

- 8 Association between inflammatory and infectious markers among Atomic Bomb Survivors; Implication for mechanism of increase in cardiovascular disease.

Masayuki HAKODA<sup>1</sup>, Yoichiro KUSUNOKI<sup>2</sup>, Seishi KYOIZUMI<sup>2</sup>, Tomonori HAYASHI<sup>2</sup>, Saeko FUJIWARA<sup>1</sup>, Masazumi AKAHOSHI<sup>1</sup>, Gen SUZUKI<sup>1</sup>, Fumiyoshi KASAGI<sup>3</sup>, <sup>1</sup>Department of Clinical Studies, Radiation Effects Research Foundation <sup>2</sup>Department of Radiobiology, Radiation Effects Research Foundation <sup>3</sup>Department of Statistics, Radiation Effects Research Foundation

It has been demonstrated that non-malignant diseases including cardiovascular diseases are increased in Atomic-bomb (A-bomb) survivors in radiation dose-dependent manner. However, the mechanism for such increase in non-malignant diseases in the survivors has not been elucidated. Recently, many reports have suggested that microbial infection such as Chlamydia pneumoniae is associated with the development of cardiovascular disease. As reported in the last annual meeting, the antibody level of Chlamydia pneumoniae significantly decreased with radiation dose in A-bomb survivors. To investigate the biological significance of this decrease in antibody level in A-bomb survivors, levels of C-reactive protein (CRP), a sensitive marker for inflammation were measured with high sensitivity and analyzed in association with antibody levels. Serum levels of CRP were determined in 2,128 subjects. The CRP levels significantly and positively correlated with antibody levels to Chlamydia pneumoniae. This correlation was even stronger in the subjects whose estimated radiation dose was more than 1 Gy; higher levels of CRP were associated with Chlamydia pneumoniae antibody levels in these subjects as compared to non-exposed survivors. These results suggest that the decreased levels of antibodies to Chlamydia pneumoniae in heavily exposed survivors are related to some process inducing inflammatory response.

- 9 Correlation between Acute Radiation Injuries and Hematological Parameters in Atomic Bomb Survivors

Mariko MINE<sup>1</sup>, Yoshisada SHIBATA<sup>2</sup>, Ken-ichi YOKOTA<sup>1</sup>, Sumihisa HONDA<sup>2</sup>, Hisayoshi KONDO<sup>1</sup>, Masao TOMONAGA<sup>3</sup>, <sup>1</sup>Biostatistics Section, Atomic Bomb Disease Institute, Nagasaki Univ., Sch. Med. <sup>2</sup>Dept. of Radiation Epidemiology, Atomic Bomb Disease Institute, Nagasaki Univ., Sch. Med. <sup>3</sup>Dept. of Hematology, Atomic Bomb Disease Institute, Nagasaki Univ., Sch. Med.

We examined the correlation between acute radiation injuries and hematological parameters in atomic bomb survivors. The subjects were 447 atomic bomb survivors with epilation (Group 1) and 1-1 sex-and age-matched ones without epilation (Group 2). They were all selected from 11,605 atomic bomb survivors who had information on acute radiation injuries and underwent health examinations in 1970–1974. All of the subjects died in 1970–1997 and we compared between the two groups the temporal trends of hematological parameters measured in the period. The results are as follows: (1) no correlation was observed between the time to death and the erythrocyte count, the leukocyte count and the erythrocyte sedimentation rate in either group; (2) the hemoglobin level showed a tendency to decrease as the time to death became shorter; (3) the frequency of leukocytopenia was 35.9% (79/220) and 34.2% (49/143) in Group 1 and Group 2, respectively; and (4) 75.6% of cancer deaths and 64.5% of other deaths showed a low hemoglobin level within 5 years prior to death.

- 10 Geographical Study on the Frequency of Epilation among Atomic Bomb Survivors in Nagasaki

Ken-ichi YOKOTA<sup>1</sup>, Mariko MINE<sup>1</sup>, Hisayoshi KONDO<sup>1</sup>, Sumihisa HONDA<sup>1</sup>, Yoshisada SHIBATA<sup>1</sup>, Masao TOMONAGA<sup>1</sup>, <sup>1</sup>Atomic Bomb Disease Institute, Nagasaki Univ., Sch. Med.

We compared the frequency of epilation between two groups of atomic bomb survivors in Nagasaki who were bombed in areas shielded from the hypocenter by 366 meter-high Mt. Konpira and 285 meter-high Mt. Gosha and those bombed in unshielded areas. We defined two towns which were shielded by the above-mentioned mountains and were located at about 2.5 km from the hypocenter as the shielded area. Seven towns which were not shielded by either of the two mountains and were located at similar distance from the hypocenter as the two towns above were defined as the unshielded area. We compared the frequency of epilation between 1,601 and 1,715 people bombed in the shielded and unshielded areas, respectively. The epilation was noted in 30 (1.9%) and 87 (5.1%) people in the shielded and unshielded areas, respectively. Furthermore, the slight and severe epilation were noted in 28 (1.8%) and 2 (0.1%), respectively in the shielded area while in 69 (4.0%) and 18 (1.1%), respectively in the unshielded area.