COMMENTS

Anticancer Effect of an α-TEA Liposome Aerosol

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Anderson *et al.* (1), in a paper selected for the Best Paper Award in the Clinical/Preclinical/Translational Category for 2004, prepared α-TEA, a novel acetic acid analog of vitamin E, in a liposome aerosol for anticancer treatment. When given concurrently with cisplatin ip to mice with subcutaneous xenografts of cisplatin-resistant ovarian cancer, it significantly reduced tumor burden, lung metastases, and other aspects of cancer growth. Cisplatin alone had minimal anticancer effect, verifying the drug resistance of the cancer xenografts, while α-TEA showed limited but consistent anticancer effect.

In an earlier report from the same laboratory (2), α-TEA liposome aerosol, in combination with 9-nitrocamptothecin liposome aerosol, significantly inhibited the growth in mice of subcutaneous xenografts of mouse mammary cancer. In this study, both α-TEA and 9-nitrocamptothecin singly showed consistent but less anticancer effect than the combination treatment.

In summary, the two studies show that α-TEA is transported from deposition sites in the lung to subcutaneous xenografts and that α-TEA reversed, or overcame, cisplatin resistance of ovarian cancer cells. α-TEA also enhanced the anticancer effect of 9-nitrocamptothecin liposome aerosol. This diversity of favorable therapeutic activities of α-TEA suggests it may have a role as a companion drug for other anticancer drugs and, in the absence of identified toxicity to normal cells, is a candidate for early development as a treatment of cancer in humans.

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1. Anderson K, Lawson KA, Simmons-Menchaca M, Sun L, Sanders BG, Kline K. α-TEA plus cisplatin reduces human cisplatin-resistant ovarian cancer cell tumor burden and metastasis. Exp Biol Med 229:1169–1169, 2004.
2. Lawson KA, Anderson K, Snyder RM, Simmons-Menchaca M, Atkinson J, Sun LZ, Bandyopadhyay A, Knight V, Gilbert BE, Sanders BG, Kline K. Novel vitamin E analogue and 9-nitrocamptothecin administered as liposome aerosols decrease syngeneic mouse mammary tumor burden and inhibit metastasis. Cancer Chemother Pharmacol 54:421–431, 2004.