

Therapeutic administration of 131I for differentiated thyroid cancer, radiation dose to ovaries and outcome of

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Background: Radiation is known to be mutagenic. In thyroid cancer treatment, 131I is usually administered, for the first treatment, at a 3700MBq activity, corresponding to an estimated radiation dose of 140mGy to the ovaries. However data on the effects of 131I therapy on pregnancy outcomes, especially untoward, are scarce. Methods: Data on 2673 pregnancies were obtained by interviewing female patients treated for thyroid carcinoma who had not received significant external radiation to the ovaries, in three French hospitals and one Italian hospital. Results: The incidence of miscarriages was 10% before any treatment for thyroid cancer ; this percentage increased after surgery for thyroid cancer, both before (20%) and after (19%) 131I treatment, with no variation according to the cumulative dose. Miscarriages were not significantly more frequent in women treated with 131I during the year before conception, even in subjects who had received more than 370MBq during that year, as compared to women never treated with 131I. The incidence of stillbirths, preterm births, a low birth weight, congenital malformation and death during the first year of life was not significantly different before or after 131I therapy. The incidence of thyroid and non thyroidal cancers was similar in children born either before or after the mother's exposure to 131I. Conclusion: In our data, we found no evidence that exposure to 131I affects the outcome of subsequent pregnancies and offspring. Whether the number of malformations, or thyroid and non thyroidal cancers are related to gonadal irradiation remains to be established. Our findings allowed us to fuel the debate on the doubling dose: the concept is still heatedly debated and the value of 1 Gy as the doubling dose in humans should be rediscussed.