with the brain cortex, as it has been described in densely granulomated somatotropinomas (2). In one case with T2 hyperintensity, the pituitary mass presented the same imaging characters as multiple brain metastases from a bronchial carcinoïd. In one case, T2 signal was isointense. In 3 cases, tiny millimetric T2 hyperintense images were disseminated within pituitary hyperplasia. In several cases where pituitary MRI was considered as normal, correlation of the patient'age with pituitary size could make suspect an enlarged gland. In a case labeled empty sella, T2MRI signal of the pituitary remnant was hypointense. When coupling T2 and T1 gadolinium enhanced sequences, no pituitary adenoma was visualized and normal pituitary tissue was never identified along with pituitary hyperplasia.
In conclusion, T2 MRI hypointense signal of the pituitary gland is a better hallmark than pituitary hyperplasia for the diagnosis of acromegaly due to
GHRH ectopic secretion. Analysis of T2 MR signal in these cases is essential to avoid unnecessary interventions to the pituitary.
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Genetics and Development (including Gene Regulation)

GENETICS AND DEVELOPMENT AND NON-STEROID HORMONE SIGNALING II

Cross-Species Glucocorticoid-Sensitive Posterior Dentate Gyrus Gene Network: Developing a Polygenic Score Associated to Susceptibility to Depression After Early Life Adversity Exposure in Humans

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MON-722

Exposure to stress during the life-course has consistently been associated with neuropsychological disorders, but the precise role of stress released glucocorticoids remains unclear in this context. We aimed at using hippocampal gene expression data from macaques to identify clusters of genes sensible to glucocorticoid exposure and create a biologically relevant polygenic score to investigate emotional disorders in a child and adult humans exposed to early adversity. RNA-sequencing data from the posterior dentate gyrus (pDG) of adult *Macaca fascicularis* females treated with Betamethasone (glucocorticoid) or saline injections for 8 consecutive days were analyzed from two cohorts: Singapore (reference) and Vietnam (replication) with N=12/each. Weighted gene co-expression network analysis (WGCNA) was used to identify clusters (modules) of co-expressed genes associated with betamethasone. In Singaporean animals, genes were clustered in 52 modules, in which 5 were associated with betamethasone. Two modules were preserved in a replication dataset (Vietnam) and in data from female rats treated with corticosterone for 6 weeks, being the black module (557 genes, P=0.01, r=0.7) the one having the highest correlation with glucocorticoid exposure. Gene ontology analysis (FDR<0.05, Metacore®) revealed that this module is associated with transcription processes. The SNPs derived from genes within the module were used to calculate an expression-based polygenic risk score (ePRS) in the human samples, weighing each SNP by the slope of the association between genotype and gene expression (GTex). Linear regression analysis showed a significant interaction between ePRS and early adversity on the Dominique - major depressive disorder domain (β=1304; P=0.003; N=65) in girls aged 6 years (MAVAN), in which a higher ePRS was associated with more symptoms as the adversity scores increases (simple slope analysis,P=0.004). A comparable interaction between the ePRS and postnatal adversity was also observed in adult women (UK Biobank), in which there was an increased risk for early depression onset (β= -424.3, P=0.04; N=13899). In the adult cohort, whole brain gray matter volume was also associated with differences in the expression of the genes that composed the ePRS-black network (main ePRS effect, β=1865776, P=0.03, N=10902). Glucocorticoid exposure affects a specific group of genes in pDG of adult female macaques and rats, influencing transcriptional processes. Variations in the expression of this gene network sensible to glucocorticoids were associated with susceptibility for the development of depression in girls and adult women exposed to early life adversity. These show the importance of glucocorticoids on the development of depressive symptoms. The gene network affected by glucocorticoids can guide future pharmacological or mechanistic studies in other samples or species.

Reproductive Endocrinology

BASIC MECHANISMS IN REPRODUCTION: FROM BEGINNING TO END

Kisspeptin as a Biomarker for Pregnancy Complications

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OR20-06

Kisspeptin as a biomarker for pregnancy complications
Background:
Placentation (invasion of the placenta into the maternal endometrium) is hypothesised to be critical for healthy placental function and is abnormal in two thirds of miscarriage. Kisspeptin has emerged as a putative regulator

