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EDITORIAL – ENDOCRINE TUMORS

Comparing the 7th and 8th Editions of the American Joint Committee on Cancer Staging Systems for Differentiated Thyroid Cancer: Improvements Observed and Future Horizons

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The American Joint Cancer Committee (AJCC) staging system is widely used and has proven to be useful in predicting disease-specific survival for differentiated thyroid cancer (DTC). However, findings have shown it to be a poor tool for predicting the risk of recurrent disease because it does not assess response to initial therapy.[1,2] In response, the American Thyroid Association (ATA) developed a risk-stratification system that has demonstrated utility in predicting recurrence and persistent disease for patients with thyroid cancer.[3] Current ATA guidelines suggest that management of DTC should be guided by initial risk assessment, including risk of both death and recurrence, and modified in response to treatment. Therefore, most practitioners use both AJCC staging and the ATA risk-stratification system.[4]

In October 2016, the AJCC published the 8th edition of the staging system to replace the 7th edition that had been in use since 2009. Regarding DTC, the major changes of the 8th edition included an increase in the age cutoff from 45 to 55 years, removing microscopic extrathyroidal extension from the definition of T3 disease and downgrading N1 disease to stage 2 for older patients.[5,6] Implementation of the 8th edition began 1 January 2018 to allow time for health systems to incorporate the new system into routine practice. Recent studies have compared the 7th and 8th editions with respect disease-specific survival, demonstrating a greater separation of survival curves and the overall superiority of the 8th edition. However, to date, no studies have been performed to examine recurrence.[7–9]

For this reason, Gan et al.[10] conducted a well-timed study to determine which edition of AJCC better prognosticates the risk of recurrence for well-differentiated thyroid cancer, hypothesizing that the 8th edition would outperform the 7th edition. A population-based retrospective review of patients with well-differentiated thyroid cancer was performed using the Kentucky Cancer Registry. The final cohort consisted of 3248 patients, with major exclusion criteria ruling out metastatic disease at presentation, unknown or incomplete staging, and missing recurrence data. The staging criteria for the 7th and 8th editions then was applied to the same cohort to create two distinct groups for comparison of disease-free survival by stage.

Comparable with other studies, 20% of the patients were downstaged, and no patients were upstaged when the 8th edition was compared with the 7th edition, Disease-free survival was not significantly different for the stage 1 patients regardless of edition, suggesting that all the downstaged patients did in fact represent low risk of recurrence. The risk of recurrence between stages 1 and 2 disease were significantly differentiated in the 8th edition, but not in the 7th edition. With higher-stage disease (stages 3 and 4), the 7th edition outperformed the 8th edition. Univariate analysis showed that higher recurrence rates were independently associated with age greater than 55 years, higher T stage, and positive lymph nodes.

The study concluded that the ability of the 8th edition to assess risk of recurrence was superior that of the 7th edition given that a majority of patients with DTC have early-stage disease (stage 1 or 2). Or put more simply by the authors, the 8th edition more appropriately classifies lower-risk patients as stage 1 and higher-risk patients as stage 2

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compared with the 7th edition. This work further demonstrated the unique behavior of DTC compared with other malignancies in that disease-free survival is just as important, if not more important, than disease-specific survival in determining outcomes and response to therapy. Although the 8th edition of the AJCC staging system has significantly improved the stratification for risk of recurrence with early-stage disease, further studies and improvements are needed until a single system can assess for risk of both death and recurrence simultaneously.

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