

=ABSTRACT=

Evidence-based Teratogenic Risk Counseling in Pregnant Women Exposed to Medication or Diagnostic Radiation During the First Trimester

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Objective : To evaluate the effectiveness of evidence-based teratogenic risk counseling by relevant medical literature concerning pregnant women exposed to medication or diagnostic radiation during the first trimester.

Methods : Between January 2001 and April 2001, 67 pregnant women exposed to medication or diagnostic radiation visited our clinic for teratogenic risk counseling. We counseled the teratogenic risk of their fetus by relevant medical literature. Also, We measured the score to terminate pregnancy and the perceptive risk on their fetus with major congenital anomaly using 10cm visual analogue scale.

Results : None of them were exposed to any known teratogenic drugs or radiation in any teratogenic doses. Other physicians had already recommended, to about a third of patients, pregnancy termination. Their perceptive estimation on the risk of major congenital malformation in the general population was $4.6 \pm 1.1\%$. The perceptive risk on their fetus with major congenital anomaly decreased from $39.5 \pm 3.1\%$ before consultation to $10.8 \pm 1.6\%$ thereafter ($P < 0.05$). Also, their score on the visual analogue scale to terminate pregnancy was 6.4 ± 2.7 before consultation and 9.1 ± 1.6 thereafter. Their tendency to terminate pregnancy significantly decreased after consultation ($P < 0.05$).

Conclusion : Evidence-based counseling for pregnant women exposed to medication or diagnostic radiation during the first trimester may prevent unnecessary pregnancy terminations as well as reduce anxiety.

Key Words : Medications, radiation, teratogenic risk, evidence based counseling

40-50 Rubella virus¹ Thalidomide²
가 ,
(Placental barrier)

thalidomide
Retinoic acid

: 2001. 8. 13.

가
 가
 가
 , X-ray,
 가
 가

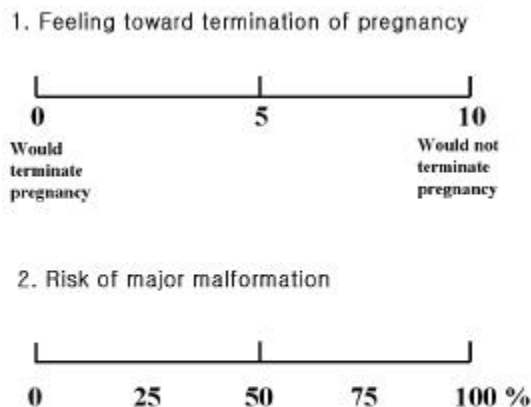


Figure 1. A 10 cm visual analog questionnaire used for evaluation of pregnant women's perception of the teratogenic risk

isoretinoin moderate, high risk
 TERIS
 Drugs in pregnancy and lactation⁷
 Table 1 Donagi⁸

(mrem) National Council of
 Radiation Protection (NRCP)⁹가 5-10 rem
 10 rem

67

2001 1 2001 4

가
 (Visual
 analog scale)⁴
 가

3-5%
^{10,11}
 6
 가
 SPSS 10.0 Wilcoxon signed
 rank test , P 0.05

(Fig. 1).
 Motherisk program (protocol)⁵
 TERIS (Teratogen information
 system)⁶
 none, minimal, small, moderate, high, undetermined
 TERIS undetermined high risk
 small risk
 minimal

Table 1. Estimated average dose to fetus per radiographic examination (in mrem)*

Dental	0.06	Femur (distal)	1
Head	<0.5	Lumbar spine	720
Cervical spine	<0.5	Pelvis	210
Extrimities	<0.5	Hip and femur (proximal)	120
Shoulder	0.5	IVP	590
Thoracic spine	11	Cystography	1500
Chest	0.5	Barium enema	900
Mammography	<10	Abdomen	220
UGI	170	Pelvimetry	1270

* Values are taken from references (8) and (9). Values listed here are averages. The precise amount of fetal irradiation depends upon the device, the operator, the site, etc.

2.3 (1-5), 29 (22-43), 0.6
 (0-2) . 67 23 34.3%
 가
 7
 60 30 50% (Table 2).

