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Background: Sparse data have been published on the post-surgical outcome of thyroid cancers with previous indeterminate FNAC of Tir 3A and Tir 3B.

Aim: The present study was undertaken to retrospectively evaluate the postoperative follow-up of differentiated thyroid carcinomas (DTC) patients having a preoperative FNAC of Tir 3A or Tir 3B. Accordingly, the rate of patients with no evidence of disease (NED) and structural recurrence (REC) in Tir 3A and Tir 3B series, and their disease free interval (DFI) were evaluated.

Study design: Six institutions participated to the present multicenter survey, five 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 with pre-surgical Tir 3A or Tir 3B FNAC, 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).