

Hypothyroidism. A frequent event after radiotherapy and after radiotherapy with chemotherapy for patients with head and neck carcinoma.

Mercado G, Adelstein DJ, Saxton JP, Secic M, Larato MA, Lavertu P. Cancer 2001; 92:2892-7.

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Received during: Journal Club, Tertiary Palliative Care Unit, Grey Nuns Community Hospital

Abstract:

Background:

The incidence of hypothyroidism was assessed retrospectively from a data base of 155 patients with head and neck carcinoma who were treated at the Cleveland Clinic Foundation between 1990 and 1997.

Methods:

One hundred patients were randomized between radiotherapy (RT) (66-72 grays in single daily fractions) and RT with concurrent chemotherapy (CT) using 5-fluorouracil and cisplatin. An additional 55 patients received RT and CT without randomization. Primary site surgery was performed for tumor persistence or recurrence and included a thyroidectomy in nine patients. These nine patients, along with three patients who had hypothyroidism prior to treatment, were excluded from the analysis. AT regular intervals after the completion of treatment, all patients were evaluated for the development of hypothyroidism, defined as a serum thyroid-stimulating hormone (TSH) level $>5.5\mu\text{U/mL}$.

Results:

With a median follow-up for 143 evaluable patients of 4.4 years (range, 1.5-9.2 years), the 5-year Kaplan-Meier projected incidence rate of hypothyroidism was 48%, and the 8-year projected incidence rate was 67%. The median time to the development of hypothyroidism was 1.4 years (range, 0.3-7.2 years). The likelihood of developing hypothyroidism could not be predicted according to age, gender, primary site, tumor or lymph node status, overall stage, RT dosage to the primary site or to the neck, or inclusion of CT in the treatment plan. Only race proved predictive, with no African-American patients developing hypothyroidism ($P = 0.02$).

Conclusions:

The authors conclude that the incidence rate of hypothyroidism after patients undergo RT for head and neck carcinoma is higher than generally reported and that TSH screening after treatment appears justified.

Comments:

Strengths/uniqueness: This is a detailed retrospective study of prospectively collected data. The patients were also followed up for a substantial period of time, a median of 4.4 years.

Weakness: There is no comment regarding the degree of symptomatology in patients who had a serum TSH level greater than 5.5 $\mu\text{U/mL}$.

Relevance to Palliative Care: This study highlights the frequency with which hypothyroidism occurs in patients who have undergone radiation treatment for head and neck cancer. Clearly, the highest risk is in the early years following radiation treatment (median time to the development of hypothyroidism was 1.4 years), but the risk is also substantial in later years. Therefore, screening is clearly warranted.