Neuroendocrinology and Pituitary

NEUROENDOCRINE & PITUITARY PATHOLOGIES

Hypophisitis in Patients with and Without Autoimmune Rheumatological Disease

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SUN-304

Background: Hypophysitis is an inflammatory process of the pituitary gland with different origins. Infundibulum may be also involved, called infundibulum-hypophysitis. Sometimes, enlargement of pituitary gland causes mass effect and anterior or posterior hormonal dysfunction, including hypopituitarism, and diabetes insipidus (DI), respectively. Hypophysitis is a rare autoimmune disease, however, the number of cases have been recently increasing due to higher detection related with more magnetic resonance imaging (MRI) studies. In addition, hypophysitis may be related with autoimmune rheumatologic disease (ARD) such as generalized lupus erythematosus (GLE), granulomatosis with polyangeitis (GPA), IgG4-related disease, and rheumatoid arthritis (RA). **Aim:** to compare the clinical and biochemical findings among patients with hypophysitis grouped depending on the presence of coexistent ARD activity. **Methodology:** it is a comparative and cross-sectional study. We registered all data from cases followed-up in Neuroendocrinology and Rheumatology units, from January 1987 to July 2019. **Results:** 24 patients showed confirmed diagnosis of hypophysitis. Majority of them (n=17, 71%) do not have coexistent diagnosis of ARD. However, 7 cases (29%) presented pituitary involvement with coexistent activity of GPA (n=4, 17%), GLE (n=1, 4%), RA (n=1, 4%) and IgG4-related disease (n=1, 4%). Female gender predominate in hypophysitis cases with and without ARD (p=0.9). Interestingly, age of hypophysitis diagnosis was significantly younger in cases without (38±14) vs. with (49±5) ARD (p=0.01). MRI results showed similar and typical findings related with hypophysitis independently of the presence of ARD. Hypopituitarism was present in the majority of cases, however, none of cases with hypophysitis and ARD showed hypogonadism (p=0.02). DI was present in 15 patients (63%), three of them with ARD (all with GPA). All cases received only medical therapy (i.e., glucocorticoids, rituximab, or azathioprine). Surgery or radiotherapy was not necessary in any case. **Conclusions:** Almost a 30% of cases with hypophysitis may have coexistent ARD. Pituitary function should be evaluated in cases with previous ARD diagnosis. However, hypogonadism was not present in cases with ARD and hypophysitis. Patients with ARD presented hypophysitis at older age. The remaining clinical and radiological data were similar between groups.

References: 1) Clinical Diabetes and Endocrinology. December 2016;2(1). 2) Clin Rheumatol. 2019 Aug 24. doi: 10.1007/s10067-019-04735-7

Cardiovascular Endocrinology

ENDOCRINE HYPERTENSION AND ALDOSTERONE EXCESS

Usefulness of Contralateral Suppression in Adrenal Venous Sampling to Define Lateralization in Primary Aldosteronism

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SAT-560

Primary aldosteronism (PA) is the most common cause of endocrine hypertension. PA subtypes include bilateral hyperplasia and unilateral PA, typically aldosterone-producing adenomas. Adrenal venous (AV) sampling (AVS) is a key step to define PA subtype and guide PA management. According current PA guidelines, most PA patients should undergo AVS, which is a challenging procedure, especially in terms of successfully cannulating the right AV. The aim of this study was to report a single tertiary center experience with AVS in PA patients. We retrospectively evaluated 84 AVS from 1984 to 2019. Sequential AVS was performed by an experienced interventional radiologist. AV and inferior vena cava (IVC) samples were obtained under cosyntropin continuous infusion. Successful catheterization was defined by a selectivity index [SI= AV/IVC cortisol (C) concentrations] ≥5. Unilateral disease was defined by a lateralization index [LI= aldosterone (A)/C ratio

in the dominant AV divided by A/C in the non-dominant AV] ≥4. The relative aldosterone secretion index (RASI= A/C ratio in AV divided by A/C in IVC) was calculated in each side. A RASI <1 was defined as contralateral suppression (CS). In patients with unsuccessful AV catheterization (mostly right AV) or undetermined LI (3-4), CS was used to indicate adrenalectomy. The biochemical cure of PA after adrenalectomy was defined as the gold standard parameter to confirm unilateral disease. Successful bilateral AV catheterization was achieved in 75% of the cases. After 2015, the use of intra-procedural rapid cortisol assay improved angiographer experience and increased AVS successful rate from 52 to 80%. LI revealed unilateral and bilateral aldosterone excess in 68 and 32% of the cases, respectively. A LI ≥4 had a sensitivity of 100% and specificity of 98% to define unilateral PA among patients with successful catheterization. In addition, RASI in the non-dominant AV was significantly lower in unilateral PA according the LI when compared to bilateral cases [0.12 (0.03 to 1.18) *vs.* 1.1 (0.04 to 4.56), p= 0.0001]. RASI in the non-dominant AV was inversely correlated with LI (r= -0.81, p= 0.0001). A CS index ≤0.5 had a high sensitivity (90%) and specificity (94%) to define unilateral aldosterone excess. In conclusion, the LI is the most valuable parameter in AVS for PA subtyping. Additionally, CS (cut-off of 0.5) is very useful to define lateralization and can be used in cases of borderline LI or unsuccessful AV catheterization.CAPES Grant to Freitas TC.

