

Incorrect Analyses of Radiation and Mesothelioma in the US Transuranium and Uranium Registries

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A recently published study, “Analyses of Radiation and Mesothelioma in the U.S. Transuranium and Uranium Registries”, by Gibb et al. (American Journal of Public Health 103: 710-716; 2013) examines 7 mesothelioma deaths among a population of 329 deceased Registrants in the United States Transuranium and Uranium Registries (USTUR). The study finds a proportionate mortality ratio (PMR) of 62.40 for mesothelioma and suggests that cumulative external radiation is associated with an increased risk of mesothelioma.

PMR is defined as a proportion of observed deaths from a given cause in a study population divided by the proportion of deaths expected from this cause in a standard population. The reported PMR of 62.4 for mesothelioma is strikingly large, and does not add up by quick examination. The proportion of observed deaths from mesothelioma among all USTUR deaths is 2.1% (7/329), while the proportion of deaths from mesothelioma among all the U.S. deaths is approximately 0.1% as cited by Gibb et. al. Therefore the crude estimate of PMR for mesothelioma is about 21.0 (2.1% / 0.1%). Mesothelioma is primarily an occupational disease and the USTUR Registrants were overwhelmingly adult male Caucasians. An adjusted (gender, age, race and calendar year) estimate of PMR for mesothelioma is 13.1 (2.1% / 0.16%), since mesothelioma accounts for over 0.16% of all deaths in the U.S. white males with age over 30. This presentation reveals that the Gibb study failed to consider the disease coding change for mesothelioma over the timeframe of the study, resulting in flawed results on radiation and mesothelioma.

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