already published, as well as the fact that most patients in our study are young. Conclusion: The demand for medical help from GD patients is increasing. The evaluation of these patients by endocrinology before and throughout treatment is essential, not only for the evaluation of contraindications or side effects of therapy, but also for the identification of endocrinological diseases. This is the first work, to our knowledge, to portray the case series of a consultation center dedicated to the treatment of patients with GD in Portugal.

Neuroendocrinology and Pituitary

PITUITARY TUMORS II

Factors Associated with Remission After Surgery for Acromegaly

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MON-310

Factors associated with remission after surgery for Acromegaly

Background: Acromegaly is a disorder characterized by excessive growth hormone (GH) secretion, which, in most cases, is caused by a GH secreting adenoma. Surgical removal of the tumor via a transsphenoidal approach is the first choice treatment for most patients. The remission rate after an initial resection is 80 to 90 percent for microadenomas and less than 50 percent for macroadenomas.

Objective: To analyze predictive factors of remission in acromegaly patients who underwent transsphenoidal surgery for GH secreting adenoma.

Methods: From January 2006 to October 2019, 75 patients with GH secreting pituitary adenoma were evaluated at our center. Patients who had undergone medical treatment or radiotherapy as first treatment were excluded. A total of 60 patients were included in the analysis. Remission was defined as normal serum insulin-like growth factor-1 (IGF-1) age and sex adjusted and a random serum GH less than 1 ng/mL and/or nadir GH during oral glucose tolerance test <0.4 ng/mL.

Results: We evaluated 60 patients (41 females and 19 males), with a mean age at diagnosis of 49.6 (ranged from 23 to 77 years). Mean initial IGF-1 was 905.3 ng/mL (range 100-324) and mean initial GH was 25.0 ng/mL (<2.5). Macroadenomas were more common than microadenomas (48 vs 12). The average maximum tumor diameter was 15.6 mm and 21 patients were graded as Knosp 3 or 4, which indicated cavernous sinus invasion. Patients were follow for 11.8 years. Overall, the remission rate was 50.0% after surgery. Mean age of patients in surgical remission (51.6 years) was higher than those patients not in remission (47.5 years) (p=0.439). Remission rates for microadenomas and macroadenomas were 75.0% and 44.9%, respectively (p=0.04). Patients who achieved remission had smaller tumors compared with those who failed to attain remission (mean diameter 11.6 mm versus 17.8 mm). Using the Knosp classification system and preoperative magnetic resonance images to determine cavernous sinus invasion, Knosp grade 3 to 4 tumors were found in 5 patients in remission and in 16 patients with persistence of disease (p=0.003). Patients who achieved remission had a significantly lower preoperative IGF-1 level (650.5 ng/mL) compared with those who did not (1211.0 ng/mL) (p=0.04). Preoperative GH levels were lower for the patients who achieved remission (18.7 ng/mL) than for those who did not (32.5 ng/mL, p=0.006).

Conclusions: In our study, predictors of biochemical remission after surgery were smaller tumor size, lower Knosp grade, and lower preoperative GH and IGF-1 levels.

Healthcare Delivery and Education

EXPANDING CLINICAL CONSIDERATIONS FOR PATIENT TESTING AND CARE

Prolactin to Testosterone Ratio Reduces Pituitary Magnetic Resonance Imaging Expenditures for Hypogonadal Men with Mild Hyperprolactinemia

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MON-140

Background: Hyperprolactinemia is a common laboratory finding in men with symptomatic hypogonadism. Persistent elevations in serum prolactin (PRL) are typically evaluated with pituitary magnetic resonance imaging (pitMRI) to assess for structural pathology. However, this practice pattern may result in overutilization of pitMRI and unnecessary healthcare expenditures.

***Objective*:** We sought to examine the cost savings associated with utilizing combinations of serum PRL and the prolactin to testosterone ratio (PRL/T) to predict positive findings on pitMRI and obviate the need for unnecessary imaging studies.

Methods: A retrospective case-control study was performed. Men <75 presenting with symptomatic hypogonadism and mild hyperprolactinemia (15-55 ng/ml) who obtained pitMRI at a tertiary care center were included. Individuals previously evaluated for pituitary abnormality were excluded, as were those presenting with symptoms strongly concerning for a pituitary abnormality (e.g. visual change, headache). Laboratory studies were abstracted from the electronic medical record and pitMRI results were reviewed. A cost analysis was performed based on the institutional expense of pitMRI and laboratory evaluations. The cost of measuring PRL and T was calculated for all patients. The expense of pitMRI was calculated for those screening positive.

Results: 141 men were included in the study. Pituitary lesions were identified in 40/141 men (28%). The total cost of evaluation was calculated at $458,814.

Ordering pitMRI when PRL/T >0.10 is 80% sensitive (32/40 lesions captured) and 64% specific (65/101 with normal anatomy excluded). 68/141 are indicated for pitMRI, while 73 patients avoid imaging. Employing this threshold reduces expenses by 46% with cost savings calculated at $212,795. The cost of identifying each lesion was estimated at $7,688.

Ordering pitMRI when PRL/T >0.10 or when PRL >25 is 90% sensitive (36/40 lesions captured) and 48% specific (48/101 with normal anatomy excluded). 89/141 are indicated for pitMRI, while 52 patients avoid imaging. Employing this threshold reduces expenses by 33% with cost savings calculated at $151,580. The cost of identifying each lesion was estimated at $8,534.

