adrenalectomy (BAL) (15.4%). Of the 11 patients with ectopic CS, 3 (27.2%) underwent IPSS, 6 (54.5%) underwent BAL, and 1 (9.1%) underwent TSS and BAL.
There were 10 thrombotic events among 7 (7.2%) CD patients, but no thrombotic events among ectopic CS patients. Of the thrombotic events, there were 7 (70%) DVT/PE, 2 (20%) CVA, and 1 (10%) cortical vein thrombosis. Six (60%) occurred within 30 days after TSS (range 3-25 days), 2 (20%) between 31 days and 1 year after TSS (range 59-165 days), 1 (10%) 26 days after IPSS but prior to TSS, and 1 (10%) in a patient who did not undergo IPSS or surgery. No thrombotic events were noted after BAL. Of the 8 postoperative thrombotic events, 5 (62.5%) occurred while patients received supraphysiologic glucocorticoid replacement (defined as >25mg hydrocortisone or equivalent daily) after curative surgery, 1 (12.5%) occurred after a patient was tapered to physiologic glucocorticoid replacement, and 2 (25%) occurred in patients who had persistent disease despite surgery. The degree of hypercortisolism at baseline was not associated with risk of thrombotic events. **Conclusions:** In this retrospective study, 6.5% of ACTH-dependent CS patients had a thrombotic event, all in patients with CD. The majority had venous thromboembolism with DVT/PE, and the highest incidence occurred up to 30 days after surgery. The degree of hypercortisolism at baseline did not correlate with subsequent thrombotic events. Therefore, it is important to monitor all patients with ACTH-dependent CS following surgical intervention for venous thromboembolism.

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Immunohistochemical Profile of Nonfunctioning Pituitary Adenomas

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Background: Nonfunctioning pituitary adenomas (NFPAs) are neuro-endocrine tumors without clinical and laboratory signs of anterior pituitary hormonal hypersecretion. The recent World Health Organization classification is based on the adenohypophyseal cell lineages and requires immunohistochemical evaluation of adenohypophyseal hormones and pituitary transcription factors. There are few data regarding the age and sex prevalence of different cell-types nonfunctioning adenomas and clinical data correlations. **Objective:** To discover the immunohistochemical profile of large cohort of NFPAs. **Materials and Methods:** The study includes 100 consecutive cases of endoscopically transsphenoidally removed nonfunctional pituitary adenomas, immunohistochemically assessed for anterior pituitary hormones and transcription factors. Clinical presentation, imaging, laboratory hormonal data and immunohistochemical staining features have been analyzed. All patients (64 women and 36 men) have been divided into four age groups: 20-34 (A) years old, 35-44 (B) years old, 45-59 (C) years old, 60-70 (D) years old. Peculiarities of immunohistochemical profile have been statistically analyzed in those age groups. **Results:** Most tumors (97%) were macroadenomas with mass effect symptoms. In the groups of silent corticotroph and Pit-1 adenomas most of the patients had subclinical symptoms of hormonal hypersecretion. The proportions of silent gonadotroph adenomas have appeared to be increased with age with predominant prevalence in group D (60%) in women and group C (78, 6%) in men. The proportions of silent Pit-1 adenomas decreased with age with maximum rate in group A (77,8%) in women and in group A (50%) in men. The incidence of silent corticotroph adenomas was different: increasing with age in women with maximum (36,8%) in group C and decreasing from young age (30%-0%) in men age groups B-D respectively. Plurihormonal pituitary adenomas from different cell lineages were found only in women, with maximum incidence rate (17,6%) in group B. The incidence of "null cell" adenomas didn't differ in men and women in group B and C but was much more higher in men in groups A and D (16,7% vs 0% and 33% vs 6,6% respectively). **Conclusions:** The different age and sex prevalence of NFPAs, revealed in our study, may be helpful in diagnosing and optimal treatment of NFPAs.

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Increased Serum High-Sensitivity C-Reactive Protein in Growth Hormone-Deficient Patients With Non-Functioning Pituitary Tumors

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Introduction: Growth hormone (GH) deficiency, the most common hormone deficit complicated with pituitary tumors, is associated with higher mortality and cardiovascular events. Inflammation, as measured by high-sensitivity C-reactive protein (hs-CRP), has been reported to be associated with cardiovascular events. However, the association between hs-CRP and GH deficiency is still unknown. We retrospectively evaluated the association between serum hs-CRP levels and GH secretion in patients with non-functioning pituitary tumors (NFPTs). **Methods:** In this retrospective study, adult patients with non-functioning pituitary adenoma (NFPA) and Rathke's cyst who received a GH-releasing pepitide-2 (GHRP-2) test from 2013 until 2016 were included. Patients with a history of pituitary surgery or radiation, or estimated GFR lower than 30 mL/min/1.73m^2 were excluded. **Results:** Of 81 patients (70 NFPA and 11 Rathke's cyst), 44% were diagnosed as severe GH deficiency by GHRP-2 test. Serum hs-CRP level was significantly higher in the male patients (P = 0.001) and the patients with regularly alcohol intake (P = 0.011) and was significantly correlated with BMI (r = 0.35, P = 0.002), creatinine (r = 0.41, P < 0.001), eGFR (r = -0.29, P = 0.009), peak GH response to GHRP-2 (r = -0.48, P < 0.001), AST (r = 0.32, P = 0.004), ALT (r = 0.34, P = 0.002), γGTP (r = 0.41, P < 0.001), HDL-cholesterol (r = -0.33, P = 0.003) and triglyceride (r = 0.25, P = 0.02). Smoking habit (P = 0.084), age (r = 0.18, P = 0.10), LDL-cholesterol (r = 0.16, P = 0.15), IGF-1 (r = -0.14, P = 0.23) and IGF-1 SD score (r = -0.11, P = 0.32) were not significantly correlated with serum hs-CRP level. Peak GH response to GHRP-2 (β = -0.24, P = 0.024) was a significant variable to determine serum hs-CRP level after adjustment for age, sex, BMI, regularly alcohol intake and serum creatinine, γGTP

