

Open Access

Prognostic Factors in Thyroid Cancer

Magdalena Chirila*

Otorhinolaryngology Department "Iuliu Haţieganu", University of Medicine and Pharmacy, Cluj-Napoca, Romania

In a European population the incidence of thyroid carcinomas varies between 1.75/100000 population for males and 6.38/100000 population for females [1]. The world-wide incidence is in the region of 4/100000population/year with the highest being in Iceland and Hawaii (15/100000/year) [2].

A number of staging systems have been proposed in an attempt to predict outcome and to help tailor treatment and extent of surgery. The most important prognostic factors include gender, age, histology, size, grade, presence of extrathyroid extension, lymph node involvement, and completeness of resection.

In 1987, Hay et al. [3] proposed a prognostic system named AGES: age>40, histological grade>1, extrathyroid extension, size>3 cm. This system divides the patients into four groups that correlate with progressively shorter survival according to their prognostic score.

One year later, Cady and Rossi introduced a simpler scheme, AMES: age >40 for males or >50 for females, metastasis, extrathyroid extension, size >5 cm [4]. His system divides patients into high risk (AMES factors present) and low risk (AMES factors absent) groups. Only 5% of patients in the low risk group but 55% in the high risk group developed recurrent disease.

Memorial Sloan Kettering Cancer Centre developed new scheme in 1992, GAMES, starting from histological grade >2, age >45, distant

Т	Primary Tumor
T,	Primary tumor cannot be assessed
T _o	No evidence of primary tumor
T ₁	Tumor 2 cm or less in greatest dimension, limited to the thyroid T_{ta} : tumor 1 cm or less, limited to the thyroid T_{tb} : tumor more than 1 cm but not more than 2 cm in the greatest dimension, limited to the thyroid
T ₂	Tumor more than 2 cm but not more than 4 cm in greatest dimension, limited to the thyroid
T ₃	Tumor more than 4 cm in greatest dimension, limited to the thyroid or any tumor with minimal extrathyroid extension (sternohyoid muscle or perithyroid soft tissues)
T _{4a}	Moderately advanced disease Tumor of any size extending beyond the thyroid capsule to invade subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve
T _{4b}	Very advanced disease Tumor invades prevertebral fascia or encases carotid artery or mediastinal vessel
All anaplastic carcinomas are considered T4 tumors. T_{4a} : Intrathyroidal anaplastic carcinoma T_{4b} : Anaplastic carcinoma with gross extrathyroid extension	
Ν	Regional Lymph Nodes
N _x	Regional lymph nodes cannot be assessed
N _o	No regional lymph nodes
N _{1a}	Metastasis in ipsilateral cervical lymph node(s)
N _{1b}	Metastasis in midline, contralateral or bilateral cervical node(s) or metastasis in mediastinal lymph node(s)
М	Distant Metastasis
Mo	No metastasis
Μ,	Metastasis present

Table 1: TNM staging system for thyroid carcinoma.

metastasis, extension beyond the thyroid capsule, and size >4 cm. Shah et al. [5,6] pointed out that in the low risk groups total thyroidectomy offered no survival advantage over lobectomy.

Also in 1992, Karolinska Institute added a "D=DNA ploidy" to AMES score, based on a study [7] which showed that the assessment of tumor nuclear DNA content added prognostic value.

In 1993, Hay et al. [8] revised their staging system and proposed a new scheme, MACIS: metastasis, age >40, completeness of resection, extrathyroid invasion, and size.

The commonest factors for all these prognostic scores are age, tumor size and whether or not growth is confined within the gland capsule, regional or distant metastasis. TNM staging system for thyroid carcinoma [9] includes all these prognostic factors (Table 1). Unlike squamous cell carcinoma staging in head and neck, mediastinal lymph node disease is classified by N stage rather than as distant metastasis.

References

- Delisle MJ, Schvartz C, Theobald S, Maes B, Vaudrey C, et al. (1996) Cancers of the thyroid. Value of a regional registry on 627 patients diagnosed, treated and followed by a multidisciplinary team. Ann Endocrinol Paris 57: 41-49.
- Harmer CL, McCready VR (1996) Thyroid cancer: differentiated carcinoma. Cancer Treat Rev 22: 161-177.
- Hay ID, Grant CS, Taylor WF, McConahey WM (1987) Ipsilateral lobectomy versus bilateral lobar resection in papillary thyroid carcinoma: a retrospective analysis of surgical outcome using a novel prognostic scoring system. Surgery 102: 1088-1095.
- Cady B, Rossi R (1988) An expanded view of risk-group definition in differentiated thyroid carcinoma. Surgery 104: 947-953.
- Shah JP, Loree TR, Dharker D, Strong EW, Begg C, et al. (1992) Prognostic factors in differentiated carcinoma of the thyroid gland. Am J Surg 164: 658-661.
- 6. Shah JP (1996) Thyroid and parathyroids. (2ndedn), New York: Mosby Wolfe.
- Pasieka JL, Zedenius J, Auer G, Grimelius L, Hoog A, et al. (1992) Addition of nuclear DNA content to the AMES risk-group classification for papillary thyroid cancer. Surgery 112: 1154-1159.
- Hay ID, Bergstralh EJ, Goellner JR, Ebersold JR, Grant CS (1993) Predicting outcome in papillary thyroid carcinoma: development of a reliable prognostic scoring system in a cohort of 1779 patients surgically treated at one institution during 1940 through 1989. Surgery 114: 1050-1057.
- 9. Tuttle RM, Ball DW, Byrd D, Dilawari RA, Doherty GM, et al. (2010) Thyroid Carcinoma in NCCN Guidelines.

*Corresponding author: Magdalena Chirila, Otorhinolaryngology Department "Iuliu Haţieganu", University of Medicine and Pharmacy, Cluj-Napoca, Romania, E-mail: chirila magda@yahoo.com

Received November 17, 2012; Accepted November 19, 2012; Published November 21, 2012

Citation: Chirila M (2012) Prognostic Factors in Thyroid Cancer. Thyroid Disorders Ther 1:e110. doi:10.4172/2167-7948.1000e110

Copyright: © 2012 Chirila M. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.