Central Precocious Puberty

PLAY PICMONIC

Characteristics

Secondary Sex Characteristics before 8 Years (Girls) or 9 Years (Boys)

(2) Tutu Sex-symbol Less than (8) Ball (9) Cat

Precocious puberty is defined as an early onset of puberty. Precocious puberty is diagnosed in girls if signs of puberty occur before they are 8 years old and in boys if signs appear before 9 years of age.

Breast Development (Girls) or Testicular Enlargement (Boys)

Breast Development or Testicular Enlargement

The onset of puberty is defined by the appearance of secondary sexual characteristics which may include breast development in girls and testicular and penile enlargement in boys.

Etiologies

Idiopathic

Idiot-hat

In girls, central precocious puberty is most often idiopathic. A primary cause is most likely to be found in boys.

Hydrocephalus

Hydras-in-head

Precocious puberty is commonly seen in children with hydrocephalus both with and without spina bifida. It can occur due to increased secretion of gonadotropins. Variations in intracranial pressure are thought to contribute to this process.

CNS Pathology

CNS-brain Diseased

Boys with precocious puberty are most commonly found to have underlying CNS pathology. This is found in 40-75% of cases. On the other hand, 90% of cases of precocious puberty in girls are idiopathic. CNS pathology may include CNS tumors (pinealoma, glioma, astrocytoma, hypothalamic hamartoma), CNS injury (inflammation, surgery, trauma, irradiation) and congenital anomalies.

Diagnostic Features

GnRH Stimulation Test

Gonad-gopher Stim-mule

GnRH stimulation test is the gold standard to diagnose precocious puberty. It is used to determine the hypothalamic-pituitary axis's reactivity to the presence of increased gonadotropin (LH and FSH) levels after injection of GnRH.

Increased GnRH, FSH, LH, and Sex Hormones

Up-arrow Gonad-gopher, Fish, Luge, and Sex-harmonica

Central precocious puberty is characterized by increased GnRH, FSH, LH, and sex hormones.

Bone Age

Bone Birthday-cake (Age)

Bone age can be used to determine the likelihood of precocious puberty as well as its progression. Radiography of the hand and wrist is used. Diagnosis can be made if bone age is 2 years older relative to the child's age.

Brain MRI or CT

Brain M-R-eyes and Cat-scanner

Brain MRI or CT is often recommended to evaluate the presence of brain pathology that may cause central precocious puberty. It is used after patients are diagnosed with central precocious puberty with a GnRH stimulation test.

Management

Treat Underlying Disorder

Treating Disorders Under the Table

If patients are found to have an underlying disorder that causes central precocious puberty, treating the underlying disorder is the mainstay of treatment.

GnRH Agonists

Gonad-gopher Dragonist

Gonadotropin-releasing hormone (GnRH) agonists will suppress the release of pituitary gonadotropins and peripheral sex steroids. Leuprolide is the most common GnRH agonist used. Other GnRH agonists that can be used include Buserelin and Goserelin. Patients should be monitored and scheduled for follow up in 4-6 months.