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Life-Span Exposure to Low Doses of Aspartame Beginning during Prenatal Life Increases Cancer Effects in Rats - Abstract

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Background

In a previous study conducted at the Cesare Maltoni Cancer Research Center of the European Ramazzini Foundation (CMCRC/ERF), we demonstrated for the first time that **aspartame (APM) is a multipotent carcinogenic agent** when various doses are administered with feed to Sprague-Dawley rats from 8 weeks of age throughout the life span.

Objective

The aim of this second study is to better quantify the carcinogenic risk of APM, beginning treatment during fetal life.

Methods

We studied groups of 70–95 male and female Sprague-Dawley rats administered APM (2,000, 400, or 0 ppm) with feed from the 12th day of fetal life until natural death.

Results

Our results show *a*) a significant dose-related increase of malignant tumor-bearing animals in males ($p < 0.01$), particularly in the group treated with 2,000 ppm APM ($p < 0.01$); *b*) a significant increase in incidence of lymphomas/leukemias in males treated with 2,000 ppm ($p < 0.05$) and a significant dose-related increase in incidence of lymphomas/leukemias in females ($p < 0.01$), particularly in the 2,000-ppm group ($p < 0.01$); and *c*) a significant dose-related increase in incidence of mammary cancer in females ($p < 0.05$), particularly in the 2,000-ppm group ($p < 0.05$).

Conclusions

The results of this carcinogenicity bioassay confirm and reinforce the first experimental demonstration of APM's multipotential carcinogenicity at a dose level close to the acceptable daily intake for humans. Furthermore, the study demonstrates that when life-span exposure to APM begins during fetal life, its carcinogenic effects are increased.

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