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Animal toxicology and treatment of cancer patients by a novel anticancer formulation with methylglyoxal as lead compound

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The anticancer effect of methylglyoxal has been known for a long time. But relatively recent work has shown that it acts exclusively against malignant cellular mitochondrial complex I and GAPDH to elicit its anticancer effect. With the primary objective to treat cancer patients by methylglyoxal its toxicity was assessed at first by administering through three different routes to four different species of animals. Having found that methylglyoxal is potentially safe for human consumption and able to destroy cancer cells in vivo a methylglyoxal-based anticancer formulation was administered orally to diverse groups of cancer patients with the due permission from regulatory authorities. The patients were divided in three study groups. In first group (14 months, January 2000-February 2001) 24 patients were recruited and complete remission was observed for 11 patients and partial remission for 5 patients. In the second group (60 months, October 2000-September 2005) 46 patients were recruited and complete remission was observed for 18 patients and partial remission for 18 patients. In the third group (42 months, May 2005-October 2008) of the 23 patients complete remission was observed for 11 patients and partial remission for 7 patients. The treatment was found to be especially effective for adenocarcinoma of urinary bladder, breast, uterus, esophageal and gastrointestinal tract cancer. Several vital biochemical, radiological and other parameters were tested in patients who received treatment for a long time to assess the possible long term toxicity of methylglyoxal treatment, if any, and the results implicated no toxicity as per the parameter studied. All the results showed great promise of methylglyoxal treatment and demands further improvisation the methylglyoxal based therapeutics.

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