Ordering pitMRI when PRL/T >0.08 or when PRL >25 is 98% sensitive (39/40 lesions captured) and 32% specific (32/101 with normal anatomy excluded). 108/141 are indicated for pitMRI, while 33 patients avoid imaging. Employing this threshold reduces expenses by 21% with cost savings calculated at $96,195. The cost of identifying each lesion was estimated at $9,011.

Conclusions: Serum PRL and PRL/T correctly predict the vast majority of pituitary lesions in patients with mild hyperprolactinemia, with screening costs increasing as more sensitive thresholds are employed. Future guidelines should establish a reasonable cutoff for pitMRI to minimize the expense of unnecessary imaging.

Steroid Hormones and Receptors

STEROID AND NUCLEAR RECEPTORS

Functional Analysis of Testis-Specific Noncoding Genes in Estrogen-Dependent Transcription

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SUN-735

Emerging studies have shown that germ cell (GC)-specific genes play critical roles in several cancers. The expression of these genes is tightly regulated and restricted to testis; however, many of them escape regulation and become aberrantly expressed in tumors. Interestingly, our genomic analysis suggests that several of these genes are long noncoding RNAs (lncRNAs) and are located at regions previously considered to be gene deserts in the human genome. In this regard, we used an integrated genomic approach to identify GC-lncRNA genes that are overexpressed in breast cancer. Further, by incorporating gene expression analysis from RNA-seq data from MCF-7 and T47D breast cancer cells, we generated a comprehensive list of estrogen-regulated GC-lncRNA genes. We hypothesize that GC-lncRNA genes regulate estrogen-dependent signaling in breast cancer. The selected genes: (a) CAERRC (**C**hromatin **A**ssociated **E**strogen-**R**egulated **R**NA in **C**ancer, (b) LncRNA568, (c) LncRNA16 are primate-specific, and exclusively expressed in testis. All of them are regulated by estrogen, and their expression predicts poor outcome in ERα+ breast cancer patients. They have now been fully annotated (transcription start and stop site, 5' cap, polyA tail, and exon/intron structure), and cloned. Further, we have created gene-specific KO MCF-7 cell lines using CRISPR to study their molecular roles. Our data suggest that these genes regulate estrogen-dependent gene expression and tumor growth in breast cancer cells. Genome-wide analysis of ERα binding and gene expression data indicate that they play a critical role in the estrogen-dependent transcription. Collectively, our results suggest that GC-genes, including CAERRC, LncRNA568, and LncRNA16, are excellent targets with prognostic and therapeutic potential in ER+ breast cancers.

Pediatric Endocrinology

PEDIATRIC SEXUAL DIFFERENTIATION, PUBERTY, AND BONE BIOLOGY

Pilot Study Using Aromatase Inhibitor in Puberty of Boys With Partial Androgen Insensitivity: Report of Three Cases.

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SUN-086

Background: Partial Androgen Insensitivity Syndrome (PAIS) (OMIM # 312300) is one of the causes of Disorders/Differences of Sex Development with 46,XY karyotype and normal or increased testosterone secretion that results in atypical genitalia. In general, it is caused by inactivating mutations on *AR* gene (Xq12 - OMIM * 313700), therefore it presents an X-linked recessive inheritance. Individuals raised as males have incomplete puberty with micropenis, sparse hairs, gynecomastia and increased LH, testosterone and estradiol serum levels. Therefore, the use of aromatase inhibitor in these cases becomes a logical indication aiming to increase testosterone levels in the tentative of supplanting its peripheral resistance and decreasing estrogen levels. **Objective:** To present clinical and laboratory data during the first year of use of aromatase inhibitor in puberty of three boys with confirmed molecular diagnosis of PAIS. **Results:** All subjects used letrozole (2.5 mg daily during 12 months). None reported significant side effects. Cases 1 and 2 are brothers (p.Ala596Tre). **Case 1:** Onset of treatment at age 12; height changed from 158 cm (z = +1.15) to 166 cm (z = +1.21), Tanner from G2P2T2 to G3P3T1, penis from 4.0 to 6.5 cm, LH from 7.5 to 18.3 IU/L (NR: 1.5 to 9.3 IU/L), testosterone from 361 to 1,347 ng/dL (NR: 165 to 763 ng/dL), estradiol from 35 to <5.0 pg/mL (NR: < 40 pg/mL) and bone age remained at 13 years. **Case 2:** Onset of treatment at age 11; height changed from 156 cm (z = +1.71) to 163 cm (z = +1.80), Tanner from G2P2T2 to G3P3T1, penis from 3.5 to 5.5 cm, LH from 4.8 to 12.4 IU/L (NR: 1.5 to 9.3 IU/L), testosterone from 259 to 1,069 ng/dL (NR: 165 to 763 ng/dL), estradiol from 28 to <5.0 pg/mL (NR: < 40 pg/mL) and bone age remained at 12.5 years. **Case 3** (p.Ser597Arg): Onset of treatment at age 12; height changed from 153 cm (z = +0.49) to 161 cm (z = +0.55), Tanner from G2P2T1 to G3P3T1, penis from 4.0 to 7.0 cm, LH from 8.5 to 17.2 IU/L (NR: 1.5 to 9.3 IU/L), testosterone from 280 to 889 ng/dL (NR: 165 to 763 ng/dL), estradiol from 32 to <5.0 pg/mL (NR: < 40 pg/mL) and bone age remained at 13.5 years. **Discussion:** There are no reports in the literature of the use of aromatase inhibitor in PAIS. The results of this pilot study (gynecomastia regression, significant testosterone level increases with decrease in estradiol levels, increment in height without bone age advancing, progression of puberty and penile growth) are sustaining for the indication of this treatment in boys with PAIS during puberty.