



Endocrine Screening Recommendations in Patients Post Cancer Treatment

Children who have undergone cancer treatment are at risk for the development of long term endocrine complications secondary to the use of various chemotherapeutic agents and radiation therapy.

Yearly screening for endocrine complications is recommended for these children and could include the following items outlined below. Any child presenting with signs or symptoms of an endocrinopathy should be assessed and evaluated immediately rather than waiting for their yearly screening.

Thyroid Function

Thyroid function should be assessed in patients who have undergone radiation (cranial, neck, hypothalamic/pituitary)

Recommended yearly assessment:

- Clinical review for symptoms of hypothyroidism (fatigue, weight gain, cold intolerance, dry hair/skin, constipation, poor linear growth)
- Clinical review for symptoms of thyroid neoplasia (hoarseness, dysphagia, pain, constitutional symptoms, masses)
- Examination of thyroid gland for nodules, masses, or adenopathy
- Blood work: TSH and free T4

Refer to endocrinology if evidence of thyroid abnormality:

- Primary hypothyroidism: elevated TSH, low free T4
- Secondary hypothyroidism: low TSH, low freeT4
- Compensated hypothyroidism: high TSH, normal freeT4
- Thyroid mass or nodule palpated

Gonadal Function

Gonadal function should be assessed in patients who have been treated with alkylating agents, gonadal radiation or hypothalamic/pituitary radiation.

Recommended yearly assessment:

- Clinical review for signs of pubertal development and progression of puberty
- Girls: thelarche, menarche, adrenarche, growth spurt
- Boys: genital & testicular growth, growth spurt, voice changes, adrenarche
- Physical exam: Tanner staging

Refer to endocrinology if evidence of gonadal dysfunction:

- Precocious pubertal development (girls < 8 years and boys < 9 years)
- Delayed pubertal development (girls > 13 years and boys > 14 years)
- Hypergonadotropic hypogonadism (direct gonadal damage):
elevated LH/FSH, low estradiol in girls, low testosterone in boys
- Hypogonadotropic hypogonadism (injury to hypothalamic-pituitary axis):
low LH/FSH, low estradiol in girls, low testosterone in boys
(may require GnRH stimulation test)

Growth

Growth parameters should be monitored for all patients. *Height should be assessed using an accurate stadiometer which is properly calibrated a minimum of once per year.*

Recommended yearly assessment:

- Height (using a stadiometer) and weight measurement plotted on growth chart

Refer to endocrinology if evidence of abnormal linear growth:

- Falling off growth curve for height (change from baseline)
- Decreased growth velocity: less than 4-5 cm/ year

Diabetes Mellitus

Secondary diabetes should be screened for in patients who have received high dose steroids, L-asparaginase, or are overweight (BMI > 95thtile).

Recommended yearly assessment:

- Clinical review for signs and symptoms of hyperglycemia (polyuria, polydipsia, weight loss, fatigue, blurred vision, yeast infections, frequent urinary tract infections)
- Blood work: random glucose OR fasting glucose

Refer to endocrinology if evidence of diabetes mellitus:

- Elevated random glucose (>11 mmol/L)
- Elevated fasting glucose (>6.9 mmol/L)

Bone Density

Bone density should be assessed in patients who have received high dose steroids or spinal radiation.

Recommended yearly assessment:

- Clinical review for evidence of low impact pathologic fractures, back pain, (compression fractures of spine), bone pain
- Assess appropriate nutritional intake (vitamin D 400 IU/day minimum, elemental calcium 1000-1500 mg/day minimum)
- Consider DEXA scan

Refer to endocrinology if evidence of decreased bone mineral density:

- Pathological bone fractures
- DEXA lumbar spine z-score of -2.5 or less