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DATA EVALUATION RECORD

TRICHLORFON

Human Effects from Oral Intake

CITATION: Abdel-Aal AMA, El-Hawary MFS, Kamel H, Abdel-Khalek MK, El-Diwany KM. 1970. Blood cholinesterases, hepatic renal and haemopoietic functions in children receiving repeated doses of "Dipterex". J. Egyptian Med. Assoc. 53(3/4):265-271 [In English].

REVIEWED BY:

William L. McLellan, Ph.D.
Senior Scientist
Dynamac Corporation
11140 Rockville Pike
Rockville, MD 20852
301-468-2500

Signature: William L. McLellan
Date: Aug. 4, 1983

Cipriano Cueto, Ph.D.
Program Manager
Dynamac Corporation
11140 Rockville Pike
Rockville, MD 20852
301-468-2500

Signature: Cipriano Cueto
Date: 4 August 1983

APPROVED BY:

Irving Mauer, Ph.D.
EPA Scientist

Signature: Irving Mauer
Date: 08-05-83

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STUDY TYPE: Human Effects from Oral Intake.

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ACCESSION NUMBER: Not available.

MRID NUMBER: Not available.

LABORATORY: Mounira Children Hospital, Cairo, Egypt.

TEST MATERIAL: Dipterex (Trichlorfon), was used for the treatment. The formulation, purity, and source were not specified.

PROTOCOL:

1. Thirty children suffering from bilharziasis were treated with Dipterex (28 males and 2 females). Seven children were between 4-8 years of age, eleven were 8-10 years old, and twelve were 10-12 years of age.
2. The two youngest groups (18 children between 4 and 10 years of age) received 5 mg/kg body weight orally, while the older children (ages 10 to 12) received 10 mg/kg. Administration continued for 10 days for both groups.
3. Three blood samples were collected for analysis, one before treatment began, one 24 hours after completion of treatment (10 days), and one 4 weeks later that were analyzed for serum cholinesterase and for RBC cholinesterase by an electrometric method.
4. Clinical observations on all individuals were made throughout the course of treatment.
5. Hepatic function (Takata Ara test, zinc sulphate turbidity, and thymol turbidity) was measured before and after treatment.
6. Renal function (urine volume, blood urea, and urea clearance) was measured before and after treatment.
7. Hemopoietic effects of treatment were determined from bone marrow samples collected before and after (10 days) treatment.

RESULTS:

Neither hepatotoxic nor nephrotoxic effects were produced by the test compound. Slight hemopoietic effects were indicated by the bone marrow samples taken after treatment: the erythroid count increased; there was a slight decrease in normoblasts and myeloid cells; and a significant decrease in eosinophils. These data were for 13 of the 30 children and no 4-week data were collected to demonstrate recovery.

Following treatment with Dipterex, a mean decrease of 10 percent in plasma cholinesterase activity was produced; it returned to normal by the 4th week of administration. The inhibition of cholinesterase activity in red cells was more marked, with a mean decrease of 32 percent, which also returned to normal after 4 weeks. No adverse clinical signs were observed during the course of the treatment.

CONCLUSIONS:

The authors concluded that administration of 5 and 10 mg/kg of Dipterex to 30 children afflicted with bilharziasis produced no effect on hepatic or renal function. The reversibility of the hematopoietic effects could not be substantiated. This treatment depressed the levels of both plasma and red cell cholinesterase activity by 10 and 32 percent, respectively, at 24 hours post-treatment. However, normal levels of these enzymes were reported 4 weeks after treatment was terminated.

In the opinion of this reviewer, there were some substantive deficiencies in this study which hamper interpretation. Since the authors presented only ranges and mean values, and not individual values, there is no way to determine if cholinesterase activity was affected for any individual subject. In addition, two different dosages (5 and 10 mg/kg) were administered and the dosed individuals were not specifically identified as to dose or effect.

Furthermore, the effects of an anticholinesterase substance are usually more pronounced on the serum cholinesterase than on the red blood cell acetylcholinesterase. This is not the case in this report and raises the question of the accuracy of the assay. In addition, the sexes may show differences in cholinesterase activity; these were not identified and the results were presented by combining individuals as to sex and dose.

Consequently, without the presence of data for each subject on the parameters tested so as to permit the use of each individual as his own control, the conclusions of the study must be considered as questionable.

CORE CLASSIFICATION: Supplementary data.

This is not a well-controlled experiment and lacks significant individual information.