

Ten Best Readings Relating to Thyroid Cancer

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Cooper DS, Doherty GM, Haugen BR, et al. Management guidelines for patients with thyroid nodules and differentiated thyroid cancer. *Thyroid*. 2006;16:4-33.

This important paper presents updated guidelines that reflect the advances made in diagnosing and treating thyroid cancer since 1996. The American Thyroid Association reexamined the current strategies used to diagnose and treat thyroid nodules and differentiated thyroid cancer and developed new clinical guidelines based on principles of evidence-based medicine.

Mazzaferri EL, Robbins RJ, Spencer CA, et al. A consensus report of the role of serum thyroglobulin as a monitoring method for low-risk patients with papillary thyroid carcinoma. *J Clin Endocrinol Metab*. 2003;88:1433-1441.

The authors propose a surveillance guideline using thyroid-stimulating hormone (TSH)-stimulated serum thyroglobulin (Tg) levels for patients who have undergone total or near-total thyroidectomy and (131)I ablation for differentiated thyroid cancer and have no clinical evidence of residual tumor with a serum Tg below 1 µg/L during thyroid hormone suppression of TSH.

Mazzaferri EL, Kloos RT. Is diagnostic iodine-131 scanning with recombinant human TSH useful in the follow-up of differentiated thyroid cancer after thyroid ablation? *J Clin Endocrinol Metab*. 2002;87:1490-1498.

This study shows that tumor amenable to early therapy may be found when recombinant human thyroid-stimulating hormone (rhTSH)-stimulated serum thyroglobulin (Tg) rises above 2 ng/mL without performing a diagnostic whole body scan, which provides only data concerning the completeness of thyroid ablation but not persistent tumor. An elevated rhTSH-stimulated Tg greater than 2 ng/mL warrants further study.

Hay ID, McConahey WM, Goellner JR. Managing patients with papillary thyroid carcinoma: insights gained from the Mayo Clinic's experience of treating 2,512 consecutive patients during 1940 through 2000. *Trans Am Clin Climatol Assoc*. 2002;113:241-260.

These data encourage a more selective use of I-131 in papillary thyroid cancer (PTC) management and do not lend support to the current widespread use of radioactive-iodine remnant ablation in low-risk PTC.

McIver B, Hay ID, Giuffrida DF, et al. Anaplastic thyroid carcinoma: a 50-year experience at a single institution. *Surgery*. 2001;130:1028-1034.

The authors report the results of their institution's 50-year experience of treating patients with anaplastic thyroid carcinoma (ATC). They conclude that the outlook for patients with this disease remains grim, and novel treatments for ATC are needed.

Petrich T, Borner AR, Otto D, et al. Influence of rhTSH on [(18)F]fluorodeoxyglucose uptake by differentiated thyroid carcinoma. *Eur J Nucl Med Mol Imaging*. 2002;29:641-647. Epub 2002 Feb 27.

These results provide the first direct evidence that thyroid-stimulating hormone (TSH) stimulates fluorine-18 fluorodeoxyglucose (FDG) uptake by differentiated thyroid carcinoma and that, therefore, FDG-PET is more accurate under recombinant human TSH than under suppression.

Finley DJ, Lubitz CC, Wei C, et al. Advancing the molecular diagnosis of thyroid nodules: defining benign lesions by molecular profiling. *Thyroid*. 2005;15:562-568.

These data indicate that benign thyroid lesions can be separated into distinct groups through molecular profiling. Analysis of the gene list may help further the understanding of thyroid tumorigenesis. Expression profiling may ultimately allow us to distinguish potentially malignant from benign follicular nodules.

Rosenbluth BD, Serrano V, Happersett L, et al. Intensity-modulated radiation therapy for the treatment of nonanaplastic thyroid cancer. *Int J Radiat Oncol Biol Phys*. 2005;63:1419-1426. Epub 2005 Sep 12.

Intensity-modulated radiation therapy for non-anaplastic thyroid cancer is feasible and effective in appropriately selected cases. Acute toxicity is manageable with proactive clinical care. Ideal planning target volume doses have yet to be determined. Additional

patients and long-term follow-up are needed to confirm these preliminary findings and to clarify late toxicities.

Shaha AR. Implications of prognostic factors and risk groups in the management of differentiated thyroid cancer. *Laryngoscope*. 2004;114:393-402.

A retrospective review of a large number of cases of differentiated thyroid cancer was undertaken to analyze the effect of various risk groups on the extent of treatment and outcome. The author hypothesizes that risk groups are important in the long-term outcome of patients with differentiated thyroid cancer and that the management of well-differentiated thyroid cancer should be based on various prognostic factors and risk groups.

Mazzaferrri EL, Massoll N. Management of papillary and follicular (differentiated) thyroid cancer: new paradigms using recombinant human thyrotropin. *Endocr Relat Cancer*. 2002;9:227-247.

Patients with undetectable or low thyroglobulin (Tg) concentrations and persistent occult disease can now be identified within the first year after initial treatment by recombinant human thyroid-stimulating hormone (rhTSH)-stimulated serum Tg concentrations greater than 2 µg/L, without performing new diagnostic body scans. These new follow-up paradigms promptly identify patients with lung metastases that are not evident on routine imaging but that respond to (131)I treatment. In addition, rhTSH can be given to prepare patients for (131)I remnant ablation or (131)I treatment for metastases, especially those who are unable to withstand hypothyroidism because of concurrent illness or advanced age or whose hypothyroid TSH fails to increase.