

bisphenol A (BPA) and di(2-ethylhexyl) phthalate (DEHP), can induce long-lasting behavioral changes in rats. Additionally, changes in estrogen are correlated with the development of mood disorders in women; however, the underlying neurobiological mechanisms are unclear. This study was conducted to determine the cumulative effects of prenatal exposure to EDCs followed by chronic estradiol treatment in adult female rats on monoamine levels in the prefrontal cortex (PFC) and hippocampus (HC). Dams were orally administered saline (control; 10  $\mu$ L/kg), BPA (B; 5  $\mu$ g/kg), DEHP (D; 7.5 mg/kg) or a combination of BPA+DEHP (B+D) during days 6 through 21 of pregnancy. Adult female offspring were sham-implanted or implanted with pellets that release 17 $\beta$ -estradiol (E2) for 90 days (20 ng/day; Innovative Research America). The offspring then underwent a battery of behavioral tests at the end of treatment. Brains collected from the offspring were sectioned and the PFC and HC were microdissected and analyzed for levels of norepinephrine (NE), dopamine (DA) and serotonin (5-HT), using High-Performance Liquid Chromatography (HPLC). Significant reductions in monoamine levels were observed in the PFC while NE and 5-HT levels were markedly reduced in the HC after prenatal exposure to D or BD. BPA's effects on monoamines were comparatively modest. E2 exposure increased DA but decreased 5-HT levels in the PFC of control animals. Prenatal exposure to EDCs made the offspring non-responsive to E2. The marked reduction in monoamine levels could have implications for learning and memory.

## Genetics and Development (including Gene Regulation)

### ENDOCRINE DISRUPTING CHEMICALS

#### *Prenatal Exposure to Bisphenol A, S and F Increases Blood Pressure in Female Rats*

Maryam H. Al Mansi, BS<sup>1</sup>, YenJun Chuang, PhD<sup>1</sup>, Puliyyur S. MohanKumar, BVSC, PhD<sup>2</sup>, Sheba M J MohanKumar, MS, BVSc, PhD<sup>3</sup>.

<sup>1</sup>UNIVERSITY OF GEORGIA, Athens, GA, USA, <sup>2</sup>Univ of Georgia, Athens, GA, USA, <sup>3</sup>University of Georgia, Athens, GA, USA.

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Cardiovascular diseases are the leading causes of mortality among men and women. With the new blood pressure guidelines from the American Heart Association, almost half of the United States population has hypertension (45.6%). The reasons for this high prevalence of hypertension in our population could be several, but the effect of emerging contaminants are overlooked and understudied. Bisphenol-A (BPA) is a widely used plasticizing agent that contaminates the environment. Most humans are exposed to BPA on a daily basis and urine levels of this endocrine disrupting chemical (EDC) are positively correlated with hypertension. The FDA banned the use of BPA in baby bottles in 2012, however, it is still being used in food containers and plastics. Currently, several BPA analogs such as bisphenol-S (BPS) and bisphenol-F (BPF) are used to replace BPA in the plastic industry. But their physiological effects are not clear. In order to study the effects

of these EDCs on the development of hypertension, we exposed pregnant Sprague Dawley (SD) rats to saline, 5  $\mu$ g/Kg BW of BPA, BPS or 1 $\mu$ g/kg BW of BPF. The offspring were allowed to reach adulthood before implantation with a radiotelemeter (Data Sciences International; HD-S10) in the femoral artery for undisturbed monitoring of systolic, diastolic and mean arterial blood pressure and heart rate. Recordings were measured once a week for 11 weeks over 24 hours to establish day and night readings. Night-time systolic BP was significantly elevated in BPA, BPF and BPS exposed rats compared to control. During the day, systolic BP was significantly higher in the BPA group compared to control. Diastolic BP was elevated in the BPS and BPF groups. Heart rate was elevated the most in the BPS group. These results indicate that prenatal exposure to low levels of BPA analogs has a profound effect on hypertension.

## Tumor Biology

### ENDOCRINE NEOPLASIA CASE REPORTS I

#### *Familial Paranglioma Syndrome: A Rare Case of Secondary Hypertension in Young People*

Gonzalo Miranda, MD.

Dos de Mayo Hospital, Lima, Peru.

#### SUN-920

#### **FAMILIAL PARAGANGLIOMA SYNDROME: A RARE CASE OF SECONDARY HYPERTENSION IN YOUNG PEOPLE**

Parangliomas are rare tumors originating in the autonomic nervous system, whose clinical manifestations are the result of excessive production of catecholamines.

We present a case of a 26-year-old female with 5 years of disease characterized by episodic profuse sweating, headaches and high blood pressure refractory to antihypertensive treatment. She also had intermittent palpitations which intensified 1 month before admission. Patient was cataloged with diagnosis of endocrine hypertension. She had elevated urinary fractionated metanephrines, elevated plasma normetanephrin and plasma chromogranin A (CgA). Subsequently, an abdominal CT study was performed, finding a solid ovarian mass of defined edges located in retroperitoneal space, an intercave region immediately preceding the L2-L3 intervertebral disc that measured 26.2 x 23.9 x 28.8 mm. It was also found bilateral tumours at cervical level of 14 mm in right side and 10 mm in left side, suggestive of paranglioma by magnetic resonance imaging (MRI).

With a suspected diagnosis of paranglioma of Zuckerkandl's organ, beta and alpha-adrenergic blockage were carried out and surgical intervention was done by a block resection of the tumour. Anatomopathological diagnosis confirmed the suspicion of well-delimited capsulated paranglioma of 2.0 X 1.0 X 0.3 cm, with low mitotic index (<2) and a result of positive sinaptophysin by immunohistochemistry. She reached complete remission and normal determinations in urine of catecholamines and methanephrines. Currently the patient is in follow-up with favorable evolution and succinate dehydrogenase type B (SDHB) gene test is pending.

Despite infrequency of parangliomas, it is important to take them into account in the differential diagnosis of