*[Supplementary Information]*

# Increase in dicentric chromosome formation after a single CT scan in adults

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Table S1a. Analysis of DIC formation before and after the CT scan (Giemsa staining, 2,000 metaphases)

| Patient No. | Timing | Number of cells scored | Number of DICs formed | Number of cells with aberrations[#] | DICs/cell | Increment of DIC formation | DIC distribution | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 0 | 1 | 2 | 3 | 4 | ≥5 |
| 1 | Before CT | 2000 | 5 | 20 | 0.003 | 3 / 2000 | 1995 | 5 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 8 | 20 | 0.004 | | 1993 | 6 | 1 | 0 | 0 | 0 |
| 2 | Before CT | 2000 | 5 | 27 | 0.003 | 4 / 2000 | 1995 | 5 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 9 | 25 | 0.005 | | 1991 | 9 | 0 | 0 | 1 rogue cell | 0 |
| 3 | Before CT | 2000 | 9 | 38 | 0.005 | 3 / 2000 | 1991 | 9 | 0 | 0 | 0 | 2 rogue cells |
| | After CT | 2000 | 12 | 22 | 0.006 | | 1989 | 10 | 1 | 0 | 1 rogue cell | 0 |
| 4 | Before CT | 2000 | 5 | 17 | 0.003 | 2 / 2000 | 1995 | 5 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 7 | 18 | 0.004 | | 1993 | 7 | 0 | 0 | 0 | 0 |
| 5 | Before CT | 2000 | 0 | 6 | 0.000 | 4 / 2000 | 2000 | 0 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 4 | 24 | 0.002 | | 1996 | 4 | 0 | 0 | 0 | 0 |
| 6 | Before CT | 2000 | 3 | 17 | 0.002 | 7 / 2000 | 1997 | 3 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 10 | 32 | 0.005 | | 1990 | 10 | 0 | 0 | 0 | 0 |
| 7 | Before CT | 2000 | 15 | 37 | 0.008 | 2 / 2000 | 1985 | 15 | 0 | 0 | 1 rogue cell | 0 |
| | After CT | 2000 | 17 | 51 | 0.009 | | 1983 | 17 | 0 | 0 | 0 | 0 |
| 8 | Before CT | 2000 | 12 | 56 | 0.006 | 2 / 2000 | 1988 | 12 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 14 | 56 | 0.007 | | 1986 | 14 | 0 | 0 | 0 | 0 |
| 9 | Before CT | 2000 | 4 | 23 | 0.002 | 6 / 2000 | 1997 | 2 | 1 | 0 | 0 | 0 |
| | After CT | 2000 | 10 | 29 | 0.005 | | 1990 | 10 | 0 | 0 | 0 | 0 |
| 10 | Before CT | 2000 | 1 | 7 | 0.001 | 0 / 2000 | 1999 | 1 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 1 | 7 | 0.001 | | 1999 | 1 | 0 | 0 | 0 | 0 |

# Chromosomal aberrrations including dicentric, tricentric, centric ring, acentric ring, minute, and marker chromosome and fragment

Table S1b. Analysis of DIC formation before and after the CT scan (Centromere-FISH, 2,000 metaphases)

