

## **2021 Penn Perioperative Protocol for Early Discharge after Pituitary Surgery: Hydrocortisone dosing and monitoring/prevention of delayed hyponatremia**

### **Hydrocortisone (Patients without Cushing's disease):**

**On the day of surgery:** Hydrocortisone 50mg IV at the induction of anesthesia, 50mg IV immediately post-surgery in recovery, 50mg IV every 8 hours for the remainder of the day

**Post-operative Day 1:** Hydrocortisone 20 mg three times per day with meals (patients receive two doses in house and need to take one more with dinner at home)

**Post-operative Day 2 and onwards:** Hydrocortisone 20 mg on awakening and 10 mg at 3pm

### **Hydrocortisone (Patients with Cushing's disease):**

**On the day of surgery:** Hydrocortisone 50mg IV at the induction of anesthesia, 50mg IV immediately post-surgery in recovery, 50mg IV every 6h for the remainder of the day.

**Post-operative Day 1:** HC 100 mg IV at 8am and again at 3pm (given prior to discharge)

**Post-operative Day 2:** HC 30 mg three times per day with meals

**Post-operative Day 3 and onwards:** HC 20mg three times per day with meals, until instructed to lower by endocrinology team.

Note: Patients are discharged on omeprazole, which is continued until their hydrocortisone dose is tapered to a replacement dose.

### **Post op day 1 discharge Protocol:**

#### **1. Pre-operative:**

- Appointment with an endocrinologist or NP to specifically to discuss post-operative education. Should be accompanied by an adult who will be with them at home in the postoperative period. Discuss protocol for DI/SIADH monitoring as well as perioperative hydrocortisone.

- a. **Obtain best contact numbers** – both patient and adult who will accompany them at home

#### **2. Post-operative Day 1:**

- Inpatient endocrinology team again reviews postoperative discharge plan, including need for monitoring urine production, daily reporting of urine production, hydrocortisone and that desmopressin is to be taken ONLY if specifically instructed by endocrinology. Confirmation that patient has appointment scheduled for post-operative day 7 sodium and urine osm measurement.
- Neurosurgery team to provide patient with a urine collection container and 0.1 mg desmopressin pills (#10) from outpatient HUP pharmacy, written discharge instructions and the order for post-operative day 7 sodium and urine osm.
- Patient is asked to call after hours' line if symptoms of diabetes insipidus develop after discharge

- #### **3. Post-operative Days 2-8:** Neurosurgery nurse practitioner either calls patient, or sends an electronic message through electronic medical records system regarding urinary volume and thirst (see below). Endocrine NP/MD reviews info and give management recommendations.

- **On post-operative day 3, if the patient does not have symptoms of diabetes insipidus, and urinary volume is <2.5L the patient is asked to start restricting fluid intake to 1**

**L/34oz/1quart a day**, beginning at midnight (00:01) on postoperative day 4. Continue this fluid restriction and continue through postoperative day 8.

- **If on post-operative day 3, the patient does have symptoms of diabetes insipidus or urinary volume >2.5 liters, then they are not asked to fluid restrict.** Patients are asked to continue daily tracking of urine production, and fluid restriction is started once symptoms of diabetes insipidus have resolved and urine volume is <2.5 liters. They still continue restriction through post-operative day 8.
- 4. **Postoperative Day 7 or 8:** Visit with Endocrinology Nurse Practitioner or Physician. If serum sodium and urinary osm are normal, then fluid restriction is lifted after completion of post-operative day 8. Lab orders are placed for 6-8 week follow up visit.
  - Endocrinology Nurse, Nurse Practitioner or Physician calls patient with post operative day 7 sodium in the event this returns prior to, or after the office visit. Patients are asked to call us if they have not heard the results within 24 hours of having blood drawn.
- 5. **Post-operative weeks 4-8:** Morning blood work to reassess pituitary function post-operatively, including cortisol measurement (blood drawn before daily hydrocortisone dose). Office visit with Endocrinologist and Neurosurgeon.

**Example of daily electronic or phone communication with patient:**

***Please respond to questions below by 8:30 am***

*Is your thirst increased above usual? Please rate 1-10 with 10 being "parched"*

*What is your urine color: very clear, usual, or unusually dark ("egg yolk color")?*

*How many times did you get up to use the bathroom last night? Is this more than your normal?*

*What is the total urine volume since midnight? If you can, please attach a picture of your Endocrine Urinary Tracker Grid*

*Did you take any desmopressin/DDAVP last night? If yes, how much? (remember this medication should be taken if the endocrine team specifically instructs you to take)*

*If DDAVP was taken, when did medication wear off ("breakthrough") in clock hours?*

***Please remember to start fluid restriction to 1L on Postoperative day 4 at midnight unless told otherwise by the endocrine team.***

***Please make an appointment at a Penn or another hospital Laboratory (not Quest or Labcorp) on Postoperative Day 7***