Management of Pregestational Diabetes Insipidus in Pregnancy

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INTRODUCTION

The incidence of diabetes insipidus (DI) in pregnancy is rare, affecting 2 to 4 cases per 100,000 gestations. Management of pre-gestational DI poses a challenge for patients who are already on 1-deamino-8-D-arginine vasopressin (desmopressin acetate, DDAVP) as limited data is available on DDAVP adjustments during pregnancy. This case series describes the changes in DDAVP daily requirements in three patients with pre-gestational central diabetes insipidus.

CASE PRESENTATION

Case 1: A 28 year old female with central DI from Langerhans cell histiocytosis was on DDAVP nasal spray 10 mcg twice daily pre-pregnancy. At 16 weeks gestation, she reported symptoms of polyuria and polydipsia and DDAVP was increased to 20 mcg twice daily. Urine osmolality trended down by 67% (146 mOsm/kg) at 24 weeks gestation but serum sodium (136-143 mmol/L) remained in normal range.

Case 2: A 30 year old female with central DI from a concussion was on DDAVP tablet 50 mcg twice daily pre-pregnancy. Increased polydipsia was reported during the first trimester, however self-reported polyuria occurred at 23 weeks. At this time DDAVP was increased to 150 mcg. Urine osmolality trended down by 52% at 27 weeks gestation (237 mOsm/kg) while serum sodium (134-137mmol/L) remained stable.

Case 3: A 34 year old female with congenital central DI was on DDAVP tablet 300 mcg total daily dose, pre-pregnancy. During her first pregnancy DDAVP was increased to 500 mcg at 10 weeks gestation due to polyuria and polydipsia. During her second pregnancy DDAVP was increased to 600 mcg at 18 weeks gestation. Serum sodium levels (135-138 mmol/L) in second pregnancy remained stable in normal range. Post-partum, all three patients resumed pre-pregnancy DDAVP dose.

Patient Case	DDAVP dose pre-pregnancy	DDAVP dose intra-partum	% Increase in dose
1	20mcg*	40mcg*	100%
2	100mcg#	150mcg#	50%
3 (1st)	300mcg#	500mcg#	66.7%
3 (2nd)	300mcg#	600mcg#	100%

*Nasal Spray #Tablet

DISCUSSION

Although the development and management of gestational DI is reviewed in several papers, there is limited information on the management of pregestational central DI in pregnancy. Physiologic changes in water homeostasis predispose pregnant women to develop symptoms of polyuria and polydipsia. It may therefore be difficult to determine if worsening symptoms are related to inadequate DDAVP dosing. Patients with pregestational central DI can perceive worsening symptoms as early as the first trimester. DDAVP doses increased by 50-100% between the second and third trimester correlating with a decline in urine osmolality by 53-67%. Serum sodium levels remained in normal range. Our goal is to share our clinical experience with managing pregestational DI in pregnancy. It is important to be aware of the physiological changes and how they correlate with fluctuations in DDAVP requirements. Future studies with larger numbers of pregnant women with pre-gestational DI may better define DDAVP requirements and help clinicians with expectant management during pregnancy.

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