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Long-term impact of initial surgical and medical therapy on papillary and follicular thyroid cancer â˜†

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Abstract

PURPOSE: To determine the long-term impact of medical and surgical treatment of well differentiated papillary and follicular thyroid cancer.

METHODS: Patients with papillary and follicular cancer (n = 1,355) treated either in U.S. Air Force or Ohio State University hospitals over the past 40 years were prospectively followed by questionnaire or personal examination to determine treatment outcomes. Outcomes were analyzed by Kaplan-Meier survival curves and Cox proportional-hazard regression model.

RESULTS: Median follow-up was 15.7 years; 42% (568) of the patients were followed for 20 years and 14% (185) for 30 years. After 30 years, the survival rate was 76%, the recurrence rate was 30%, and the cancer death rate was 8%. Recurrences were most

recurrence rate was 30%, and the cancer death rate was 8%. Recurrences were most frequent at the extremes of age (<20 and >59 years). Cancer mortality rates were lowest in patients younger than 40 years and increased with each subsequent decade of life. Thirty-year cancer mortality rates were greatest in follicular cancer patients, who were more likely to have adverse prognostic factors: older age, larger tumors, more mediastinal node involvement, and distant metastases. When patients with distant metasteses at diagnosis were excluded, follicular and papillary cancer mortality rates were similar (10% versus 6%, P not significant [NS]). In a Cox regression model that excluded patients who presented with distant metastases, the likelihood of cancer death was (1) increased by age â‰¥40 years, tumor size â‰¥1.5 cm, local tumor invasion, regional lymph-node metastases, and delay in therapy â‰¥12 months; (2) reduced by female sex, surgery more extensive than lobectomy, and ^{131}I plus thyroid hormone therapy; and (3) unaffected by tumor histologic type. Following ^{131}I therapy given only to ablate normal thyroid gland remnants, the recurrence rate was less than one third the rate after thyroid hormone therapy alone (P <0.001). No patient treated in this way with ^{131}I has died of thyroid cancer. Low ^{131}I doses (29 to 50 mCi) were as effective as high doses (51 to 200 mCi) in controlling tumor recurrence (7% versus 9%, $P = NS$). Following ^{131}I therapy, whether given for thyroid remnant ablation or cancer therapy, recurrence and the likelihood of cancer death were reduced by at least half, despite the existence of more adverse prognostic factors in patients given ^{131}I.

At 30 years, the cumulative cancer mortality rate following ^{131}I therapy, regardless of the reason for its use, was one third that in patients not so treated (P = 0.03).

CONCLUSION: Over the long term, for tumors â‰¥1.5 cm that are not initially metastatic to distant sites, near-total thyroidectomy followed by ^{131}I plus thyroid hormone therapy confers a distinct outcome advantage. This therapy reduces tumor recurrence and mortality sufficiently to offset the augmented risks incurred by delayed therapy, age â‰¥40 at the time of diagnosis, and tumors that are much larger than 1.5 cm, multicentric, locally invasive, or regionally metastatic.

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