

Description Researchers at the University of Toledo have found that thyroid nodule microenvironment cell profiling can be used as a predictive and prognostic marker for thyroid cancer. This approach uniquely focuses on the phenotype, rather than the genotype, of the microenvironment. Recently described Double Negative (DN) T-cells were significantly more abundant in lymphocytic infiltrates of thyroid cancer. They were shown to downregulate proliferation and cytokine production of activated effector T cells present in the tumor microenvironment and contribute to tumor tolerance and active avoidance of tumor immunity. If the quantify of DN T cells exceeds the defined threshold, it indicates a likelihood of cancer presence. Aside from immune cell profiling, our approach further establishes an integration of the information derived from transcriptome/meta-analysis of the genome and cytokine/chemokine signal analysis all from thyroid FNA. Applications[[Unsupported Character - Symbol Font •]] Diagnosis of thyroid cancer from FNA samples[[Unsupported Character - Symbol Font •]] Predictive tool of severity of disease Advantages[[Unsupported Character - Symbol Font •]] Microenvironment profiling can provide a unique way to diagnose and assess disease progression[[Unsupported Character - Symbol Font •]] Sheds light on cellular cross-talk; more accurate diagnose; can prevent unnecessary surgery IP Status:Patent Pending

Adrenal

ADRENAL - TUMORS

Frailty in Patients With Mild Autonomous Cortisol Secretion Is Higher Than Patients With Nonfunctioning Adrenal Tumors.

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SAT-LB37

Background: Mild autonomous cortisol secretion (MACS) affects up to 50% of patients with adrenal adenomas. Frailty is a syndrome characterized by diminished strength and endurance and serves as a marker of declining health and dependency. We hypothesized that patients with MACS are more frail when compared to patients with nonfunctioning adrenal tumors (NFAT).

Methods: This is a retrospective study of adult patients with adrenal adenoma evaluated at a tertiary center from 2004 to 2018. MACS and NFAT were defined as cortisol after 1 mg overnight dexamethasone suppression (DST) between 1.8-5 mcg/dl and <1.8 mcg/dl, respectively. Frailty index (FI, range 0-1) was calculated using a 47 variables-deficit model (20 comorbidities, 14 activities of daily living, and 13 symptoms). Patients were excluded if treated with exogenous glucocorticoids, if diagnosed with overt adrenal hormone excess, another adrenal disorder, or if missing variables of interest.

Results: MACS was diagnosed in 168 patients (67% women) at a median age 65 (30-91) years and NFAT in 275 patients (61% women) at a median age of 59 (21-84) years. Patients with MACS demonstrated higher prevalence of hypertension (73% vs 62%), cardiac arrhythmias (50% vs 40%), and chronic kidney disease (25% vs 17%), but lower prevalence

of asthma (5% vs 14%), when compared to patients with NFAT, $p < 0.05$ for all. Patients with MACS reported more symptoms of weakness (21% vs 11%), falls (7% vs 2%), and sleep difficulty (26% vs 15%) as compared to patients with NFAT, $p < 0.05$ for all. Age, sex and BMI-adjusted FI was higher in patients with MACS vs patients with NFAT (0.17 vs 0.15, $p = 0.009$). Using cut-off FI of 0.2, 42% of patients with MACS were frail, versus 30% of patients with NFAT ($p = 0.01$).

Conclusion: Higher frailty in patients with MACS supports a more aggressive management, such as adrenalectomy over conservative follow up. Future prospective studies are needed to characterize frailty in greater detail in patients with MACS, as well as to examine frailty reversal by adrenalectomy.

Neuroendocrinology and Pituitary PITUITARY TUMORS II

Poor Response to Pre-Surgical Treatment With Somatostatin Receptor Ligands Is Associated With Diabetes Mellitus in Patients With Acromegaly.

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MON-LB50

Introduction: somatostatin receptor ligands (SRL) represent the first-line medical therapy in acromegaly patients who were not cured by surgery and in those where surgical remission is unlikely. It is well known that SRL may negatively act on insulin secretion, with consequent hyperglycemia and diabetes mellitus (DM). **Purpose:** To evaluate whether the degree of response to surgical pre-treatment with SRL predicts alterations in blood glucose levels. **Patients and Methods:** We retrospectively studied 181 patients attending the Unit of Neurosurgery of our Hospital prior to transsphenoidal surgery. All patients had a biochemical and radiological diagnosis of acromegaly (nadir GH during OGTT >0.4 ng/mL; IGF-I above age-standardized UNL and pituitary adenoma at MRI scans); diagnosis of DM and impaired fasting glucose (IFG) was performed on fasting blood glucose (FBG) according to the American Diabetes Association guidelines; all parameters of the pituitary axes were determined. The response to SRL treatment was determined as percent change of GH levels. Data are presented as mean±SD; Continuous data normally distributed were analyzed using a two-tailed Student's t-test to compare two groups, and one-way ANOVA to compare several groups, followed by the Bonferroni post-hoc procedure for pairwise comparison of groups after the null hypothesis was rejected ($p < 0.05$); categorical data were analyzed by chi-squared test. **Results:** 97 (54%) patients with acromegaly underwent pre-surgical treatment with SRL; we found no difference in age (53 ± 11 vs. 51 ± 12 years; $p = \text{NS}$) and sex (M/F: 51/46 vs. 43/41; $p = \text{NS}$) between SRL treated and non-treated patients. We found no difference in FBG between SRL treated vs. non-treated