and HDL-cholesterol levels. **Conclusion:** Increased serum hs-CRP levels in the GH-deficient patients with NFPTs suggested the contribution of GH deficiency to pathogenesis of inflammation associated with cardiovascular diseases.

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Low Risk for All-Cause Mortality Among Patients With Lung Neuroendocrine Tumors Co-Diagnosed With Pituitary Adenoma

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Context: Lung neoplasm often co-occur with pituitary adenoma (PA). However, whether co-diagnosis of lung neuroendocrine tumors (LNET) and PA constitute unique entity, and the impact of such co-diagnosis on patients outcome is yet to be defined. **Objective:** To compare the clinical characteristics of patients with LNET to those co-diagnosed with PA. **Design:** Retrospective, case-control study including patients diagnosed with LNET or PA between 2000 and 2016. **Setting:** The Surveillance, Epidemiology and End Results database. **Patients:** 2,947 patients had LNET, including 2,913 with LNET alone ("Sporadic") and 34 patients with both LNET and PA ("MENx"). **Main Outcome Measure(s):** All-cause mortality (ACM). **Results:** PA preceded LNET diagnosis in 85.3% of patients and had higher rates among LNET patients (34/2,947) than with any cancer (p<0.00001) and compared to patients with non-small cell lung cancer (NSCLC) (15/2,378, p=0.047). MENx patients were younger at diagnosis compared with NSCLC patients and PA (p=0.04). Among patients<60 years with LNET, co-diagnosis with PA was associated with lower ACM risk (Log-rank test, p=0.03). Adjusted ACM risk of patients with "MENx" was lower than sporadic LNET (hazard ratio 0.553, 95% confidence interval 0.309-0.99, p=0.046), especially among Caucasians, and a lower overall-mortality risk in patients <60 years with borderline statistical significance (p=0.071). **Conclusions:** Patients with both LNET and PA constitute a distinct morbidity and mortality profile compared with sporadic LNET possibly suggesting an undefined MEN syndrome. Additional studies to further investigate the natural course and genetic profile of patients with these neoplasms are needed.

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Markers of Aggressiveness in Craniopharyngiomas

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Craniopharyngiomas (CP) are rare tumors that may be locally aggressive. The presence of functional estrogen receptors (ER) has been reported in CP and might be related to risk of recurrence. Our aim is to ascertain if the expression estrogen and progesterone receptor (PR) might be associated with to recurrence in CP. Material and **Methods:** Descriptive retrospective observational study of patients with confirmed histology of CP and tissue sample available admitted to Virgen Del Rocio University Hospital (Seville, Spain) from January 1967 to October 2020 were included. Estrogen and progesterone receptor expression was analyzed by Immunohistochemistry. Ki-67 levels were also analyzed. Two CP groups were considereded according to Ki67 levels: Group A (Ki67<10%) and group B (Ki67>10%). As all variables followed a non-parametric distribution, U Mann Whitney, Chi-Square, and Z-test with Benjamini-Hochberg correction were used when needed. **Results:** Our study population includes 80 patients (46 male and 34 female), with a median age at diagnosis of 34 years [10-50.00]. Twenty-six patients were under 18 years old (children) with a median age of 7 years [4.5-10.00], and 54 were adults (aged 18 and above) with a median age of 45 years [33-58.50]. Our data shows higher recurrence rates when Ki67 levels staining were higher than 10%: 8/14 (57.2%) in comparison with Ki67<10% (6/14, 42.9%, p=0.018). In children we found 6 samples with Ki67<10% and 6 samples with Ki67 >10%; recurrences were observed in 2/6 (33,3%) in the first group and in 6/6 (100%) in the second, respectively (p= 0,199). In adults, we found 9 and 3 patients for high and low Ki67 levels, respectively. Recurrences were observed in 4/9 (44,4%) in the group A and in 2/3 (66,7%) in the group B, respectively (p= 0,28). There were no differences between age groups. In patients with positive ER, we observed an increased rate of recurrence: 12/23 (52.17%) versus 2/13 (15,38%) in patients with negative ER stain but it was no significant. (p=0,21). No association between PR and recurrence was observed. Conclusions: In our series, patients with CP with high Ki67 levels are more likely to recur. No clear association between ER, PR expression and recurrence was observed. These findings support the use of Ki67 as a marker of recurrence in CP. **Sources of Research Support:** Spanish Ministry of Health, ISCIII co-funded with Fondos FEDER (PI16/00175) and Novartis Oncology Spain.

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New Transcriptional Insights into Silent and Active Corticotroph Pituitary Tumors at Single Cell Resolution

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