LETTER TO THE EDITOR

ABSENCE OF TERATOGENICITY OF PYRIDOXINE IN WISTAR RATS*

Sir,

(Received on April 13, 1986)

It was reported that a girl was born with near total amelia of her left leg at the knee to a mother who had taken large doses of pyridoxine during pregnancy (5). Pyridoxine deficiency has often been found in pregnant women, which is considered to be a cause of vomiting in pregnancy (3). It was observed that pyridoxine deficiency impairs the reproduction process causing abortions and occasionally malformations in various species of animals (8). It was therefore suggested that a regular ingestion of pyridoxine during pregnancy should be useful (8). Schaumberg *et al.* (7) and Berger and Schaumberg (1) have demonstrated that pyridoxine abuse can produce sensory neuropathy in adults. This neuropathy shows striking clinical similarities to that seen with thalidomide administration (6). Considering these similarities in toxic effects and the case of phocomelia mentioned above we thought it is worth examining the teratogenic potential of excessive doses of pyridoxine in rat.

Female Wistar rats in the weight range of 200-220 g were mated with normal males and the morning of finding spermatozoa in the vaginal smear was considered day 'O' of pregnancy. Pregnant rats were divided into four groups (n=12 each). The rats were housed in polycarbonate cages and were given Hindustan Lever Feed and water *ad libitum*. The light period was from 6.00 a.m. to 6 p.m. The room temperature and humidity were maintained at 22±2°C and 50-60% respectively. Rats were administered pyridoxine hydrochloride (200, 400 and 800 *mg/kg/day*, po) from day 6 to 15 of gestation, which is considered as the period of organogenesis (4). The remaining group of rats serving as controls was given an equal volume of the vehicle (distilled water) during the same period. On day 20 of gestation the dams were sacrificed using ether, the pups were recovered by caesarian section and were examined for any gross deformities. Live foetuses were killed by ether anaesthesia and half the number of pups were fixed in Bouin's fluid to study visceral malformations by the free hand razor blade technique of

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Wilson (9). The remaining half were fixed in absolute alcohol, cleared in 2% KOH and stained with Alizarin Red S (2) to study skeletal abnormalities.

The total number of live pups and the mean size and weight of the pups born to the dams treated with pyridoxine were comparable to those born to control dams (Table I). No gross/visceral or skeletal malformations were noticed in any of the 311 pups born to dams treated with pyridoxine hydrochloride upto 800 *mg/kg/day*.

TABLE I : Effect of daily administration of pyridoxine from 6th to 15th day of gestation on outcome of pregnancy in rats.

Dose (mg/kg, po)	*Litter size (Live pup)*	*Pup weight (individual, g)*
Nil (Vehicle only)	7.57±1.13	6.57±0.16
200	8.50±0.99	6.37±0.16
400	8.50±0.33	6.26±0.15
800	9.70±0.40	6.21±0.12

Values are mean (±S.E.M.) from 12 rats.

Values in treatment group did not differ significantly from vehicle (control) group ($P>0.05$; t-test).

It is therefore concluded from this study that pyridoxine administered in large doses to Wistar rats is not teratogenic. Incidentally, in the case reported (see above) the mother of the phocomelic girl had also consumed lecithin and vitamin B_{12} along with pyridoxine. Hence relating phocomelia to large doses of pyridoxine needs substantial epidemiological and experimental evidence.

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