

Dalhousie University Neurosurgery

Resident Rotation Objectives: Endocrinology

Medical Expert

Over the course of the rotation, neurosurgery residents are expected to acquire knowledge regarding the following:

1. Pituitary tumors may present with features of hyperfunction (prolactinomas, Cushing's, acromegaly) or hypofunction.
 - a. Residents should be familiar with the symptoms, signs and diagnostic work-up for each of these conditions, as well as the differential diagnosis of a pituitary mass.
 - b. Specifically, they should understand the role of stimulation/suppression tests and the use of diagnostic imaging in assessment.
 - c. They should also understand the roles of medical treatment, surgery and radiotherapy in the management of these conditions.
 - d. They should be familiar with the assessment and treatment of diabetes insipidus.
2. Adrenal
 - a. Adrenal hypersecretion may result in Cushing's syndrome or endocrine hypertension (Conn's syndrome, pheochromocytoma)
 - b. Adrenal hyposecretion (Addison's disease) is a rare and potentially fatal condition. Residents should be familiar with the symptoms and signs, diagnostic work-up and management of this condition.
3. Endocrine causes of hypertension are rare but important since they are potentially reversible. Residents should be familiar with the symptoms and signs, and diagnostic work-up for Conn's syndrome and pheochromocytoma. This includes the role of urinary assays, diagnostic imaging and invasive assessment.
4. Hypercalcemia is a common biochemical finding. Residents should be familiar with the symptoms and differential diagnosis (malignancy, hyperparathyroidism and sarcoidosis), as well as the diagnostic work-up.
5. Osteoporosis is a common cause of morbidity and mortality in the aged population; for the neurosurgery resident, it is particularly relevant to spine surgery. Residents should be familiar with the diagnostic assessment and management of osteoporosis including the role of BMD determination, the role of osteoporosis in spinal fractures and the indications and contraindications for the use of bisphosphonates and other bone active agents.

6. Obesity, whilst common and serious in terms of its sequelae, is a poorly understood and poorly treated condition. Residents should know about the epidemiology and medical consequences of weight excess and the significance of visceral vs. generalized adiposity. Residents should be familiar with the differential diagnosis and assessment of obesity and the available treatment modalities.
7. Diabetes is the commonest endocrine disorder. Patients with diabetes represent over 20% of the general hospital inpatient population and are commonly seen as part of the in-patient neurosurgical service. Residents should know the definition/classification and basic pathophysiology of Type 1 and Type 2 diabetes mellitus (DM) and be able to differentiate between the two. Residents should also be familiar with the management of perioperative glycemic control.
8. Dyslipidemia is the commonest cause of death in our population and hyperlipidemia is the most important factor in its etiology. Residents should understand the rationale underlying the management of cardiac risk. Specifically, they should be aware of lipid disorders within the context of the major clinical trial evidence in support of lipid lowering, and national evidence-based guidelines for the management of dyslipidemia.
9. Thyroid disorders are common. Residents should be familiar with the typical symptoms and signs of thyroid hyper- and hypofunction, and the management of these disorders. They should understand tests of thyroid function and factors that may affect these, as well as thyroid imaging techniques.
10. Residents should be familiar with the principles of management of each of the following endocrine emergencies:
 - a. Diabetes insipidus
 - b. Diabetic Ketoacidosis (DKA)
 - c. Hyperosmolar Non-Ketosis (HONK)
 - d. Hypoglycemia
 - e. Thyroid storm
 - f. Addisonian crisis
 - g. Severe hypercalcemia/hypocalcemia
 - h. Pheochromocytoma

Communicator

1. Establish therapeutic relationships with patients and their families.
2. Document appropriate histories, physical examinations, and progress notes.
3. Provide information to patients and families that will support their involvement in decision-making.

4. Prepare written documentation for referring physicians in a timely, concise, and collegial manner.

Collaborator

1. Consult effectively with other physicians (referring physicians and other specialists) as well as other health care professionals (including nurses, social workers, and dietitians).
2. Contribute to interdisciplinary activities such as pituitary clinic.

Leader

1. The neurosurgical resident should be prepared to provide advice on the efficient use of resources (including diagnostic imaging, inter-hospital transfers, and hospital admission) for the management of patients with endocrine conditions.

Health Advocate

1. Provides appropriate advice to patients and families.

Scholar

1. Demonstrate self-directed learning with critical appraisal of relevant literature.
2. Facilitate the learning of patients and their families, colleagues, and other health care professionals.

Professional

1. Demonstrate the characteristics of integrity, honesty, compassion, and ethical conduct.
2. Meets deadlines, is punctual, monitors patients according to the needs of their condition, and provides follow-up.
3. Understands any limitations of knowledge or skill, accepts constructive feedback, and corrects deficiencies appropriately.