

US EPA ARCHIVE DOCUMENT

Martson

GS 0104-111

TOXICOLOGY BRANCH: DATA REVIEW

Chemical: Trichlorfon (TCF)

11/10/83

Caswell No.: 385
Shaughnessy No.: 057901

Study Type: Teratogenicity in rats

Citation: "Experimental Study of the Effect of a Series of Phosphoroorganic Pesticides (Dipterex and Imidan) on Embryogenesis", by L.V. Martson and V.M. Voronina, Environmental Health Perspectives 13:121-125 (1976).

Accession No./MRID No.: NA/NA

Sponsor/Contracting Lab.: (Published paper)

Report No./Date: NA

Test Material: "Dipterex (chlorophos)" of unstated source and purity.

Procedures: Three groups of 10 or 11 pregnant Wistar rats were intubated with test material at single doses of 80 mg/kg (one group on D-9, a second on D-13), or 8 mg/kg daily throughout gestation (it was not stated whether a control group of 11 dams received any treatment), and sacrificed on D-19. Data on reproductive and fetal parameters were analyzed by Student's "t-test" (P-level = 0.05).

Results: Although acute TCF treatment did not affect the mean incidence of c.l. (11.6 and 11.8 in D-9 and D-13 groups, respectively, compared to the control rate of 12.5), fetolethality did increase, insignificantly for the D-9 (14.1%), but significantly (36.9%) for D-13 treatment, compared to 10.9% in controls, attributable to post-implantation losses, 3.4 per D-13 treated female, compared, to a mean of 0.5 in controls (P < 0.01). General edema, exencephaly and "open-eyelids" were observed in "the majority of these dead fetuses" from females treated on D-13. In contrast, no such differences from controls were found in fetuses from females on the repeat dosage schedule (8 mg/kg/day); an insignificant increase in "wavy ribs" in isolated cases was the only observation reported by the authors.

Conclusions: The investigators concluded that: (i) trichlorfon was teratogenic and fetotoxic at an acute dose (80 mg/kg) "... 2.5 x 10³ times above that likely to enter the human by all routes in a 24 hr period in view of the standard previously established for chlorophos in the Soviet Union"; (ii) "... there were no embryotoxic or teratogenic effects noted with chlorophos administration at 8 mg/kg/day (exceeding the real dose for man by 250 times)"; and (iii) "thus it is obviously possible to consider that chlorophos does not present an actual teratogenic danger to man with respect to its oral introduction into the organism."

TB Evaluation: Although fetotoxicity was reported after acute treatment, no details on number of malformations were given in this article. Other deficiencies limit its usefulness in defining the teratogenic potential of trichlorfon, since standard protocols for this type of assay were not followed, inter alia:

- (i) Inadequate dosage schedule
- (ii) No effects on dams reported
- (iii) Insufficient details on affected litters
- (iv) Insufficient number of pregnant dams
- (v) Limited and inadequate data on other reproductive and fetal parameters.

This report is judged SUPPLEMENTARY DATA.


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