

Precocious puberty means an abnormally early onset of puberty. A sequence of events occurs during which a child develops into a young adult beginning at an unexpectedly early age. Glands that secrete growth and sex hormones begin to function abnormally early in life resulting in this condition. Often, the exact cause of precocious puberty is not known. Normal puberty begins with hypothalamic production of kisspeptin, which stimulates the pulsatile release of GnRH from the hypothalamus. This results in an increase in the frequency and magnitude of gonadotropin release, especially LH. Unfortunately, it is challenging to determine the initial clinical corollary to these biochemical events. It has been suggested that there is a continuum of sexual development in girls from uncomplicated premature thelarche to true precocious puberty; the former being more likely to develop in girls under 2 years of age. This spectrum exists both clinically and biochemically and emphasizes the need for the clinician to distinguish between these conditions in patients when making decisions about treatment. The criteria for diagnosis and treatment of CPP need to be reached through a synthesis of clinical findings as well as laboratory evidence for activation of the hypothalamic-pituitary-gonadal axis. The gold standard for determination of pubertal gonadotropin secretion is the GnRH stimulation test, though many clinicians start with a sensitive measurement of serum LH. Skeletal age determination is frequently obtained early in the work-up, and can be helpful in distinguishing isolated signs of puberty, which do not typically cause advancement in bone age as compared to true PP, which will advance bone maturity. In boys, serum DHEAS, testosterone, 17-OH progesterone and  $\beta$ -HCG levels are useful for the diagnosis of GIPP. In girls, serum DHEAS, estradiol and 17-OH progesterone levels are useful. Diagnostic studies including head MRI and pelvic ultrasound are frequently required in the work-up of children with PP.