of physiological placentation; it is highly expressed in placental syncitio-trophoblasts, whereas its receptor is expressed in both syncitio- and cyto-trophoblasts, such that kisspeptin is hypothesized to play an important paracrine role to regulate placentation. Circulating kisspeptin levels are considerably raised during healthy pregnancy and are reduced in women with miscarriage.
Aim:
We aimed to investigate the utility of circulating kisspeptin concentrations in the assessment of pregnancy complications and assess whether kisspeptin provides additional diagnostic information compared to beta human chorionic gonadotropin (βhCG) alone.
Methods:
This study was performed in collaboration with the Early Pregnancy Outcome Study (EPOS), which aims to identify novel pregnancy biomarkers. Women were invited to attend every fortnight for blood-sampling, clinical and ultrasound assessment during the first trimester, and repeated during the second and third trimesters. Asymptomatic women with healthy pregnancy (n=265) provided 960 blood-samples. Women with pregnancy complications including miscarriage (n=95), pre-eclampsia (PET; n=24), pregnancy induced hypertension (PIH; n=14), gestational diabetes (GDM; n=41), preterm birth (PTB; n=14) and intrauterine growth restriction (IUGR; n=24) provided 569 blood-samples.
Results:
Gestation-adjusted circulating kisspeptin and βhCG levels were lower, by 66% and 57%, respectively, in women with miscarriage compared to healthy pregnant controls (p<0.0001). Area under ROC curve for diagnosis of miscarriage was greater for the combination of both kisspeptin and βhCG together (0.92) than for either measure alone (βhCG 0.859, kisspeptin 0.874). An adjusted logistic regression model revealed that an 100pmol/L increase in plasma kisspeptin reduced the odds of miscarriage by 42%. Gestation-adjusted kisspeptin levels were lower in women with GDM (P=0.002), or IUGR (P<0.0001), and higher in women with PTB (P=0.004). Kisspeptin increased with gestation greater in PET (P=0.008) and PIH (P<0.0001) than in healthy controls.
Conclusions:
Plasma kisspeptin is a promising biomarker for pregnancy complications and provides additional diagnostic capability over that provided by βhCG alone.

Bone and Mineral Metabolism

PARATHYROID HORMONE TRANSLATIONAL AND CLINICAL ASPECTS

Clinical and Biochemical Characterization of Risk Factors for Vertebral Fractures in Patients with Hypoparathyroidism

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SAT-389

Background: Persistent hypoparathyroidism (PH) is a rare disease due to an impaired secretion of PTH, mostly occurring as a complication of total thyroidectomy. Calcium and calcitriol are currently the most common and inexpensive therapies, although not all the patients easily achieve control of the disease. Recently, our group has reported that BMI at diagnosis can predict calcitriol resistance in PH. Very few studies have been performed with fractures as primary endpoint in hypoparathyroidism, and we still not know if PH could be predisposing to an increased risk of morphometric fractures and possible clinical and biochemical predicting factors. **Patients and methods**: To that end we retrospectively evaluated the anthropometric, biochemical and fracture characteristics in 71 consecutive patients with PH (F/M= 62/9; median age 58.7 yrs, range: 29-87; 67 with post-surgical PH and 4 with autoimmune PH). All patients were hypoparathyroid from at least one year (median duration of disease: 9 yrs., range: 1-41) and were under standard treatment with calcium and active vitamin D analogs (calcitriol). For each patient anthropometric data (BMI=kg/m^2; N= Normal weight patients <25; OO= Obese and overweight patients with BMI > 25) were collected, as well as biochemical parameters, such as calcium (mg/dl) and 25 OH vitamin D (25OHD expressed as ng/ml). We considered well controlled (C) patients with calcium between 8.2 and 9.2 mg/dl and not controlled (NC) under 8.2 or above 9.2 mg/dl. Vertebral fractures (VF) were assessed by a quantitative morphometric approach by using images provided by DXA and classified according to Genant classification. **Results**: Thirteen out of 71 patients (18%) were fractured. We showed a positive linear correlation in the overall population between BMI and calcitriol intake (p=0.006, CI 95% [1.2-6.9]) while no significant difference in prevalence of VF in OO vs N group (8/40 vs 5/31, p=0.76) was found. However, almost half (6/13, 45%) of patients with VF were OO NC. Moreover, 86% of NC vs only 30% of C fractured patients (6/7 vs 2/6) were OO **Discussion**: We report a high prevalence of VF in hypoparathyroidism. Moreover, we confirm that increased BMI is associated with higher needs of calcitriol to obtain calcium control. Interestingly, our data suggest for the first time that OO hypoparathyroid patients with NC disease are those at highest risk of fracture. Therefore, in this subset of patients a more intensive and proactive biochemical and bone monitoring should be adviced if these results will be confirmed in larger studies.

Steroid Hormones and Receptors

STEROID BIOLOGY AND ACTION

Plasma Glucocorticoids and Mineralocorticoids Are Associated to Metabolic Syndrome Features in Women

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SAT-740

Background: Excess visceral adipose tissue accumulation on anatomical structures such as the greater omentum and mesentery are strong predictors of obesity-associated comorbidities (1). High glucocorticoid levels have been associated with body fat distribution and preferential visceral fat accumulation as well as features