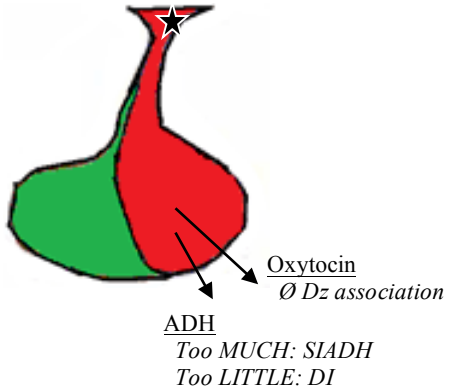
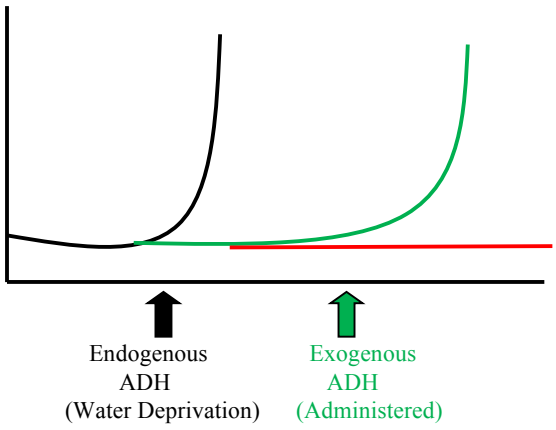
Introduction

The **posterior pituitary** is actually an extension of the hypothalamus. Neurons of the hypothalamus produce **oxytocin** and **ADH**, where they are transported to the posterior pituitary for storage. Deficiency in or excess of **Oxytocin** causes no disease. **ADH** on the other hand has two potential diseases. ↑**ADH** = **SIADH** = **Hypo Na** from too much water being retained. ↓**ADH** = **DI** = **HyperNa** from too much water lost. Any **acute** or **chronic** process can disrupt the stalk or neuronal processing, leading to either condition.



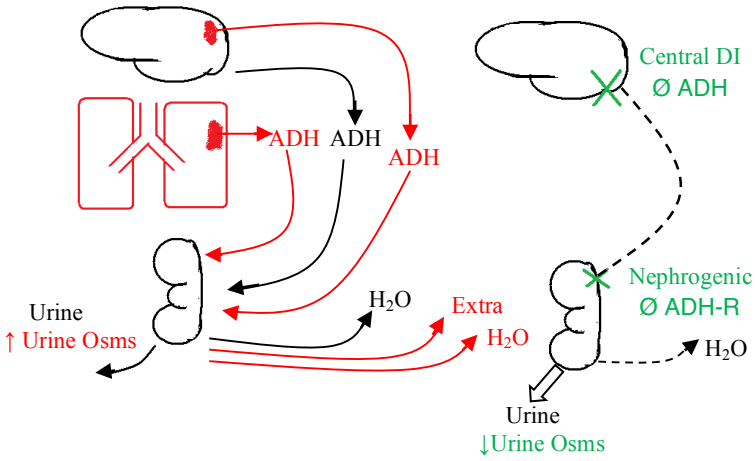
1) Diabetes Insipidus

A patient **deficient in ADH** the kidneys has no signal to retain water so they will pee a lot. This leads to them getting thirsty and drinking a lot. Thus the patient with DI will present with **polydipsia** and **polyuria**. Sounds like regular ol' diabetes. The difference is in the urine; DM has **hypertonic urine** full of **glucose** pulling water with it. DI has **hypotonic urine** because even though the patient is becoming dehydrated, the kidneys can't retain the water. Thus, the first test to get is a **U/A** looking for **glucose** (to rule out diabetes mellitus). If ⊖, the decision's between **Nephrogenic** (⊕ ADH but broken receptors) and **Central** (kidneys work fine - there's just ØADH being made). Do that with a **water deprivation test** (see to the right)**.** Treat psychogenic polydipsia with psychotherapy, **central diabetes** with **desmopressin,** and **Nephrogenic DI** with **diuretics**. Obviously, start with hydration with IVF to correct electrolyte abnormalities.



2) Syndrome of Inappropriate ADH

When there's **too much ADH** the kidneys absorb all the water there is, leaving behind a urine rich in Na. The patient **dilutes their blood** (hyponatremia and hypotonic serum) and **concentrates their urine** - the opposite of DI. The ADH came from the **brain** (tumor, infection, trauma, or granuloma) or the **lungs** (TB, COPD, and Cancer). However, **hypothyroid** can do it as well, as **TSH simulates ADH** at high doses. The patient will present with **hyponatremia**. Get a **serum Osms** (low) and **Urine Osms** (high). The goal should be to **treat the underlying disease**. In the meantime, induce a Nephrogenic DI with **Demeclocycline** to get rid of the free water. If HypoNa is severe, replace with hypertonic saline.



Dz	*Pt*	*U/A*	*Water Deprivation Test*	*Tx*	*Cause*
Diabetes Mellitus	Polydipsia Polyuria Weight Loss	Hypertonic Urine with Glucose	N/A	Insulin	Autoimmune Obesity
Central DI	Polydipsia Polyuria ⊕ Nocturnal Sx	Hypotonic Urine	Corrects with ADH	Desmopressin	Trauma, Stroke, Tumor Granulomas
Nephro DI	Polydipsia Polyuria ⊕ Nocturnal Sx	Hypotonic Urine	Does Ø Correct	Diuretics	Lithium Demeclocycline
Psychogenic Polydipsia	Polydipsia Polyuria Ø Nocturnal Sx	Hypotonic Urine	Corrects with Water Restriction	Stop drinking so much water	Psychiatric Disease