LONG TERM EFFECTS OF HERBICIDES/DIOXIN ON REPRODUCTIVE HEALTH OF VIETNAMESE WOMEN

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Summary
To investigate the long term effects of herbicides/dioxin on reproductive health of Vietnamese women, Obstetrics Department, Tu Du Obstetrics and Gynecology hospital in Ho Chi Minh city have conducted a comparison between expose to dioxin group with none exposure group in Vietnamese women. Findings have showed that percentage of birth defect, fetus mort in uterus, low mental developed, molar pregnancy, miscarriage, newborn deaths is higher in exposed group than non exposed group. It might be said that expose to dioxin associates with abnormality in human health reproductive.

Introduction
During the war in Viet Nam, over 80 million liters of herbicides containing 170 - 600 kg of 2,3,7,8 TCDD was sprayed over the South of Viet Nam[3,4]. Many literatures have showed that dioxin might cause abnormality in health reproductive including as abnormality in fertility, hypothesis hormone such as decreasing of FSH, increasing LH, abnormality of genital hormones such as testosterone, informality of testicle and so on[1,2,5]. Therefore, this study is conducted to investigate after herbicides as sprayed, how reproductive health of women and children have been impacted?

Materials and methods
1. Subjects: subjects had participated in survey as volunteers and mainly from the South of Viet Nam. They were within reproductive ages.

2. Study methodology:
- Cross sectional study and Case – control study
- Data processing with Fisher – exact 2 tailed

3. “Exposed subjects” in the study is identified relatively that a person who have been living on site of spraying and during timing of spraying and who were breast feeding by who have been living during timing of spraying.

Results and discussions
1. Table 1 shows percentage of birth defects, fetus mort in uterus, miscarriages, molar pregnancy and death with unknown cause in exposed group is significantly higher than non exposed group, in the survey conducted in Thanh Phong commune, Thanh Phu district, Ben Tre province and quarter number 10, District 1, Ho Chi Minh city, in 1982.

Table 1: Rate of fertility complications among exposed and non-exposed women

	Thanh Phong		**District 10, HCM City**				P
	Exposed		**Exposed**		**Non Exposed**		
Birth defects	81/7327	1,1%	16/294	5,4%	29/6090	0,4%	<0.05
Fetus mort in uterus	39/7327	0,8%	01/294	0,34%	2/6090	0,02%	<0.01
Miscarriages	587/7327	8,01%	49/294	16,7%	243/6090	3,63%	<0.05
Molar pregnancy	54/7327	0,73%	11/294	3,74%	26/6090	0,38%	<0.05
Death with unknown cause	914/7327	12,47%	84/294	27,2%	311/6090	4,64%	<0.01

2. The percentage in birth defect and molar pregnancy in the North, where people was non exposed to dioxin, is lower than in the South, where people was exposed to dioxin (Table 2). For the reasons why the percentage of its in mountain area also seems high, it needs further study.

Table 2: Birth defects in the South compared to birth defects in the North of the country

	South		**North** (non expose)		
	Thanh Phong Exposed	District 1 HCM city Non exposed	My Van Delta	Hai Hau Coastal	Mai Chau Mountainous
Birth defects	1,1%	0,4%	0,45%	0,39%	0,68%
Molar pregnancy	0,73%	0,38%	0,09%	0,03%	10%

3. A basic survey on impacts of toxic chemical on reproductive health of women living in U Minh, Ca Mau province was conducted in 1992. U Minh was a revolutionary base of Minh Hai province during the America war, it was sprayed with a large amount of toxic chemicals. The survey was divided into 2 groups: group A and group B. Group A were women ranged from 23-29 year of age (born in 1964-1970: time of spraying toxic chemicals). Group B were women from 30-53 year of age (born in 1938 -1963). Women in group A had been exposed to toxic chemicals since fetus period and then might be infected with 2,3,7,8 TCDD at the time of having breast feeding.

Table 3: A comparison on reproductive health between Group A and Group B

	Group A – Young (394 women)		**Group B – Old (2281 women)**		**P**
Birth defects	9	2.28%	5	0.22%	P<0.01
Fetus mort in uterus	12	3.04%	1	0.04%	P<0.01
Miscarriages	4	1.02%	1	0.04%	p>0.05
Molar pregnancy	4	1.02%	1	0.04%	P<0.01
Death with unknown cause	21	5.33%	7	0.3%	P<0.01
Low mental development	8	2.03%	3	0.13%	P<0.01

For the women in group A, who were born during toxic chemicals were sprayed (1964-1970), percentage of birth defects, low mental developed, molar pregnancy, miscarriage, newborn deaths is higher than that of the women who had been before the war (Table 3). This result might be explained that the women in group A were exposed with dioxin when they were in developed period. Germ cells in ovary might be harmful heavily. Thus, abnormalities in fertility in group A are higher than in group B.

4. A case - control study (1983) in Tu Du Obstetrics and Gynecology Hospital on subjects with no difference in age (about 30 years old), other habits such as nutrition, smoking, has showed that the proportion of molar pregnancy and live birth in exposed group was determined as 64% (32/50), while 12,6% (16/134) in control.

References

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