of acromegaly patients, 86% of prolactinoma patients, and 93% of the control group (p=0.365). **Conclusion:** This is the first study to demonstrate the isolated subclinical systolic dysfunction identified by four-dimensional echocardiography in patients with acromegaly and prolactinoma. Asprosin may be associated with cardiovascular diseases in addition to its role in the pathogenesis of type 2 diabetes mellitus, and GDF-15 can be used as a biomarker to predict cardiovascular risk in these patient groups.

## Neuroendocrinology and Pituitary
### PITUITARY TUMORS

***Transcription Factor Immunohistochemistry in the Diagnosis of Pituitary Tumors***

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**Objective:** The clinical utility and prognostic value of WHO 2017 lineage-based classification of pituitary tumors have not been assessed. This study aimed to (1) To determine the clinical utility of transcription factor analysis for classification of pituitary tumors and (2) To determine the prognostic value of improved lineage-based classification of pituitary tumors. **Methods:** This was a retrospective evaluation of patients who underwent surgical resection of pituitary tumors at a tertiary referral centre between 1990 and 2016. Included patients were at least 18 years of age and had complete histopathological data, forming the "histological cohort". Patients with at least 12 months of post-surgical follow up were included in the subgroup "clinical cohort". The diagnostic efficacy of transcription factor immunohistochemistry in conjunction with hormone immunohistochemistry was compared with hormone immunohistochemistry alone. The prognostic value of identifying "higher risk" histological subtypes was assessed. **Results:** There were 172 patient tumor samples analyzed in the histological cohort. Of these, there were 96 patients forming the clinical cohort. Subtype diagnosis was changed in 24/172 (14%) of tumors. Within the clinical cohort, there were 21/96 (22%) patients identified with higher risk histological subtype tumors. These were associated with tumor invasiveness (p=0.032), early recurrence (12-24 months, p=0.016), shorter median time to recurrence (38 [IQR 20-68.5] v 15 [IQR 12-27.25] months, p=0.02) and reduced recurrence-free survival (p=0.023). Conclusions: Application of transcription factor analysis, in addition to hormone IHC, is associated with improved diagnostic information.

## Neuroendocrinology and Pituitary
### PITUITARY TUMORS

***USP8 Somatic Mutations in Cushing's Disease and Silent Corticotropinomas***

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**Background:** Somatic mutations in the ubiquitin-specific peptidase 8 (*USP8*) gene have been described in Cushing's disease (CD). These mutations increase proopiomelanocortin transcription resulting in ACTH production and seem to correlate with somatostatin receptor type 5 (SST5) expression. Aims: Screen *USP8* in patients with corticotropinomas and correlate *USP8* mutational status with SST5 expression in CD. **Methods:** Tumor DNA was extracted and then exon 14 amplified by PCR. SST5 was assessed by immunohistochemistry (clone UMB4) and quantified multiplying the percentage of positive cells (0,0%; <10%,1;10-50%, 2; 51-80%, 3; >80%, 4) and intensity (mild, 1; moderate, 2; intense, 3), giving a score (IRS) from 0-12 with ≥ 6 considered high. **Results:** Among 59 patients, 38 had CD and 21 silent corticotropinomas. In CD, 13 (34.2%) patients had pathogenic mutations (6 had p.Ser719del; 5 had p.Pro720Arg and 2 had p.Pro720Gln). In the mutated CD group, all were women and had median age of 34.5 years (20-46). Median ACTH was 64.7pg/mL [(34.8-330.0), normal <46], urinary free cortisol (UFC) 435.0µg/24h [(87.0-1386.0), normal <100], cortisol after *overnight 1mg dexamethasone* suppression test (ODST) 17.4µg/dL [(5.0-48.7), normal <1.8], salivary cortisol (SC) 8.1µg/dL [(1.0-15.5), normal <0.35]. Median largest tumor size was 0.9 cm (0-1.9), ki-67 1.7 (0.2-10.0) and IRS 12 (1-12). In wild-type CD group, 19 (76.0%) were women and had median age was 35.0 years old (14-62). Median ACTH was 59.7 (39.0-137.0), UFC 305.8 (77.0-1302.0), cortisol after ODST 23.6 (10.0-33.3), SC 0.67 (0.27-1.28). Median largest tumor diameter 0.7cm (0-3.3), ki-67 1.8 (0.2-10) and IRS 4 (0-12). SC was higher in mutated group compared to wild-type (p=0.001) as well as IRS (p=0.009). In silent corticotropinomas, 2 (9.5%) had pathogenic mutations (1 p.Ser718Pro and 1 p.Pro720Arg): male, 36 years old, 3.2 cm tumor, Ki-67 4%, IRS 6; and female, 52 years old, 3.4 cm tumor, Ki-67 2.5%, IRS 12, respectively. One tumor had a variant not reported as pathogenic (p.Thr739Ala): male, 46 years old, 3.7 cm tumor, Ki-67 0.5%, IRS 0. USP8-wild-type silent corticotropinomas had IRS 0-2. Conclusion: One third of CD patients presented with somatic *USP8* mutation. Similar to another study, about 10% of silent corticotropinomas also presented somatic *USP8* mutation. Expression of SST5 was high in USP8-mutated CD and higher than wild-type group.

## Neuroendocrinology and Pituitary
### PITUITARY TUMORS

***Vitamin D Metabolism Alteration in Acromegaly and Its Impact on Calcium-Phosphorus Metabolism***

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