Does serum Galectin-3 add value in thyroid cancer diagnosis?  
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Introduction
- The role of circulating Galectin-3 as a potential biomarker of malignancy in thyroid disease remains inconclusive.  
- In a previous pilot study, on a limited number of patients (N=40), we reported a significant difference between serum Gal-3 levels in papillary thyroid carcinoma (PTC) patients and those with benign pathology, but no association with tumor aggressiveness1.

Objective
- We measured serum Gal-3 levels in a larger series of patients submitted to thyroidectomy, in order to assess its value as possible biomarker in PTC.

Patient and methods:
- All patients gave their informed written consent.
- The study was approved by Ethics Committee of the Institute.
- Sera were collected before surgery. Gal-3 was measured by Elisa, using a monoclonal antibody specific for human Gal-3 (R&D Systems).

190 patients:
- 151 women (79.5%) and 39 men (20.5%)
- aged 49.09±13.55 years

Study groups based on pathology report:
- benign disease (N=88)
- differentiated thyroid cancer (N=102)*
  - * Patients with other types of thyroid neoplasia were excluded
  - pT1 – 35 pt (29 pT1a)
  - pT2 – 21 pt
  - pT3 – 41 pt
  - pT4 – 5 pt

The thyroid cancer group was analyzed according to pathological stage, histological subtype, multifocality, invasion and tumor size.

RESULTS

We found no significant difference in serum Gal-3 levels between:
- Cancer and non-cancer patients (9.98±2.66ng/ml vs. 8.11±2.81ng/ml, p=NS)
- Different PTC stages (PTC1: 8.01±2.39ng/ml vs. PTC2: 7.66±2.26ng/ml vs. PTC3: 3.86±2.95ng/ml vs. PTC4: 9.57±2.78ng/ml, p=NS for all comparisons)
- Unifocal vs multifocal PTC (9.04±3ng/ml vs. 7.94±2.49ng/ml, p=NS)
- Invasive vs non-invasive PTC (9.42±2.89ng/ml vs. 7.88±2.41ng/ml, p=NS).

There was no correlation between serum Gal-3 and tumor size (r=0.05)

CONCLUSION:

The analysis of a large series of patients with tumor thyroid disease, using a highly specific Gal-3 antibody, revealed no difference in serum Gal-3 between cancer and non-cancer patients and no correlation with tumor aggressiveness, suggesting NO benefit in its use as a diagnostic test in thyroid cancer.

Reference:

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