

high urinary cotinine levels showed an increased risk for diabetes compared with participants with low urinary cotinine levels.

**Keywords:** diabetes, smoking, cotinine

## Reproductive Endocrinology

### FEMALE REPRODUCTION: BASIC MECHANISMS

#### *Neural Circuits and Hormonal Mechanisms Underlying the Negative Impact of Stress on Pregnancy Outcomes*

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#### MON-016

Despite numerous findings detailing the negative impact of stress on female reproductive health, the means by which stress acts on the CNS and periphery to compromise reproductive success remains poorly understood. As a result, the current study sought to clarify the neuroendocrine mechanisms by which stress acts on the brain to deleteriously influence pregnancy outcomes. Reproduction is regulated by the hypothalamo-pituitary-gonadal (HPG) axis, with hypothalamic gonadotropin-releasing hormone (GnRH) neurons representing the final, common pathway of this axis. Cells expressing the inhibitory neuropeptide, RFamide-related peptide-3 (RFRP-3), lie upstream of the GnRH system and are markedly regulated by environmental and psychosocial factors, including stress. In the present study, we asked whether RFRP-3 neurons mediate the effects of stress on pregnancy outcomes through the regulation of prolactin secretion, as prolactin is critical for pregnancy maintenance. More specifically, because specialized hypothalamic dopaminergic neurons, namely tubero-infundibular dopaminergic (TIDA) neurons, are major regulators of prolactin secretion, we hypothesized that RFRP-3 neurons directly target TIDA cells to negatively influence fetal development. To test this possibility, we subjected pregnant mice to chronic restraint stress for the first half of pregnancy and performed a broad screen of hypothalamic neuroendocrine function compared to non-stressed controls. Stressed mice exhibited elevated baseline concentrations of corticosterone that remained high at least 6 days after the final exposure to stress. Whereas progesterone concentrations were reduced by stress early in pregnancy, stressed mice recovered typical progesterone secretion during late gestation. These early, stressful experiences resulted in persistent developmental delays, reduced embryo weight, and abnormal placental histology. Significantly, a small percentage of TIDA cells receive close contacts from RFRP-3 axons, providing a mechanism for the control of prolactin secretion by stress. However, contrary to expectation, the percentage of TIDA neurons receiving input from RFRP-3 cells was not impacted by stress. Together, these findings identify a potential pathway of control for the impact of stress on neuroendocrine factors

critical to pregnancy success, although further work using more sensitive approaches is needed to examine the putative role of RFRP-3 on stress-induced pregnancy outcomes.

## Adrenal

### ADRENAL CASE REPORTS I

#### *A Rare Cause of Cardiogenic Shock*

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#### SAT-225

**Background:** Rare cases of pheochromocytoma are associated with stress induced Takotsubo cardiomyopathy, occurring in approximately 3% of secreting pheochromocytoma and paraganglioma (PPGL). **Case:** A 39-year-old female with a history of hypertension and anxiety disorder, re-presented to the ED within 24 hours with headache, vomiting and severe hypertension (BP 205/70 mmHg). She rapidly developed acute pulmonary oedema and cardiogenic shock. ECG revealed dynamic ST-segment abnormalities and troponin rise peaked at 38,000 ng/L (N < 16ng/L). The coronary angiography excluded any coronary artery lesion. Echocardiography revealed severe global hypokinesis with an ejection fraction of 5% and evidence of apical ballooning. A bedside abdominal ultrasound revealed 7cm left adrenal mass confirmed by computed tomography (CT). Investigations revealed a metanephrine level of > 13,760 pmol/L (N < 900 pmol/L) and normetanephrine of > 60,780 pmol/L (N < 500 pmol/L). Her clinical status deteriorated despite on diuretics, inotropes and mechanical ventilation. Extra-corporeal membrane oxygenation (ECMO) was implanted. Alpha adrenergic blockades were initiated followed by beta blockers, during which control of blood pressure was achieved. Her haemodynamic status improved and ECMO removed 8 days post-implantation. Two weeks after discharge from hospital, she underwent uncomplicated open adrenalectomy; histologic examination of the mass confirmed the pheochromocytoma diagnosis. **Reference** 1. Gagnon N, Mansour S, Bitton Y et al. Takotsubo-like cardiomyopathy in a large cohort of patients with pheochromocytoma and paraganglioma. *Endocrine Practice*.2017;10: 1178-1192

## Thyroid

### THYROID CANCER CASE REPORTS II

#### *Clinical Profile of Thyroid Papillary Microcarcinoma in Brazil*

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**INTRODUCTION:** The thyroid papillary microcarcinoma (TPMC) is defined as a tumor ≤ 1 centimeter. This variant