Biochem. Pharmacol. **57**, 184-190 (1999)

Effects of tiadenol and di(ethyhexyl)phtalate in the liver of rats

Hiroki Mizuguchi (水口 博樹), Naomi Kudo (工藤 なをみ), Takeshi Ohya (大谷 武司), and Yoichi Kawashima (川嶋 洋一)

Metabolic changes induced by 2,2'-(decamethylenedithio)diethanol (tiadenol) and di-(2-ethylhexyl)phthalate (DEHP) in the biosynthesis of phosphatidylcholine (PtdCho) and phosphatidylethanolamine (PtdEtn) in rat liver were compared with changes induced by *p*-chlorophonoxyisobutyric acid (clofibric acid). Treatment of rats with either tiadenol or DEHP increased the hepatic contents of PtdCho and PdEtn, as was observed wth clofibric acid treatment. The administration of tiadenol, DEHP, or clofibric acid slightly, but significantly, increased, in common, the activity of CTP:phosphocholine cytidylyltransferase , a key enzyme for the synthesis *de novo* of PtdCho, and suppressed the activity of PtdEtn *N*-methyltransferase. With regard to the enzymes involved in the synthesis of PtdEtn, the three peroxisome proliferators enhanced the activity of phosphatidylserine (PtdSer) decarboxylase and markedly decreased the activity of CTP:phosphoethanolamine cytidylyltransferase. Treatment of rats with three compounds markedly increased, in common, the content and proportion of the molecular species of PtdCho containing oleic acid (18:1), but considerably decreased the proportion of the molecular species of PtdCho containing linoleic acid (18:2) in the liver, resulting in a striking decrease in the concentration of molecular species of PtdCho containing 18:2 in the serum. The present study suggests that the administration of peroxisome proliferators to rats increases the content of hepatc PtdCho and PtdEtn for hepatomegaly and proliferation of organelles by the same mechanism, irrespective of their chemical structure.