

238 Cytogenetic study of myelodysplastic syndrome in Hiroshima Atomic Bomb Survivors

Nobuo. OGUMA, Chiharu. SHIGETA, Kimio. TANAKA, Nanao. KAMADA
Dept. of Cancer Cytogenetics, Research Institute for Radiation Biology & Medicine, Hiroshima University, Hiroshima 734

We enrolled myelodysplastic syndrome (MDS) patients who were divided as two groups; Atomic bomb survivors (A-bomb group) and non Atomic bomb survivors (control group, born before A-bomb explosion). Each was classified into five subtypes of MDS. These are as follows: A-bomb group; RA=19 cases, RARS=3 cases, RAEB=28 cases, RAEB-t=6 cases, CMMoL=1 case. Control group; RA=23 cases, RARS=1 case, RAEB=23 cases, RAEB-t=11 cases, CMMoL=8 cases. Dose estimation of the bone marrow was based on ABS93D. According to this method, 31 cases, 12 cases and 14 cases met as <0.01 Gy, 0.01 to 0.99 Gy and 1.0 Gy \leq respectively. MDS in 1 Gy \leq group showed more chromosome abnormalities compared to control group. Also, 11q abnormality, complex abnormality and mosaic abnormality met frequently in 1 Gy \leq and 0.01-0.99 Gy group compared to control group. Leukemic change was more frequently recognized in patient with chromosome abnormalities than in ones without abnormalities.

239 RELATIONSHIP BETWEEN AN INCIDENCE OF M-PROTEINEMIA (1985-1995) IN ATOMIC BOMB SURVIVORS AND PAST HISTORY OF CANCER Kazuo Neriishi¹, Masaharu Nobuyoshi¹, Kazunori Kodama¹, Yasuhiko Yoshimoto¹, Kingo Fujimura², Akiro Kimura², Saburo Momita³, Masao Tomonaga³ (¹Radiation Effects Research Foundation, ²Research Institute for Nuclear Medicine and Biology, Hiroshima University, ³Atomic Disease Institute, Nagasaki University School of Medicine)

Purpose: we reported a significant increase of incidence of M-proteinemia in the exposed ($>=0.01$ Gy) under 80 of age at onset in two group comparison, based on the longitudinal study of 1985 - 1995. It is not clear why it is not significant when include those over 80 of age at onset. Since cases with M-proteinemia often accompany with cancer, we studied the relationship between the incidence of M-proteinemia in the A-bomb survivors and history of cancer. **Subjects and methods:** subjects were the Adult Health Study (AHS) participants who underwent protein electrophoresis during the period. In two groups with or without cancer history, an analysis of Poisson regression model was conducted on new cases among those whose first test of protein electrophoresis during the period were normal. **Results and discussion:** among 6299 AHS participants who underwent protein electrophoresis, 6099 persons were subjected for incidence study. There were 937 persons with cancer history and 5162 persons without cancer history, and the number of cases with M-proteinemia were 13, 55, respectively, and 68 in total. All cases were diagnosed as monoclonal gammopathy of undetermined significance. Mean observation periods were 6.06 years. Crude incidence rate was 184 per 100,000 person year. In limited subjects of those under 80 of age at onset, the incidence of the exposed ($>=0.01$ Gy) in two group comparison showed a significant increase ($p = 0.038$), but not in those over 80 of age at onset ($p = 0.614$). In comparison with non-exposed without cancer history (18 persons), the relative risks of the incidence for the exposed without cancer history, the exposed with cancer history, and the non exposed with cancer history were 1.48, 1.82, 1.38, respectively. There were no statistical significance among 4 groups ($p = 0.415$). However, since one fourth of M-proteinemia cases has been reported to develop B cell malignancies in 20 - 35 years, it is important to closely observe the relationship between malignancy and M-proteinemia in the A-bomb survivors.

240 Dose-response curves for cancer mortality in the Atomic bomb survivors
— Possible threshold model in the dose-response —

Hlsayoshi KONDO, Mariko MINE, Sumihisa HONDA, Kenichi YOKOTA, Masao TOMONAGA, Yutaka OKUMURA *

Scientific Data Center for the A-bomb Disaster, Nagasaki University School of Medicine;
Nagasaki 852, *Department of Radiation Biophysics, atomic Disease Institute, Nagasaki University School of Medicine; Nagasaki 852.

The relationships between cancer mortality and exposed radiation dose in the Atomic bomb survivors were investigated with data from Radiation Effects Research Foundation. Relative risks for exposure categories were estimated using Poisson regression model whose covariates were city, sex, age ATB and follow-up interval. The possibility of fitting the threshold model in the dose-response curves was examined using estimated relative risks by the method of polygonal regression. The threshold model was fitted for the relative risk of female breast cancer mortality.