| Patient No. | Timing | Number of cells scored | Number of DICs formed | Number of cells with aberrations[#] | DICs/cell | Increment of DIC formation | DIC distribution | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 0 | 1 | 2 | 3 | 4 | ≥5 |
| 1 | Before CT | 2000 | 2 | 15 | 0.001 | 3 / 2000 | 1998 | 2 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 5 | 27 | 0.003 | | 1995 | 5 | 0 | 0 | 0 | 0 |
| 2 | Before CT | 2000 | 3 | 14 | 0.002 | 2 / 2000 | 1997 | 3 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 5 | 16 | 0.003 | | 1995 | 5 | 0 | 0 | 0 | 0 |
| 3 | Before CT | 2000 | 5 | 24 | 0.003 | 4 / 2000 | 1995 | 5 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 9 | 36 | 0.005 | | 1991 | 9 | 0 | 0 | 0 | 0 |
| 4 | Before CT | 2000 | 3 | 32 | 0.002 | 1 / 2000 | 1997 | 3 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 4 | 20 | 0.002 | | 1996 | 4 | 0 | 0 | 0 | 0 |
| 5 | Before CT | 2000 | 3 | 26 | 0.002 | 3 / 2000 | 1997 | 3 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 6 | 24 | 0.003 | | 1994 | 6 | 0 | 0 | 0 | 0 |
| 6 | Before CT | 2000 | 2 | 10 | 0.001 | 6 / 2000 | 1998 | 2 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 8 | 26 | 0.004 | | 1992 | 8 | 0 | 0 | 0 | 0 |
| 7 | Before CT | 2000 | 11 | 29 | 0.006 | 4 / 2000 | 1989 | 11 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 15 | 42 | 0.008 | | 1985 | 15 | 0 | 0 | 0 | 0 |
| 8 | Before CT | 2000 | 13 | 51 | 0.007 | 1 / 2000 | 1987 | 13 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 14 | 52 | 0.007 | | 1986 | 14 | 0 | 0 | 0 | 0 |
| 9 | Before CT | 2000 | 2 | 12 | 0.001 | 6 / 2000 | 1998 | 2 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 8 | 25 | 0.004 | | 1992 | 8 | 0 | 0 | 0 | 0 |
| 10 | Before CT | 2000 | 0 | 4 | 0.000 | 1 / 2000 | 2000 | 0 | 0 | 0 | 0 | 0 |
| | After CT | 2000 | 1 | 7 | 0.001 | | 1999 | 1 | 0 | 0 | 0 | 0 |

# Chromosomal aberrrations including dicentric, tricentric, centric ring, acentric ring, minute, and marker chromosome and fragment

Table S2a. Analysis of DIC formation (Giemsa staining, 1,000 metaphases)

| Patient No. | DICs formed/metaphase | | Increment of DIC formation |
|---|---|---|---|
| | Before CT | After CT | |
| 1 | 3 | 5 | 2/1000 |
| 2 | 5 | 5 | 0/1000 |
| 3 | 7 | 11 | 4/1000 |
| 4 | 4 | 4 | 0/1000 |
| 5 | 0 | 2 | 2/1000 |
| 6 | 2 | 4 | 2/1000 |
| 7 | 9 | 11 | 2/1000 |
| 8 | 5 | 9 | 4/1000 |
| 9 | 2 | 5 | 3/1000 |
| 10 | 1 | 0 | -1/1000 |

Table S2b. Analysis of DIC formation (Centromere-FISH, 1,000 metaphases)

| Patient No. | DICs formed/metaphase | | Increment of DIC formation |
|---|---|---|---|
| | Before CT | After CT | |
| 1 | 2 | 2 | 0/1000 |
| 2 | 1 | 2 | 1/1000 |
| 3 | 2 | 5 | 3/1000 |
| 4 | 2 | 2 | 0/1000 |
| 5 | 2 | 2 | 0/1000 |
| 6 | 1 | 5 | 4/1000 |
| 7 | 5 | 7 | 2/1000 |
| 8 | 7 | 8 | 1/1000 |
| 9 | 1 | 4 | 3/1000 |
| 10 | 0 | 1 | 1/1000 |