Table 3

499 90 (18%),
 84 (16.8%), 68 (13.6%),
 63 (12.6%),

Table 4

Table 2. Clinical characteristics of subjects

	Mean ± S.E.	Range
Age (year)	29.6 ± 4.2	22- 43
Gravidity	2.3 ± 1.2	1- 5
Parity	0.6 ± 0.6	0- 2
	Frequency	Percent
Recommended to terminate ¹	23/67	34.3
Perception rate ²	30/60	50.0

¹ Recommended to terminate by other medical providers

² Perception rate that fetal malformations are caused by drugs only

Table 3. Frequency of prescribed drugs during the first trimester

Drugs	Frequency	Percent
GI system medications	90	18.0
NSAIDS, analgesics	84	16.8
Antimicrobial medications	68	13.6
Antihistamines, decongestants	63	12.6
Corticosteroids	22	4.4
Sedatives	13	2.6
Anesthetics	7	1.4
Muscle relaxants	6	1.2
Antimalarial medication	3	0.6
Miscellaneous drugs	26	5.2
Total	499	100.0

Table 4. Frequency of exposure to diagnostic radiation, smoking and alcohol during the first trimester of pregnancy

	Frequency	%	Dose ± S.E
X-ray	16	23.9	336 ± 177 mrem
Smoking	8	11.9	9.8 ± 2.7 cigarette/day
Alcohol	17	24.6	1.1 ± 0.3 ounce

(N=67)

16 (23.9%) 336 ± 177 mrem,
 8 (11.9%)
 9.8 ± 2.7 cigarette/day,
 1.1 ± 0.3 (32.4 ± 8.9 cc)

Fig. 2 Fig. 1 (Visual
 analog scale) 가

39.5 ± 3.1%, 10.8 ± 1.6%
 4.6 ± 1.1%

가

Fig. 3
 6.4 ± 2.7
 9.1 ± 1.6

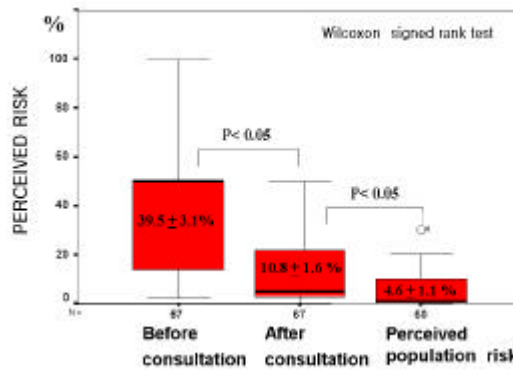


Figure 2. Perceived teratogenic risk in percents before and after consultation in women exposed to medication

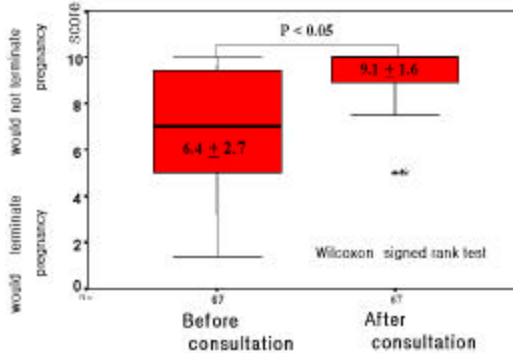


Figure 3. Change of trend to terminate the pregnancy before and after consultation

0%

가 , X-ray가

가

, X-ray,

5

가

1985

Motherisk

6

9

가

가

/

(safety/risk)

¹²

가

가

39%

10%

가

(prospective)

(Teratogenic risk)

가

¹³

1992

가,

TIS

(Teratogen information services)

Friedman ¹⁶ (1990)

(safety/risk)

FDA

(teratogenicity)

가 , X-ray,

TERIS (Teratogen information service system)

(K=0.062)

(Guide-line)

가

TERIS

(teratogenic risk)

FDA

(Monitoring)

(benefit)

FDA

34%

Koren ¹⁷ (1998)

Koren ⁴ (1989)

25%

39%

study)

(case report)

(case control

25%

¹⁴

A

(spermicides),

18%¹⁵

가

가

0%

50%

5%

3~5%^{10,11}

가

가 2001

Williams Obstetrics

20 Teratogen

7

60

30

21

38 Teratology, Drugs, and Medications
(Teratology)

18
337 mrem
Hu¹⁹
1,200 mrem - 4,300 mrem
1,026 1,191
가
(Evidence-based
counseling)

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: 2001 가
1 4
67

10 cm

가

:

34%

4.6±1.1%
10.8±1.6%

39.5±3.1%

0

9.1±1.6

, 10

6.4±2.7

:

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