Neuroendocrinology and Pituitary

NEUROENDOCRINOLOGY AND PITUITARY

Correlation Between Haemolitic Complement Activity (CH50) and Growth Hormone Response to Stimulation in Adult Growth Hormone Deficiency: Preliminary Data

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MON-279

It is known that GH, directly or via IGF-1 activity, influences many aspects of immune response; both humoral and cellular branches are modulated, but no data are available about complement function. CH50 is a screening assay for the activation of the classical complement pathway and it is sensitive to the reduction, absence and/or inactivity of any component of the pathway. The CH50 tests the functional capability of serum complement components of the classical pathway to lyse sheep red blood cells (SRBC) pre-coated with rabbit anti-sheep red blood cell antibody (haemolysin). On the other hand, a low inflammation is present in GH deficiency (GHD) and it is related to cardiovascular risk of such situation, also in partial forms.Therefore, we performed a cohort study in a group of adult GHD patients evaluating CH50 levels to further explore the pattern of inflammatory markers in this condition.We included 17 patients with total GHD (GH peak after stimulation with GHRH+arginine <9 ng/ml with BMI<30 or <4 ng/ml with BMI≥30 Kg/m2; n=15) or partial GHD (peak between 9 and 16 ng/ml with BMI<30 Kg/m2 n=2) with mean±SEM BMI 27.7±2.6 kg/m2 and mean±SEM age 52.5±2.6 ys. The etiology of GHD, assessed by MRI, was: primary empty sella (n=7); post-surgical (n=1) pituitary adenoma (n=4); idiopathic (n=4), pineal cyst (n=1); CH50 has been assayed by turbidimetric method. Mean±SEM CH50 of entire cohort was 50.75±2.5 U/l (normal range 12.5-100 U/ml); however, a significant inverse correlation was observed between GH AUC and CH50 levels (Spearman r=-0.49; p=0.04).This datum joint to our previous observations about increased free light chains of immunoglobulins in GHD, substantiating the hypothesis of chronic low-grade inflammation affecting this condition, which in turn could negatively influence GH secretion. These data could be of interest especially in patients recognized as "idiopathic" GHD, where no pituitary morphologic alterations or anamnestic information (previous surgery, trauma or irradiation) were found. However, these data cannot be conclusive and further studies are needed to establish the causal relationships between these parameters, also in a greater cohort of patients.

Diabetes Mellitus and Glucose Metabolism

DIABETES TECHNOLOGY

Predictors of Technology Success in Cystic Fibrosis Related Diabetes

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SAT-643

Background: As patients with cystic fibrosis live longer, cystic fibrosis related diabetes (CFRD) is becoming a more common complication. CFRD has a negative impact on lung function, nutrition, and survival. The ADA guidelines recommend that patients with CFRD be treated with insulin and monitor their glucose at least three times a day. Continuous glucose monitors (CGM) allow glucose to be measured by scanning a reading device or by automatic updates every 5 minutes. Little is known about factors predicting successful CGM use in patients with CFRD.

Methods: We completed a retrospective chart review of all patients with insulin-treated CFRD at a single center. Successful CGM implementation was defined as CGM use for 3 months or more. Patient characteristics (age, BMI, ppFEV1, HbA1C, diabetes duration, insurance type) were compared between the CGM and no CGM groups. For the CGM group, HbA1C, ppFEV1, and BMI, were compared before and after CGM implementation. Paired and unpaired t-tests were used to evaluate continuous variables and fisher's exact test was used to evaluate dichotomous variables.

Results: Of the 55 patients eligible for inclusion, 12 patients (22%) had successfully implemented CGM in their diabetes routine. Age, BMI, ppFEV1, HbA1C, and insurance type were not significantly different between the CGM and no CGM groups. CGM users appeared to have a slightly longer duration of diabetes than non-implementers but this did