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SUN-206

Background: CAH is a common genetic disorder usually diagnosed in early childhood. However, when it is detected in adulthood, different approach and treatment strategies need to be undergone as their needs are generally different from those of children with CAH.

Case presentation: A 49-year-old male with a past medical history of recurrent urinary tract infections was admitted to the hospital with sepsis and was treated with antibiotics. CT abdomen during admission showed an incidental finding of markedly enlarged bilateral adrenal hyperplasia with an 8x5.5x5.8 cm left adrenal mass, as well as two ovaries and a uterus. Upon further history, the patient said he knew that he was born with abnormal genitalia and had a prolonged stay in the hospital immediately after birth and had surgery of his genitals at the age of six months. He was always told by his family that he is a female, although he never felt it, and he continued to identify himself as a male throughout his life.

He only had one menstrual period at the age of thirteen. He participates in sexual activities as a male but was never able to have a normal sex life. He also gave a history of salt cravings, where he consumes dry salt. He was not taking any home medications.

On examination, the patient had a male voice, a beard, male body hair distribution, no breast. The genital exam revealed labia majora, no labia minora. The rest of his examination was unremarkable.

Work up for CAH revealed normal range plasma metanephrines and DHEA. But ACTH, androstenedione, 17-OH progesterone were all elevated (90.4 pg/ml, 2737 ng/dl, and 24191 ng/dl respectively) and levels were all higher after Cosyntropin stimulation test. He was found to have primary adrenal insufficiency with a maximum cortisol level of 13.3 mcg/dl after the stimulation test.

He was started on oral Hydrocortisone and was closely followed by endocrine after discharge where long-term treatment plans were discussed and our patient decided that he wants to continue his life as a male, and was evaluated by Urology as well as OBGYN for left adrenalectomy and hysterectomy with bilateral Salpingo-Oophorectomy that was successfully performed a month later. Pathology of his left adrenals showed adrenocortical hyperplasia without evidence of malignancy. Patient was educated about lifelong corticosteroid
treatment and that he would need to start testosterone replacement therapy to keep his male characteristics.

Conclusion: When children with CAH lose follow up and don't receive treatment early in life, they can develop gender dysphoria, and their approach as adults become more challenging and it needs a multidisciplinary team to treat, address their needs and detect complications of prolonged adrenal stimulation. Additional research to the natural history and optimal interventions is needed to improve outcomes as these cases are not encountered frequently in clinical practice.

Neuroendocrinology and Pituitary

ADVANCES IN NEUROENDOCRINOLOGY

Adult Exposure to Iodoacetic Acid Leads to Abnormal Expression of Key Genes Related to Hypothalamic and Pituitary Control of Reproductive Function

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Water disinfection byproducts (DBPs) are formed when chemicals used to decontaminate water come into contact with natural or synthetic organic material. DBPs have been linked to a range of health concerns including reproductive disfunction. One such DBP, the monohalogenated iodoacetic acid (IAA), is formed when iodide reacts with a disinfectant, for example, chlorine. IAA is of particular health concern; not only is iodide widely present in the water supply, especially in coastal communities and those near fracking sites, but IAA has been found to be one of the most cyto- and genotoxic DBPs. Further, a previous study has indicated that *in vitro* IAA exposure significantly inhibits antral follicle growth and reduces estradiol levels in ovaries. However, little is known about how IAA affects the other major components of the reproductive axis: the hypothalamus and pituitary. The reproductive axis relies on homeostatic release of hormones to communicate from one organ to another and alterations at any level may impact reproduction. So, we set out to test the hypothesis that exposure to IAA would lead to disrupted expression of key hypothalamic and pituitary genes related to reproductive function. We continually exposed female adult CD1 mice to 0.5, 10, 100, or 500 mg/L IAA in their drinking water for approximately 35 days (postnatal day 40 (P40) to their first day in diestrus following P75.) Whole pituitaries and hypothalamic punches containing the arcuate nucleus (ARC), anteroventral periventricular zone (AVPV), and medial preoptic nucleus (mPOA) were collected and processed for qPCR analysis. We find that while kisspeptin (*Kiss1)* expression in the AVPV - the population responsible for generating the LH surge - is unchanged, 0.5 mg/L IAA exposure significantly increases *Kiss1* in the ARC, which controls pulsatile GnRH release, and there is a trending increase (p=.056) at 10mg/L. We also measured ARC expression of Neurokinin B (NKB; *Tac2*), a neuropeptide secreted by kisspeptin co-expressing neurons to autosynaptically stimulate *Kiss1* release. We found no change in mRNA levels of *Tac2*. We also saw no significant changes in GnRH (*Gnrh1)* mRNA expression. At the level of the pituitary, there is no change in *Lhb* mRNA levels. Exposure to 10 mg/L IAA leads to significantly reduced *Fshb* expression, however FSH serum levels are not significantly changed. These data, taken together with previous findings in the ovary, indicate that IAA has the potential to disrupt each major level of the reproductive axis: ovarian follicle development and steroid synthesis, hypothalamic arcuate *Kiss1* synthesis, and *Fshb* synthesis from the pituitary. Further research is necessary to elucidate at which levels IAA acts directly and at which it acts through action on another component of the axis. Additionally, future studies can clarify the mechanism through which IAA has these effects.

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORTS I

Inconsistent Bilateral Arm Serum PTH Testing in Recurrent Hyperparathyroidism in a Patient Status-Post Parathyroid Auto-Transplantation.

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