Analysis of radioiodine therapy and prognostic factors of differentiated thyroid cancer patients from BIOMAT-ENDO data base

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BIOMAT-ENDO DATA BASE

- **BIOMAT-ENDO software** is a Windows Forms application that stores all the main data regarding the patient with differentiated thyroid cancer (DTC) hospitalized in the Department of Nuclear Medicine starting with the first hospitalization, continuing with all the periods of radioiodine therapy and the follow up.

- The patient-monitoring MODULE contains: clinical parameters, surgery details, in Vivo and in Vitro investigations, therapy information. Correlations can be done between any input data.

- The Nuclear Medicine Department of the National Institute of Endocrinology has a history over 50 years in treating patients with differentiated thyroid cancer (DTC). During last year, 2000 cases were digitalized in **BIOMAT -ENDO** data base.

MATERIALS AND METHODS

- **300** patients with DTC were selected from the 2000 patients in BIOMAT –ENDO data base.

  Inclusion criteria :

  ➢ at least two radioiodine ablative therapies (RIT)

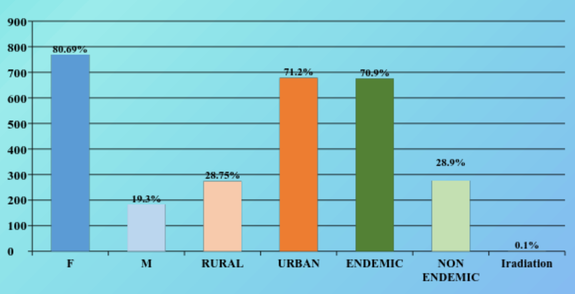
  ➢ WBS (whole-body scan) results (negative/ positive for thyroid remains/ positive for thyroid remains and metastases)

  ➢ available serum thyroglobulin (TGL) and Anti TGL values.

  Statistical analysis

- We used SQL (Structured Query Language), first in order to verify the functionality of the system, the correctness of the existing data and also for some statistical results.
- Analysis includes epidemiologic data and associated factors with the curative effect:
  - patient gender (F/M)
  - risk factors (endemic/non-endemic area)
  - environmental origin (urban/rural)
  - age at DTC diagnostic (years)
  - surgical procedure
- Data are expressed as mean ± SD, proportion or absolute numbers.

RESULTS



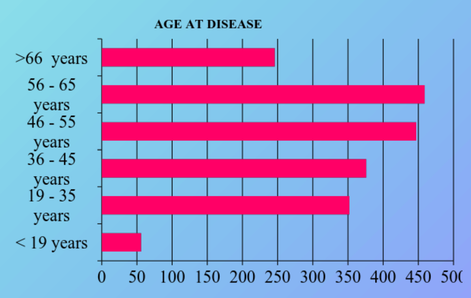
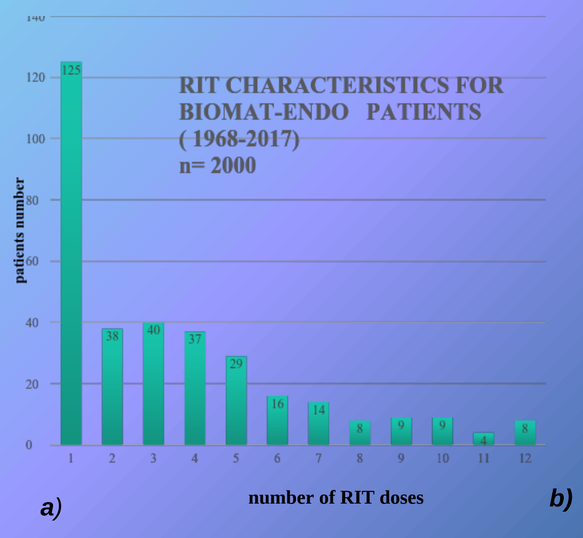


Fig 1. Epidemiological data and age distribution



RADIOIODINE THERAPY Studied group (n=300)	
Number of RIT (mean±SD)	5.4±3.6
Minim number of RIT	2.0
Maxim number of RIT	12.0
Cumulated dose (mCi) (mean±SD)	382.6±280
Min cumulated RIT dose (mCi)	35
Max cumulated RIT dose(mCi)	720

Fig 5. a) Overall RIT data on the 2000 cases in the BIOMAT-ENDO data base; b) RIT data on the selected patients

