Lesson on Glyphosate Assessment for Risk Management

Ibrahim Chahoud
Charite
Institute of Clinical Pharmacology
and Toxicology

Issues under consideration

- Developmental toxicity and teratogenicity
  Embryo lethality and anomalies

- General remarks

- Some suggestions concerning the challenges

Sources of information

- Animal studies: rat and rabbit
- Epidemiological data
- Alternative test methods

Animal studies

- Studies in rats:
  six studies in different labs
  different rat strains from different suppliers
  were used

- Rabbit studies:
  four studies in different labs

- Different dose levels

Animal studies

- Is the incidence of anomalies dependent on the resorption rate?
- High dose may lead to higher embryo lethality, but to lower incidence of anomalies in comparison to lower dose
- Is this fact a sign of no dose dependency?
- To be sure, the rate of embryo lethality should not be higher than 20 per cent

Animal studies

- Are different studies with similar study design with the same animal species helpful to answer the question of embryotoxicity?

- The question here is: If you come to different results in the differing studies which results can be neglected?

Animal studies

- Are formulations a combination of chemicals?

  If this is the case:

  Each chemical should be studied separately as well as its combination

- Risk assessment must take into consideration the results of the individual chemical as well as the combination of the chemicals

Epidemiological data

Concerning embryotoxicity at least two issues should be considered:

- Exposure scenario, e.g. time and level of exposure
- Generally in human beeings you can only register external anomalies or severe anomalies in viscera and skeleton

Alternative test methods

Alternative test methods can only address questions related to modes of action

For different reasons they should not be used for risk assessments

Suggestions

- In general, the dosis used in animal studies are far away from the real exposure of population on risk

- If there is suspect regarding toxic effects in animal studies the simple repetition of studies is not sufficient

Suggestions

- The exposure level of the population can be estimated and based on this estimation

- animal studies can be carried out with a dosis of 100 time, 500 time and 1000 time of the estimated exposure