

GLYPHOSATE BASED HERBICIDE PRODUCT EXPOSURE TO THE FARMER'S HEALTH

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Abstract— We tested the presence of glyphosate in the urine of a farmer who sprayed a glyphosate-based herbicide on his land and to his family, his children were born with birth defects that could cause or promoted by pesticides. Glyphosate - residues were measured in the urine a day before , during , and two days after spraying , by mass spectrometry ion trap chromatogram - PHY - linear liquid . Glyphosate reached a peak of 9.5 mg / L for the farmer after spraying, and 2 mg / L were found in him and one of his children who live at a distance from the field, two days after the spraying. Oral, dermal absorption could explain the differential excretions of pesticides, even in familiar distance from the fields. Following more detailed farming practices and exposures family should be supported along with in - training and recommendations.

Keywords: Glyphosate, Farmer's health, herbicide, health.

I. INTRODUCTION

Two defects in a peasant family birth, including anal atresia, this monetary growth defects, hypospadias, heart defects and micro-penis [1]. This model has been rarely described, and overlapping syndrome Stratton-Parker Already action- What remains debated [2]. Other diseases may be affected, such as CAT-eye syndrome [3]. It is an ally Man-believes is that they are of genetic origin, even if the promotion or the introduction of environmental factors are possible because the phenotypic symptoms are not associated with known chromosomal abnormalities. We wanted to know whether the impregnation of the Bauer-after spraying of pesticides can be detected, as well as his family, how and when. The role of endocrine disruptors in the development and m-embryonic represent the epigenetic effect-being as well documented [4] and can be provided in this case in question. We have previously interruption by an endo-horsehair-based herbicide glyphosate (GBH) caused shown [5]. GBH are the main pesticides used by farmers, and this can be relevant biomarkers of pesticide exposure with the former. Here we tested whether the father was expelling GBH or less. GBH is an important herbicide used not only on this farm, but worldwide. This was before carried out before, during and after spraying practices for agricultural structure regulars. We tried, but the wife of the farmer and three children from the area were contaminated.

II. METHODS

Urine samples were collected for 24 hours before the day and 2 days after spraying. The day of spraying and the day after, urine collected every 6 h. The farmer's spraying methods and agricultural practices were observed. Residues glyphosate concentrations were measured by liquid chromatography - linear ion trap mass spectrometry. The chromatographic system consisted of a Shimadzu LC- 10 AD VP high pressure pump system and a SIL HTC auto sampler (Shimadzu, Champs sur Marne, France). Chromatographic separation as performed on an SU PELCO Discovery C18, 5 micron (50 mm × 2.1 mm) glycol - UMN (St. Quentin- Fallavier , France). Mass spectrometry as performed using a Thermo Fisher Scientific (San Jose, CA, USA) LTQ linear ion trap mass spectrometer equipped with electro spray ionization source. Detection and the limits of quantification in urine were 1 and 2 g / L (ppb).

III. RESULTS

The family lived in this period, 1.5 km away from the fields. A total of 55 L were sprayed at various concentrations of GBH of 3 fields From Farmers. So he injected 0.75 L of GBH with a hand sprayer. The dilution of the formulation, wearing a mask and gloves, but as he opened his tractor and spraying over the window. When spraying hand, but he was wearing a mask or gloves or a protective suit. After 4 hours of pesticide handling, he went home to eat with his family and carefully washed his hands and changed. However, he did not take a shower. Glyphosate thing easily identified (Figure 1) in the urine of the Father, the spray until two days later. It reached a peak of 9.5 Pm g / L 7 h after the start of anti-parasite treatment, corresponding to 3 hours after the end of manipulation. A plateau at 2 g / L demonstrated those two days after the spraying. The average concentrations of glyphosate in the urine of the Father for 24 hours were 4.35 0.95 and 1.9 ug chin / l per day 0, 1 or 2. In this engine 2 ug / l glyphosate So what in a child found. Aminomethylphosphonic acid glyphosate my main metabolites detected in a sample that thing.

