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Summary Report for "Initial report for the Radiation Effects Research Foundation F1 Mail Survey"

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Study Findings

The results of RERF's self-administered questionnaire-based mail survey of children of atomic bomb survivors (F1)* regarding health status, lifestyle, sociodemographics, disease history, and mental health revealed, as expected, differences by gender and city. In terms of possible parental dose response findings, however, minor differences in self-reported mental health and several other factors were observed, with no major or consistent differences detected among the groups based on parental dose (dose groups).

*The F1 population does not include those exposed in utero.

Explanation

We analyzed the results of a mail survey distributed between 2000 and 2006 to representative members of the F1 mortality cohort. The mail survey was conducted for collection of medical history and lifestyle information to provide a baseline for later epidemiological cohort follow-up studies and for confirmation of their willingness to participate in an anticipated clinical examination survey.

1. Study Purpose

There has thus far been no solid evidence of effects from atomic bomb radiation in the children of atomic bomb survivors who were conceived after the bombings. However, at the time this mail survey was performed, the cohort had reached middle age, a time during which both cardiovascular disease and cancer risks naturally increase in a population. Such a natural increase in numbers would make excess cases of health outcomes from radiation more easily detectable, information that could help elucidate whether changes in health status are attributable to radiation or to another cause. This study is the first step in analyzing the mail survey data and provides a snapshot of the recent health status of the F1 cohort. The baseline data collected in this study will facilitate future follow-up studies to investigate possible radiation effects while adjusting for lifestyle factors.

2. Study Methods

Surveys were sent to 24,673 F1 mortality cohort members, 16,183 of whom responded. The questionnaire included questions related to sex, age, height, weight, general health, medical history, mental health status, smoking and drinking habits, eating habits, activity levels, sociodemographic status, and women's health. We conducted descriptive analyses of the respondents by categories defined on the basis of five different variables: city (Hiroshima and/or Nagasaki), sex, paternal radiation dose, maternal radiation dose, and combined parental dose. Logistic regression analysis was used to determine if there were any differences by dose category among disease history, mental health status, and women's health. All analyses controlled for age, as age was slightly different by dose group due to the initial design of the cohort.

3. Study Results

The overall mail survey response rate was 65.6%. The average age of participants was around 48 years. Certain differences in health and lifestyle factors were observed by city and sex. F1 members who resided in Hiroshima reported higher education levels than those of Nagasaki residents; they also more frequently reported being currently married. In terms of differences by sex, men reported higher education levels and employment than women; they also reported more hours of sleep and higher levels of drinking and smoking. In terms of disease outcomes, a higher percentage of men reported lifestyle-related diseases such as hypertension, diabetes, and hyperlipidemia, while women reported cancer and weight gain more frequently. These disease findings were what would also be expected from the general Japanese population. The differences by both city and sex were similar to those seen in the National Health and Nutrition Survey and several studies connected with the Japanese Collaborative Cohort (JACC). Likewise, the differences by sex reflected those in the general Japanese population. In terms of possible parental dose response findings, no major or consistent differences in health, lifestyle, sociodemographics, disease history, or mental health were seen among any of the dose groups. Heterogeneity in disease history and mental health status, however, was observed among one-parental dose categories including several linear trends, i.e., decreased frequencies of liver cirrhosis and feelings of depression in men and decreased frequency of insomnia in women with increased paternal dose, and increased exhaustion in women with increased total parental dose.

Study Significance

The mail survey collected lifestyle data that will be helpful for use in future follow-up studies. These data provide a snapshot of the recent health status of the F1 cohort members and will help to elucidate the effects of lifestyle and parental radiation exposure on health outcomes.

This study revealed research tasks to be explored in the future, such as differences in lifestyle factors by birth cohort. Further research will be needed to continue studying potential effects of parental radiation among the children of survivors.

The Radiation Effects Research Foundation has studied A-bomb survivors and their offspring in Hiroshima and Nagasaki for around 70 years. RERF's research achievements are considered the principal scientific basis for radiation risk assessment by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and for recommendations regarding radiation protection standards by the International Commission on Radiological Protection (ICRP). RERF expresses its profound gratitude to the A-bomb survivors and survivors' offspring for their cooperation in our studies.

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