 300 mg/day Hypericum extract (WS(R) 5570, WS(R) 5572, WS(R) 5573) or placebo over a double-blind treatment period of 6 weeks. For the polled data from the three trials, the risk ratios and risk differences versus placebo for single and grouped adverse events were determined along with their 95% confidence intervals. The data were inspected for relevant differences between Hypericum extract and placebo and were compared to trials involving the administration of several synthetic antidepressants. Results: For the polled data of the three trials, the percentage of patients with any adverse events under Hypericum extract exposition was comparable to placebo. The drug was also found to be devoid of effects of sedation, anticholinergic reactions, gastrointestinal disturbances and sexual dysfunction often found in patients treated with tricyclic antidepressants or selective serotonin reuptake inhibitors. Conclusion: The analysis did not reveal any specific effects of Hypericum extract.