

tional data that show that when the dose of enflurane is increased to 30, 40 or 60 μ l (*i.e.*, an estimated 14–28 MAC), only the highest dose produces slight alanine aminotransferase release (compare with Eger's fig. 2), and there is no K^+ leakage at an estimated 14 MAC (compare with Feingold and Holaday's fig. 1).

If the mechanism of toxicity operating at high concentrations is different from that at low concentrations, then we would agree that the data must be interpreted cautiously. It is probably more likely that cellular damage in these *in-vitro* experiments was mediated by physical effects on the membranes, rather than by a mechanism involving metabolite-mediated damage. However, the hepatotoxicity associated with clinical use of those agents is idiosyncratic, and the mechanisms are still obscure. We do not know at this stage why dose-dependent relative toxicity in isolated or cultured hepatocytes seems to correlate with clinical hepatotoxic potential, but it seems to be a point worthy of further study.

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TABLE 1. Concentration (mm) of Anesthetics in Isolated Hepatocyte Suspensions*

Dose (μ l)	n	Enflurane	Halothane	Chloroform	Methoxyflurane
5	2	3.2	2.9	5.9	3.8
10	3	5.2	6.8	11.7	8.4
15	2	6.7	9.4	15.9	9.9
20	3	10.1	14.1	19.8	13.2

* Figures represent the mean for two or three separate experiments after 20 min incubation. Anesthetic concentration in 2 μ l of medium after protein precipitation was determined by gas-liquid chromatography on a 2-foot glass column containing 5 per cent OV-210 on Varaport 30, isothermally at 45 C, using a Becker 409 gas chromatograph equipped with a flame ionization detector. Peak heights were compared with those from completely filled containers of cell suspensions spiked with standard anesthetic volumes.

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- Goto Y, Dujovne, CA, Shoeman, DW, et al: Liver cell culture toxicity of general anesthetics. *Toxicol Appl Pharmacol* 36: 121–130, 1976

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Radio Headset for Use with Regional Anesthesia

To the Editor:—A novel way of allaying a patient's anxiety during operations with regional anesthesia is by the use of a completely self-contained, battery-operated AM-FM radio headset. One such device is made by Archer (catalog number 12-192A). Because many patients express anxiety over what they may hear during regional anesthesia, the special feature of a muff-type ear fit serves to lessen background noise even when the radio volume is low. In addition, there are no wires leaving the headset that can tangle on other equipment. The use of music in the operating room is not new, and music has been delivered by headphones to patients during outpatient dilatation and evacuation procedures.¹ I have used this headset with a variety of regional anesthetics and have found that patients like it.

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- Shapiro AG, Cohen H: Auxiliary pain relief during suction curettage. *Contraception* 11:25–30, 1975



FIG. 1. Patient listening to radio station of choice during regional anesthesia is nearly oblivious to background noise and conversation.