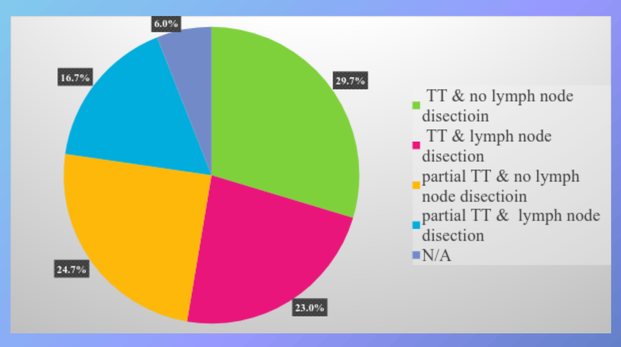


Fig 2. Surgical procedure

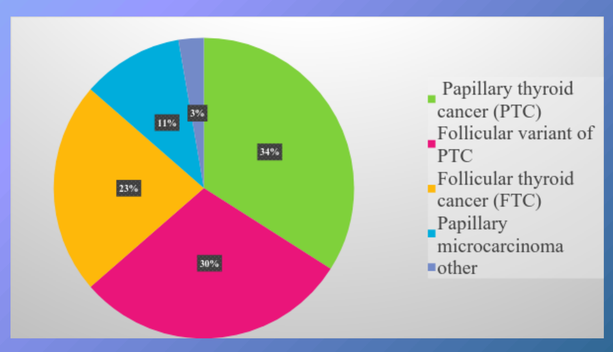


Fig 3. Histology distribution

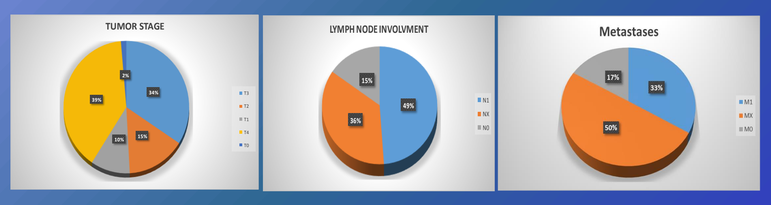
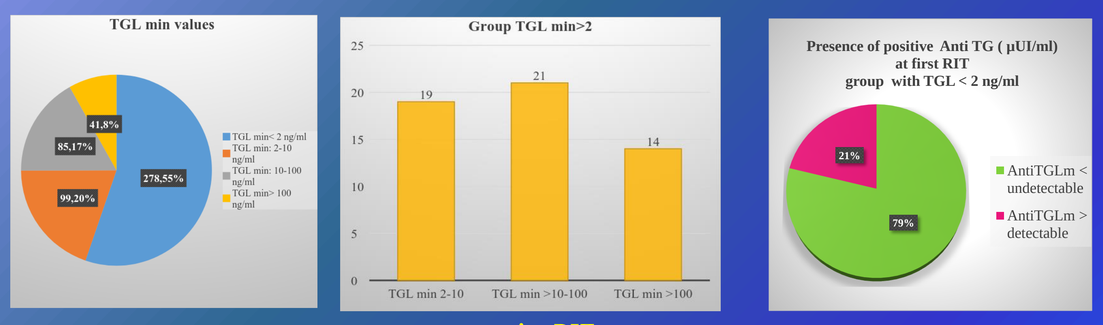
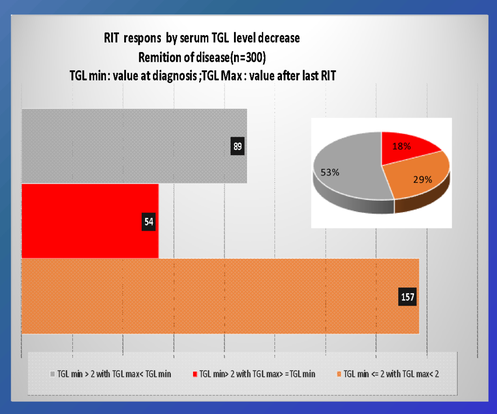


Fig 4. Overall T-N-M distribution



prior RIT



	TGL(ng/ml) before first RIT	TGL(ng/ml) after last RIT	
Mean	107.93	0.671	P< 0.001
SD	278.25	0.473	
CV%	257.80	70.52	
MIN	2	< 0.2	
MAX	2350	1.96	

evolution after RIT

Fig 6. TGL & AntiTGL data on the selected patients

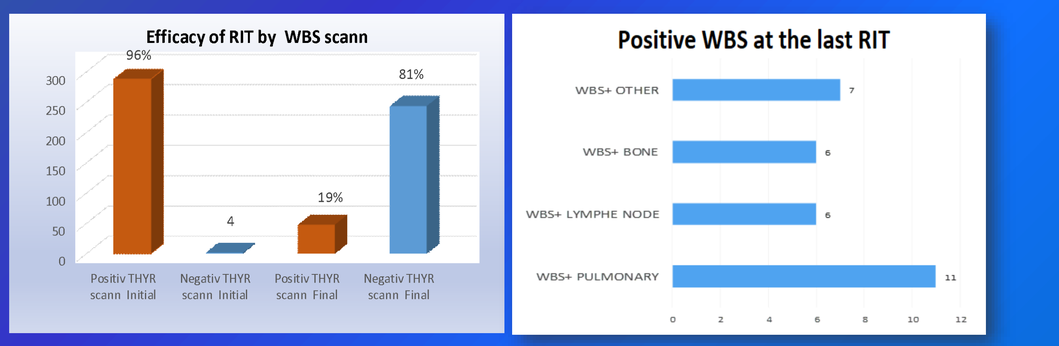


Fig 7. Imaging evolution

CONCLUSIONS

- The incidence of thyroid cancer reported in literature is between 0.5-5.2%. Our study indicated that most DTC patients can obtain partial or complete remission after ^{131}I therapy.

- ^{131}I imaging and serum Tg levels at diagnosis are both important indicators to evaluate the curative effect.

- The analysis of efficacy and prognostic factors of ^{131}I therapy have the benefit to establish individualized treatment strategy, predict curative effect, and assess the prognosis for those DTC patients.

- The clinical data reviewed revealed which biological features are predominant for a good overall prognosis of thyroid cancer, which patients are still with persistent/ recurrent disease according to the measured serum thyroglobulin (TG) levels and imagistic findings.

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