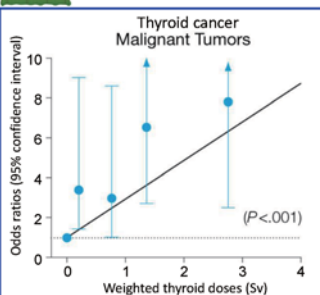


Incidence of Thyroid Cancer among Atomic Bomb Survivors

Data on Atomic
Bomb Survivors

Source: Radiation Effects Research Foundation;
JAMA 2006; 295(9): 1011-1022

Analysis of micro papillary cancer

Weighted thyroid doses	Average doses (mGy)	Targets (people)	Cancer detected in (people)	mGy: milligrays Odds ratios (95% confidence interval)
<5mGy	—	755	33	1
5~100mGy	32	936	36	0.85 (0.52~1.39)
100~500mGy	241	445	22	1.12 (0.64~1.95)
500mGy<	1237	236	15	1.44 (0.75~2.67)

Source: Hayashi et al., Cancer, 116, 1646, 2010

* Odds ratio: A statistical scale for comparing the probability of a certain incident between two groups

Odds ratios larger than 1 suggest that the probability is larger. When the probability that a certain incident occurs is p (Group 1) and q (Group 2), respectively, the odds ratio is obtained by the following formula.

Odds of p / Odds of $q = p / (1-p) \div q / (1-q)$

When the 95% confidence interval does not include 1, the difference in the probability is statistically significant.

Odds ratios (statistical scales for comparing the probability of a certain incident between two groups) regarding incidence of thyroid cancer among atomic bomb survivors show that risks of thyroid cancer increase as doses increase.

A survey only targeting micro papillary thyroid cancer shows that the odds ratio remains low until the weighted thyroid dose exceeds 100 mGy, and that the ratio slightly exceeds 1 when the weighted thyroid dose becomes 100 mGy or larger, but no significant difference was found.^{*1*2} (When the odds ratio is larger than 1, the relevant incident is more highly likely to occur. However, in this data, as the 95% confidence interval includes 1, there is no statistically significant difference in the probability.)

*1: M. Imaizumi, et.al., "Radiation Dose-Response Relationships for Thyroid Nodules and Autoimmune Thyroid Diseases in Hiroshima and Nagasaki Atomic Bomb Survivors 55-58 Years After Radiation Exposure" JAMA 2006;295(9):1011-1022

*2: Y. Hayashi, et.al., "Papillary Microcarcinoma of the Thyroid Among Atomic Bomb Survivors Tumor Characteristics and Radiation Risk" Cancer April 1, 2010, 1646-1655

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