

# Confounding between cumulative dose and hazardous job history among Japanese nuclear workers (J-EPISODE)

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## Background

The Japanese Epidemiological Study on Low-Dose Radiation Effects (J-EPISODE) has been carried out to investigate health effects of low-dose radiation among nuclear workers since 1990. The study identified lifestyle factors and socio-economic status as confounders. In the study, excess relative risks (ERRs) were reduced by adjusting confounding factors, such as smoking. To estimate ERRs precisely, further studies of other potential confounding factors are needed.

## Aim

To explore the potential role of a hazardous job history, such as exposure to asbestos, a carcinogen, as a confounder of the cumulative dose among Japanese nuclear workers.

## Materials and methods

The study population comprised Japanese nuclear workers employed in the industry until the end of March 1999. A lifestyle questionnaire was distributed to a part of workers in 1997 and 2003. A hazardous job history included exposure to asbestos, powder dust, chrome, nickel, arsenic, organic solvents, benzene, aromatic amines, coke ovens, and coal tar were inquired. The radiation dose was supplied by the Radiation Dose Registry Center of the Radiation Effects Association. The cumulative dose was based on exposure data recorded between 1957 and 2010.

## Results

The number of cohort was 75,442 who responded to the questionnaire survey. The arithmetic mean cumulative dose was 25.8 mSv. Positive associations were found between the cumulative dose and a job history of exposure to asbestos, powder dust, and arsenic. These results suggest that a hazardous job history should be taken into account when estimating radiation exposure risks.

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