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± – ° Ý > 8 Thyroid Cancer Risk and Adult Radiation Exposure: A Systematic Review And Meta Analysis

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Nafiseh Beygom Mirkatouli > # Õ

It is well known that the thyroid gland is one of the body's most radiation-sensitive organs. The risk of thyroid cancer related with radiation exposure in adult is still unknown, despite epidemiological data showing a high correlation between childhood radiation exposure and an increased risk of thyroid cancer. We have performed a comprehensive review and meta-analysis of research on the association between adult radiation exposure and the risk of thyroid cancer.

A total of fifteen publications were found to be eligible after the screening procedures were completed. Of these, eight and eleven publications offered estimates of the standardized incidence ratio (SIR) and relative risk (RR) or excess relative risk (ERR) per unit dosage, respectively. An inverse variance weighting technique paired with a random effects model yielded these estimates. Both the overall statistically significant excess (SIR) [2.19, 95 percent confidence interval (CI); 1.54, 3.10] and that for each individual study were consistently found to exist. The elevated SIRs among the exposed populations were probably related to greater opportunities for health examinations,

especially for the Chernobyl workers, which could lead to a selection or screening bias. This is because the SIRs were calculated using thyroid cancer incidence rates among the general population.

A few studies found a higher risk of thyroid cancer linked to radiation exposure, but the overall estimate of RR at 10 mGy was not statistically significant, with an estimate of 1.0038 (95 percent CI; 0.9991, 1.0085). This total estimate corresponded to an ERR per Gy of 0.38, which was much less than the estimate linked to childhood exposure (RR at 0.2 Gy of 2.7, or an ERR per Gy of 8.5) that came from a pooled analysis of 12 studies by Veiga et al (2016). The current study offers little proof that radiation exposure in adulthood increases the risk of thyroid cancer.

It does, however, highlight the significance of carrying out further research in this field to get a stronger knowledge of the possible risks involved.

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