

Human exposure dose and epidemiology (236-243)

- 236 Statistical Associations between Radiation Exposure and Clinical Examination data
— Effects of irradiation indices and starting work time —

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The associations between occupational irradiation, cigarette smoking, alcohol drinking, exercising and clinical examination data were investigated in 799 Japanese male radiology technicians. The number of investigated items was 35. The subjects were classified into two groups according to date of starting work. We considered two different indices of occupational irradiation, namely, one was cumulative radiation dose and another was average annual radiation dose, and analyzed data for each group. There was not much difference between results using cumulative radiation dose and results using average annual radiation dose. However, effects of occupational irradiation were obviously different between the group which started work before 1953 and the group which started work after 1957.

- 237 Study on effective-energies of diagnostic X rays by both questionnaire
survey and experiments

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The purpose of the present report is to develop the estimation method of patient dose for diagnostic X rays. Since diagnostic X rays have continuous energy spectra, an effective energy of X rays is necessary to correct the energy dependency of dosimeters as well as conversion factors of C/kg to Gy. However, it is too serious to measure the effective energy for each diagnosis device at each time of a radiography. Therefore, we sent questionnaire on the exposure condition (a type of X ray generator, a tube voltage and filtration) for each radiography, and studied to how much it is equal as an effective energy empirically in quest of a exposure condition given from a questionnaire survey. To determine the relation between the exposure condition and the effective energy, half value layers were measured by using the X ray equipment and the ionization chamber in our laboratory. Estimated effective energies for radiographies such as Chest AP, Abdomen, Spine, and Pelvis are reported.