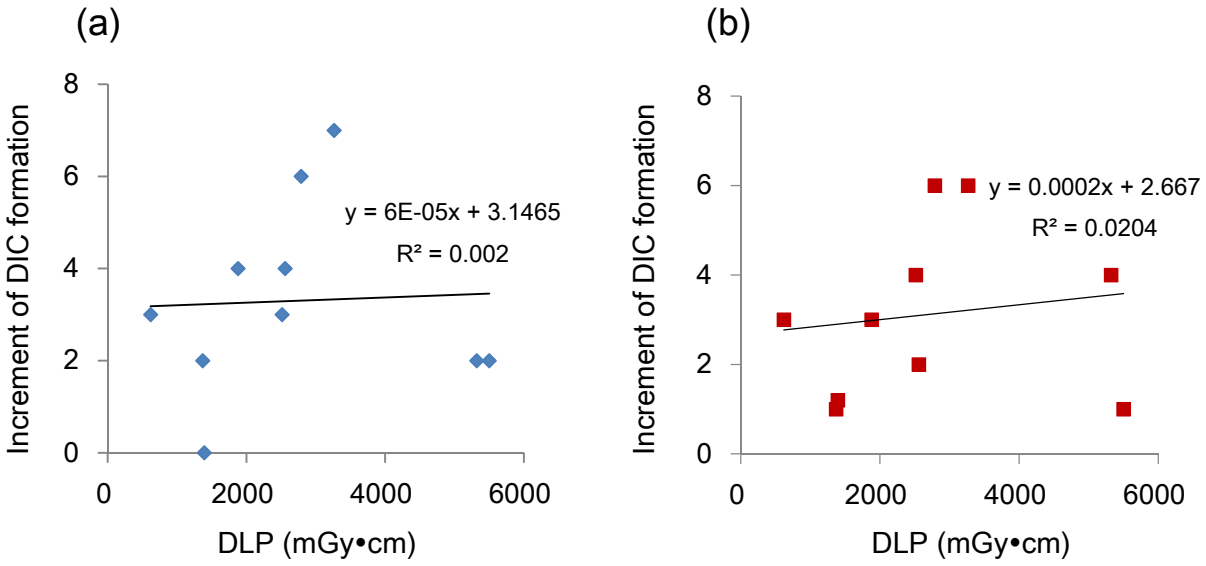
(a)
Increment of DIC formation
8
6
4
2
0
y = 6E-05x + 3.1465
R² = 0.002
0
2000
4000
6000
DLP (mGy•cm)
(b)
Increment of DIC formation
8
6
4
2
0
y = 0.0002x + 2.667
R² = 0.0204
0
2000
4000
6000
DLP (mGy•cm)

Figure S1.

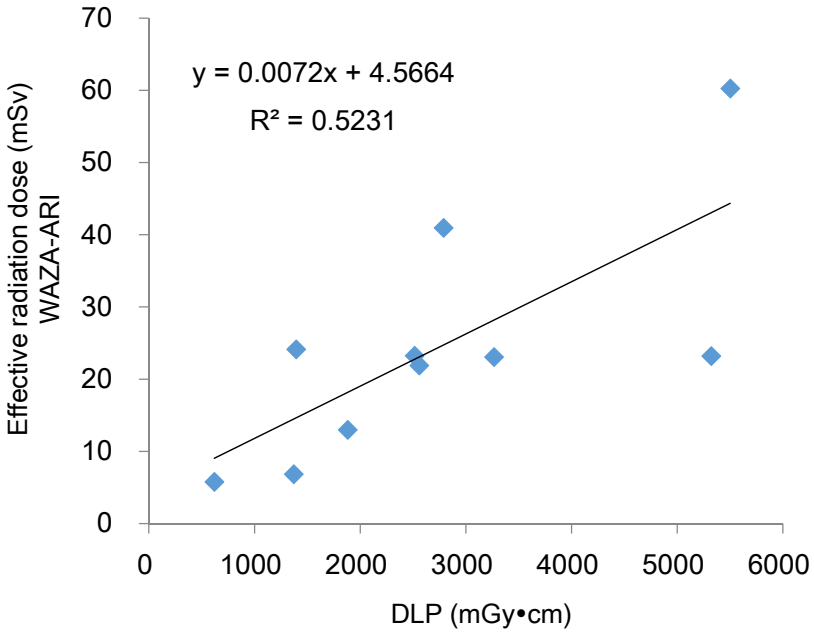
y = 0.0072x + 4.5664
R² = 0.5231
Effective radiation dose (mSv)
WAZA-ARI
DLP (mGy•cm)
0
10
20
30
40
50
60
70
0
1000
2000
3000
4000
5000
6000

Figure S2.

**Supplementary Information**

**Table S1a.** Analysis of DIC formation before and after the CT scan (Giemsa staining, 2,000 metaphases)

**Table S1b.** Analysis of DIC formation before and after the CT scan (Centromere-FISH, 2,000 metaphases)

**Table S2a.** Analysis of DIC formation (Giemsa staining, 1,000 metaphases)

**Table S2b.** Analysis of DIC formation (Centromere-FISH, 1,000 metaphases)

**Figure S1. Relationship between the increment of DIC formation and DLP in analysis of 2,000 metaphases using either Giemsa staining or Centromere-FISH.** No correlation was observed with the results of either Giemsa staining ($R^2 = 0.00197$) (a) or Centromere-FISH ($R^2 = 0.02036$) (b).

**Figure S2. Relationship between DLP and the effective radiation dose, as calculated using WAZA-ARI.** A correlation was observed between them ($R^2 = 0.52312$).