Survival Benefit of Radioiodine Therapy (RAI) in Papillary Thyroid Cancer Variants (PTCV): A SEER Analysis

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Background

- RAI is widely used in the treatment of thyroid cancers at various stages.
- The effect of RAI on Papillary Thyroid Cancer Variants remains (PTCV) debatable.
- This study aimed to evaluate the efficacy of RAI on overall survival (OS) and cancer-specific survival (CSS) in patients with PTCV without distant metastasis.

Methods

- Data between 2000 and 2018 were obtained from the National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) database.
- This study included two histological types of PTCV, Hürthle and columnar.
- Patients with distant metastasis, tumor size greater than 2 cm, previous or concurrent malignancies, receiving chemotherapy, or any type of radiation other than RAI were excluded.
- Only patients who underwent total thyroidectomy as surgical procedure were included.
- Chi-square tests were used to compare clinicopathological features, while the Kaplan-Meier estimator, log-rank tests, and Cox proportional hazard regression were used to identify survival rates and prognostic factors.

Results

- 1370 patients were included, with 917 (66.9%) received RAI and 453 (33.1%) did not.
- Most of the patients were female (76.9%), aged 45 years or older (60.1%), and white (n=1140).
- Tumor sizes ranged from 1-4 cm for 71.2% of patients.
- The average tumor size was 2 cm. 58.7% had extrathyroidal extension.
- Patients with RAI had a higher 5-year OS rate of 96.6% compared to 94.4%.
- Both groups had a 5-year CSS rate of 97.7%. No significant differences were found in OS or CSS between the groups (P<0.15 and P<0.42, respectively).
- Old age and tumor size greater than 4 cm were poor prognostic factors for OS and CSS, whereas male sex was only associated with poor OS.
- In the unadjusted analysis, RAI did not significantly affect OS or CSS.
- After adjusting for other variables, RAI improved OS (HR = 0.61, 95% CI: 0.37-0.99) but did not have a significant effect on CSS (HR = 1.05, 95% CI: 0.46-2.4).

Conclusion

Our results showed that RAI administration was associated with improved long-term OS, after adjusting for other variables. However, RAI was not associated with any significant difference in CSS. This study is the first to examine the two histological types of PTCV using a large sample size. A randomized trial is needed to confirm the efficacy of RAI in PTCV treatment.

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Disclosure statement

The authors declare no conflicts of interest.