

Differentiated thyroid carcinoma: patients younger than 55 yrs

73

Pierpaolo Trimboli¹, Arnoldo Piccardo², Alfredo Campennì³, Rosa Lauretta⁴, Agnese Barnabei⁴, Marialuisa Appetecchia⁴, Luca Giovanella¹. 1 Department of Nuclear Medicine and Thyroid Centre, Oncology Institute of Southern Switzerland, Bellinzona, Switzerland. 2 Nuclear Medicine Department, Galliera Hospital, Genoa, Italy. 3 Department of Biomedical and Dental Sciences and Morpho-Functional Imaging, Nuclear Medicine Unit, University of Messina, Messina, Italy. 4 Endocrinology Unit Regina Elena National Cancer Institute IRCCS Rome, Italy.

Background: In the last TNM edition, the threshold of age of differentiated thyroid carcinoma (DTC) to be adopted as prognostic factor has been increased from 45 to 55 yr.

Aim: The present study was undertaken to retrospectively evaluate the impact of increasing the age threshold to 55 yrs as prognostic factor of DTC. Accordingly, primary end-point was to compare the outcome of patients older and younger than 55 yrs in terms of rate of patients with no evidence of disease (NED) and structural recurrence (REC), and of disease free interval (DFI); secondary end-point was to investigate whether the population younger than 55 yrs is homogeneous in NED/REC and DFI.

Study design: Four institutions participated to the present multicenter survey, three from Italy, and one from the Italian speaking region of Switzerland. All patients undergone a visit of DTC follow-up were initially screen at participating institutions. Included were patients diagnosed, treated by both thyroidectomy (plus neck dissection when necessary) and radioiodine (RAI), and followed-up at these centers. Excluded were cases in whom data of their follow-up were incomplete to assess NED/REC status.

Gold standards of the study: Patients were classified as alive with NED if there was no clinical, imaging, or cytological/histological evidence of disease and their measured basal Tg levels were undetectable (i.e. below the functional sensitivity of the locally employed assay) or, if detectable, they were less than 1 ng/mL and decreased or remained unchanged over time. Patients with proven structural evidence of disease were considered as alive with structural recurrence (REC). The overall survival (OS) was calculated from the date of radioiodine ablation to the date of disease-related death. The DFI was calculated from the date of radioiodine ablation to the date of last follow-up in NED patients, or the date of relapse detection in REC patients.

Statistical analysis: Mann-Whitney U, Wilcoxon test, and paired or unpaired t-test were used to analyze differences between paired or unpaired variables in two groups of patients. The predictive tests (sensitivity, specificity, positive [PPV] and negative [NPV] predictive value) were calculated according to Galen and Gambino. Continuous variables were dichotomized by receiver operating characteristics (ROC) curve analysis using the maximum value of Youden's index (J) as the most accurate cut-off point. DFS was estimated by using the Kaplan-Meier method and differences between curves were analyzed by log-rank or Mantel-Haenszel test and expressed as Hazard Ratio (HR). The association degree of specific parameters with cancer relapse was assessed by Odds Ratio (OR). Parameters with significant association with cancer recurrence were included to carry out a model for a multivariate regression analysis. Statistical significance was set at $p < 0.05$. All statistical tests were performed by MedCalc Statistical Software, version 15.8 (MedCalc software bvba, Ostend; Belgium).