

A lag period assumption itself increases the radiation risk estimate

潜伏期の仮定はそれ自体が放射線リスク推定値を上昇させる

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Since there was a lag of two and 10 years, between the onset of leukemia and solid cancers among A-bomb survivors, a similar lag is assumed in the analysis of radiation risk to low-dose radiation among nuclear workers. In order to reflect this lag in the calculation of radiation risk, the cumulative dose is applied to the cumulative dose at a time point that is as old as the lag. In Poisson regression, stratified data consisting of person-years observed, number of deaths observed, and average cumulative dose for each covariate are used to estimate excess relative risk per Sievert (ERR/Sv).

As a result of the lag period assumption, the mean doses in the lowest and highest dose categories are reduced compared to the case without lag. In addition, the mortality decreases in the lowest dose category and increases in the other categories. Assuming a 10-year lag for the 204,103 Japanese nuclear worker cohort, the mean dose (mSv) for the lowest dose category decreased from 0.7 to 0.6 and for the highest dose category from 159.3 to 149.3. The crude mortality per 10,000 decreased from 26.9 to 25.0 for the lowest dose category and increased from 29.5 to 38.9 for the highest dose category. Since ERR/Sv is estimated to be zero when the dose is zero, the assumption of a lag results in an increase in ERR/Sv, and this tendency increases as the lag period increases.

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