Radiation Risk Comparison with Lifestyle and Socio Economic Factors

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Background

Comparisons in the health risks between radiation and other lifestyle-related risk factors, such as smoking, are supplied so far. However, these comparisons reported consist of combinations of health risks observed in different cohort studies. We performed direct comparison between radiation risk and lifestyle and socio economic factors on cancer mortality derived simultaneously in one cohort.

Methods

A cohort was 41,742 males who responded to lifestyle questionnaire surveys carried out in 2003, and registered in the Radiation Dose Registry as nuclear workers by the end of March 1999, and have Japanese nationality. Total person year was 215,000, and a number of deaths for all cancers excluding leukaemia was 978. We used Poisson regression to quantify radiation relative risk (RR) at 100 mSv against 0 mSv and compared with smoking (pack-year (20 cigarettes/day × duration of smoking years)), alcohol (Cumulative alcohol intake (2 glasses of wine/day × duration of drinking)), job category, job status, and years of education.

Results

For all cancers excluding leukaemia, the RR at 100 mSv radiation was 0.967 (90%CI : 0.85, 1.0811), the RR of over 50 pack-years was 2.74 (2.24, 3.35), and the RR of over 2 glasses of wine/day × 60 years was 1.30 (1.08, 1.55). Job category, job status, and years of education also showed larger RR than radiation.

Conclusion

These results provide the evidence that if a radiation risk exits, it is much smaller than lifestyle or socio economic factors.

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