Glyphosate concentration in urine were measured by HPLC-ESI-MS. Kinetics of glyphosate urinary this plot- ted to the father (SOLID line). No detectable levels of Glyphosate were measured in the mother and two children. The third son

presented a urine Concentration of 2 g / L (ppb) of glyphosate 2 days after spraying (dotted line). Limit of detection (LOD) and quantifies ion (LOQ) were, respectively, 1 and 2 ppb.

IV. RESULTS

The family lived in this period, 1.5 km away from the fields. A total of 55 l sprayed with various concentrations of the three fields From Farmers GBH. So it injected 0.75 liters of GBH a hand-held sprayer. The dilution of the product, wearing masks and gloves, but as he opened the tractor and spraying the window. When sprinkle with his hands, but he wore a mask or gloves or protective clothing. After 4 hours the pesticide treatment, he went home to eat with his family and thoroughly washed his hands and changed. However, it did not take a shower. Glyphosate things can be easily identified (Figure 1) in the urine of the Father, the spray until two days later. This reached a peak at 9:05 g / L after 7 H, the start of the anti-parasite treatment, which corresponds to 3 hours after the end of manipulation. The plateau of 2 g / l demonstrates that two days after spraying. The average concentrations of glyphosate in the urine of the Father are 4:35 to 24 hours were 0.95 and 1.9 g / l per day 0, 1 or 2. In the engine 2 g / l of glyphosate so what did you find a child. Amino methyl glyphosate the major metabolites in a sample are detected That Thing.

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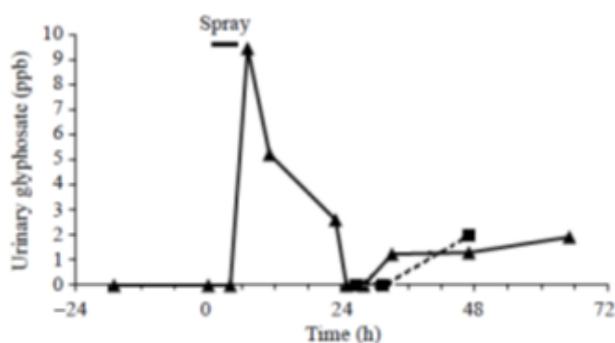


Figure 1. Glyphosate urinary concentrations the day before, the day, and two days after pulverization.

For the first time pro GBH human exposures. Oral administration of glyphosate in rats was followed by a peak after two hours.

Surprisingly, one of his three children presented glyphosate detectable in Urine, although he lived at a distance from the camp. This could be due to prolonged contact with his father, pro example skin. Glyphosate was al-ready analyzed Farmers and their families pro pesticide exposure, showing that whole family is exposed to the pesticide according to their devices

Protection [9, 10]. Ich residue levels GBH in this paper respond to the concentrations of urine after agricultural shows, from a few ppb eider 233 ppb (2.3 ppb Median geometric) [9].

In our works, Roundup has cellular ant androgens effete 0.2 ppm glyphosate mixed with adjuvant, a concentration 20 times higher than those detected in these ein test. However, this has occurred within 24 hours, and did not take into account the bioaccumulation in tissues, nor long-term effects, so commend the effects combo with other pesticides sprayed.

Paternal exposure is increasingly recognized commend a cause of birth defects from pesticides Alterations vermitteln of germ cells [11, 12]. However, the lack of precautions taken by Farmers also exposes their family. In general, little precaution is given during GBH spraying and this is throughout the world. The father replied that Ära inconceivable to expose his family ein eine pesticides for its practices because of the distance between the house and the fields. Improved information and recommendations must be pro guide Farmers ein protect health in Agriculture ein assist production. In particular, guards must be maximized for GBH and showers after spraying are to be recommended, and laundry outside Practices family. Some periods of compulsory education may be amended. In addition, we described that the plant extracts can protect human cells from toxicity GBH [13]. This may be an additional way of protection; is a drug marketed. We call for a more cautious moni-Toraggio of patients and their families during the environmental chemical exposure.

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