ELSEVIER

Toxicology and Applied Pharmacology

Volume 53, Issue 2, April 1980, Pages 211-219

A comparative assessment of toxic effects of dimethylnitrosamine in six different species

Emmanuel N. Maduagwu. Author links open the author workspace.Olumbe Bassir. Author links open the author workspace.

Department of Biochemistry, University of Ibadan, Ibadan, Nigeria

http://dx.doi.org/10.1016/0041-008X(80)90421-4Get rights and content

Abstract

The hepatotoxicity which usually accompanies the oral administration of dimethylnitrosamine (DMN) to laboratory animals was studied in male rats, guinea pigs, cats, lizards, ducks, and monkeys. A single dosage of 50 mg/kg, which is necrotizing to rat liver, in most cases produced within 30 hr more acute liver damage in cats than in guinea pigs, rats, or monkeys, in that order of susceptibility, but was not toxic to lizards or ducks. DMN (5 mg/kg), given daily, induced the same degree of liver damage in guinea pigs and rats as did a single dose of the same compound. However, in cats and monkeys the effect of a single dose of 50 mg/kg was less severe than that obtained after the administration of 5 mg/kg over a period of 5–11 days. DMN (1 mg/kg), administered daily over a period of 30 days, was particularly harmful to cats and lizards. Clinicopathologic signs of overt toxicity were also monitored. Our results would support the view that species differences and dosage rates are both critical factors determining the different susceptibilities of various animals to nitrosamine toxicity.