

Confounding of smoke to radiation health effects among Japanese nuclear workers :

The previous results of cancer mortality analysis and future forecast

日本の放射線業務従事者における放射線による健康影響への喫煙交絡: これまでのがん死亡解析結果と今後の展望

○Shin'ichi Kudo, Akemi Nishide, Noboru Ishizawa, Hiroshige Furuta, Shin Saigusa

Radiation Effects Association

○工藤 伸一、西出 朱美、石沢 昇、古田 裕繁、三枝 新

放影協

Background Radiation Effects Association has carried out an epidemiological study on low-dose radiation effects (J. EPISODE : Japanese Epidemiological Study On low Dose Effect) which is entrusted by Nuclear Regulation Authority since 1991. Two life-style questionnaire surveys were examined in 1997 and 2003, and positive correlation between cumulative dose and smoking was found. As a result, adjustment for smoking reduced cancer risk estimate of mortality by radiation comparing with the estimate without adjustment for smoking. The study aims to provide the previous results of mortality analysis which observed 1999-2010 and future forecast based on the latest third life-style questionnaire survey performed 2015-2019.

Methods In the mortality analysis, Poisson regression was used for calculate excess relative risk per Sievert (ERR/Sv) . To obtain new information of lifestyle or socio-economic status, self-administered questionnaire was distributed to nuclear workers including retired workers.

Results In the mortality analysis, total numbers of 71,733 male workers were assembled as cohort. The adjustment for smoking reduced ERR/Sv from 0.80 (90%CI : 0.39, 2.19) to 0.29 (.081, 1.57) for all cancers excluding leukemia. In the third life-style questionnaire survey, 77,993 male workers responded and positive correlation between radiation and smoking was found.

Conclusions The adjustment for smoking reduced ERR/Sv in the previous analysis. A positive correlation between radiation and smoking which was found in the latest life-style questionnaire survey suggests that the adjustment for smoking should reduce ERRs/Sv in the future analysis. This work was funded by Nuclear Regulation Authority, Japan.