Antiproliferative activity of picolinic acid due to macrophage activation.


Source

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Abstract

Activation and subsequent enhancement of cytotoxicity of mouse peritoneal macrophages (M phi) by picolinic acid (PLA) in vivo have been reported previously by the authors’ group. The optimum dose was found to be 100 mg/kg. PLA-stimulated M phi lysed different tumor targets in vitro, MBL-2 lymphoma cells and Madison 109 lung carcinoma cells, with equal efficiency. Treatment with PLA was performed daily for 5 consecutive days with a dose of 100 mg/kg intraperitoneally in C57/BL mice, which previously had been inoculated with MBL-2 tumor cells. Treatment was initiated on the first day after tumor inoculation. Oral treatment with PLA (200 mg/kg) dissolved in the drinking water was also performed for 7 days. In addition, some groups received PLA treatment 1 or 2 days before tumor implantation but not afterwards, to elucidate the in vivo efficacy of M phi activation. Intraperitoneal therapy with PLA after tumor inoculation resulted in a highly significant increase in lifespan (46%); intraperitoneal pretreatment caused a significant increase (15%); orally administered PLA was without effect. Thus intraperitoneal treatment with PLA was found to have protective and therapeutic effects against the MBL-2 ascites tumor in vivo. These effects are most likely caused by macrophage activation.

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