Preclinical re-evaluation of benzaldehyde as a chemotherapeutic agent.


Abstract

Benzaldehyde (BA), an agent extracted from figs, is reported to have antitumor activity in vitro against a variety of experimental tumors and in vivo against refractory human neoplasms. We employed recently developed in vitro techniques to examine the effect of BA on growth of malignant human cells, and examined its effects in vivo against two human tumor xenografts established from primary specimens. BA showed dose-dependent inhibition of HL60 promyelocytic leukemia cells and normal human granulocyte/macrophage colonies. It showed no in vitro activity against either KG-1 myeloid leukemia cells or chronic lymphocytic leukemia cells grown in colony culture. BA failed to inhibit growth of either HL60 or KG-1 cells in liquid culture, and did not induce differentiation of HL60 cells. When tested against human tumor colony-forming cells from 30 patients with solid tumors, inhibition of colony growth greater than 70% was seen in six patients (20%). BA failed to inhibit the in vivo growth of either the T222 epidermoid carcinoma xenograft or the T380 ovarian carcinoma xenograft. We conclude that BA lacks significant activity against most human tumors tested in these experimental systems.

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