

# 국내외 방사선 사고 고찰

## The History of Radiation Accidents

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### Abstract

While the use of radioactive materials around the world offers a wide range of benefits in medicine, industry and research, radiation accidents also occur in world - wide. The objective of this article is to provide useful information about radiation accidents to the medical personnel. For this, I attempted to document the circumstances leading to the accident and the subsequent medical treatment and health consequences of the victims. Radiation accidents described in this article are Chernobyl nuclear power plant accident, nuclear weapon accident in bikini atoll, major industrial accidents (Ir - 192 Peruvian accident, Ir - 192 internal contamination accident in Korea, Tokaimura accident in Japan) and Cs - 137 contamination accident in Brazil. After reviewing major radiation accidents, I summarized the lessons to be learned from these accidents and presented the helpful institutes that can offer useful helps when radiation accident occurs.

**Keywords :** Radiation accident

18<sup>95</sup>

X

가

2003 9 2,077

가

35% 716

(1).

1945

, 1986

, 1987

1. (1972'~'2003 3 , KINS)										
~ 1979	3	-	1	-	-	-	-	-	-	4
1980 ~ 1989	3	3	11	-	1	-	-	-	-	18
1990 ~ 1999	5	5	7	-	1	3	2	-	-	23
2000 ~ 2003	3	-	1	1	-	-	-	-	-	5
	14	8	20	1	2	3	2	-	-	50

Cs - 137

1.

1945

가 (2).

1966

가

25

가

가 1) (1954)

가 (1)

(2).

2003 3

50 ,

1946 1958 ,

. 1954 15 가

3

가

가 1 1 30 'Lucky Dragon'

가 가

(3).

200 km Rongelap

, 가 , 가 . ,  
가  
가 . 가  
(2) 가 가 .  
Cs - 137 Sr -  
90 가 “ 1) (1986)  
” (1)  
. 가 1 mCi/gm 1986 4 26 , 4  
200  
rad 675 rad (4).  
23  
, 1 206 가 가 .  
가 ,  
21 . ,  
2 2  
. 10 Ci  
2 25 5 (5).  
(4). (2) 가  
2.  
134 가  
1979 TMI 0.8 Gy 16 Gy  
, 1986 . 28  
3 . 1987 ~2001  
TMI 14  
가 1 , 7 가 .  
(7 ),  
(3 ), (2 ), (2 ) (6).  
4 1990

가 , 1990 ~ 1997 18

1,400

가

1999

, ,

가 (6).

(3)

가 40 ~ 45%

(2).

,

.

3.

가

.

1) JCO (1999)

(1)

1999 9 30 ,

JCO

Tokaimura

2 (

1, A B)

가

2.4 kg

가

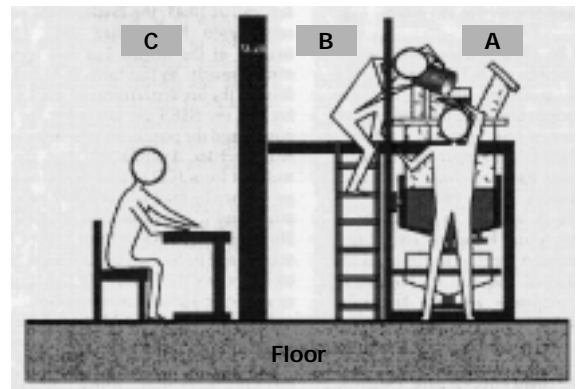
.

(C)

1

가

A가



1.

Mito

Chiba

NIRS

(7).

(2)

NIRS

가

.

A B

. 가

A 7

, B 10

. L - gluta-

A

mine

83

. B

211

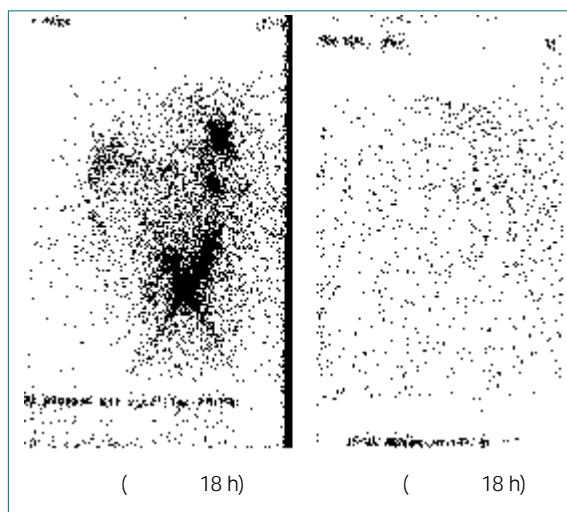
. C

C

NIRS

Na - 24 ,

, Percy .  
 A 18 GyEq(5.4 Gy neutron, 8.5 Gy Gamma) ,  
 B 9.3 GyEq(2.9 Gy neutron, 4.5 Gy gamma) C .  
 2.6 GyEq(0.81 Gy neutron, 1.3 Gy gamma) 가 가 30 cm × 40 cm  
 (7). , , ,  
 (3) . 170 ,  
 , 1 colostomy .  
 2 NIRS 가  
 , .  
 , (fistula),  
 가 가 , 230 ,  
 , Peru  
 .  
 2) Ir - 192 (1999) S4 - S5  
 (1) 가 ,  
 1999 2 20 , Lima 300 .  
 km Yanango .  
 가 3 가  
 Ir - 192 가  
 9,966 ~ 10,080 Gy 가 (6).  
 (3) 12  
 가 hemipelvectomy  
 , ,  
 .  
 20 가 18  
 (6).  
 (2) 가  
 . G - CSF가 34  
 15.5 cm × 12 cm × 2.5 cm 가  
 . 91 ESR



2.

가

3) Ir - 192

(1)

2000 11 ,

(Ir - 192)

가

가 ,

가

가

30

가

(2)

가

( )

16

가

/

6 ( 24 )

2

50

rad

가

MIRD(Medical Internal Radiation

Dosimetry)

가

4.49~7.44 mrad (8).

(3)

Ir - 192

: 50~150 Sv/hr),

4.

1) Cs - 137 (1987)

(1) 가 Cs - 137

1987 가 Prussian blue가

50.8 TBq Cs - 137

, 5 IND(Investigational New Drug)

가 가 , ,

15

가 , 가

가 (5). 가

(2) 가 Ir - 192

가

112,800 가 ' 가

가 129

, 120 . 20

, 17

4

20 Gy 28

, 4

5,000

(5). (

(3) ) : 080 - 004 - 4949(24 )

가 rinet.kins.re.kr

가 ( ) (

가 가) : 02 - 998 - 9875(24 )

가 www.rhri.re.kr

가 ( 가) : 02 - 970 - 3300( ~ , 7:30 ~ 17:00) [www.nremc.re.kr](http://www.nremc.re.kr) : 02 - 503 - 0358

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8. , , , , , . , 2000 ( )