

MON-649

Recently a cluster-based classification of disease phenotypes has been developed as a tool to aid in improved characterization and management of diabetes. The majority of these studies have been completed in European populations, but it is unclear if these are applicable to other populations. Using these cohorts, we categorized patients in a South Texas VA diabetes clinic to evaluate if these phenotypes apply to that population. A retrospective cohort study was completed from August 2019 through October 2019, in which 120 patients' records in the Audie Murphy VA Diabetes Clinic were reviewed for presence of macro and microvascular complications, type of anti-diabetic medication, lipid profile and HbA1c levels, and fasting C-peptide and GADab status. 86 patients who had anti-GADab and C-Peptide levels measured were then stratified into diabetic phenotype cohorts as defined by Ahlqvist et al. 2018, based on presence of diabetes associated autoantibodies, fasting C-peptide level, insulin use >200 U/day, BMI, and age >65. Six subjects belonged to the Severe Autoimmune Diabetes (SAID) cohort, with average GADab 713±301IU; 66% of the cohort had nephropathy, 33% had retinopathy. The Severe Insulin Deficiency (SIDD) cohort had 9 patients, with average fasting C-peptide of 0.58±0.08ng/ml, 44% of the cohort had retinopathy, nephropathy and CAD as complications. The Severe Insulin Resistant (SIRD) cohort had 26 patients; fasting C-peptide was 4.94±0.43ng/ml, 73% had nephropathy, 38% retinopathy and 46% CAD. The Mild Obesity Related (MOD) cohort had 35 patients with average BMI of 35±0.6 kg/m² and average A1c 7.9±0.2%. Nephropathy was the most prevalent complication, present in 49% of the cohort. The Mild Age Related (MARD) cohort had 10 patients, with average age of 71±1.0 years, with nephropathy and CAD present in 66% of the cohort. The highest gross prevalence of nephropathy was in the SIRD cohort, whereas highest prevalence of retinopathy was in the SIDD cohort, both of which are concordant with the recently reported study, although not statistically significant (p=0.28 and 0.65, respectively). There was no difference in prevalence of CAD between the different categories of diabetes. These findings in a South Texas VA diabetes clinic population reflect agreement in diabetes associated complications in clusters of diabetes based on insulin resistance and insulin deficiency. Targeted intensification of therapy based on the major underlying pathophysiologic abnormalities may delay or prevent micro and macrovascular complications.

1. Ahlqvist E, et al. Novel Subgroups of Adult-onset diabetes and their association with outcomes: a data-driven cluster analysis of six variables. *Lancet Endocrinology and Diabetes*. 2018;6: 361-369.

Thyroid**THYROID NEOPLASIA AND CANCER**

Patients with Large Multinodular Goiters Operated for Presumed Benign - Large or Growing Thyroid Nodules, Have a High Likelihood of Significant Synchronous Thyroid Cancers.

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Introduction: Despite the current state of evidence suggesting that thyroid nodules' size should not be the sole criterion for the decision to undergo thyroidectomy, many patients are still operated for large, or growing nodules. In order to ascertain whether this is a justifiable approach, we performed the present study.

Methods/ Subjects: We reviewed the data from two prospectively collected databases of patients undergoing thyroid surgery in two tertiary referral centers, one in the USA (A) and the other one in Greece (B) over 14 consecutive years. We collected data on the preoperative surgical indication, FNA cytology and surgical pathology. We included subjects with multinodular goiters, operated solely for large or growing thyroid nodules, who did not have any known or presumed thyroid cancer, or indications of high risk for malignancy (FNA suspicious for thyroid cancer, follicular neoplasm, suspicious for follicular neoplasm, FLUS/AUS, cellular specimen), family history of thyroid cancer or prior neck radiation exposure.

Results: We reviewed 5523 consecutive cases of thyroid surgery (A:2711, B:2812). After excluding n=3059 subjects, we included n=2464 subjects in the present analysis. Overall 535 thyroid cancers were identified (21.7%): 349 (65.2%) were microcarcinomas (<1cm), 161 (30.0%) were macrocarcinomas (≥1cm) and 25 of undetermined size. The histology was consistent with papillary cancer (PTC) n=500, follicular cancer (FTC) n=14, Hurthle cell cancer (HCC) n=9, medullary cancer (MTC) n=4, thyroid lymphoma n=1 and mixed histology cancers n=4. In n=68 (2.75%) cases, a thyroid cancer was found in the large or growing thyroid nodule, which was the original indication for surgery. The cancers were multifocal in n=165 subjects; there was extrathyroidal extension in n=61, capsular invasion was present in n=80, lymph node involvement in n=35 and bone metastasis in n=2 subjects.

Conclusions: Although the likelihood of identifying a clinically relevant thyroid cancer in a large or growing nodule, in the absence of risk enhancing features, is low; the risk of synchronous, clinically important, thyroid cancers is high in patients with large multinodular goiters. Therefore, more precise screening strategies are urgently needed to identify the patients, who would clearly benefit from thyroid surgery and protect those who do not need to be operated on.

Diabetes Mellitus and Glucose Metabolism**TYPE 1 DIABETES MELLITUS**

Unusual Presentation of Diabetic Ketoacidosis Associated with Hyponatremia in Adult Patient

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SAT-682

Diabetic ketoacidosis (DKA) is an acute, life threatening complication of diabetes characterized by hyperglycemia, ketonemia and acidosis. It is known to commonly present