Treatment and Outcomes of Precocious Puberty: An Update

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Precocious puberty is a common problem affecting up to 29 per 100 000 girls per year. The earliest identified neuroendocrine change in early puberty thus far is increased kisspeptin secretion from the arcuate nucleus and the anteroventral paraventricular nucleus of the hypothalamus. The regulation of kisspeptin secretion is not well understood, but neurokinin B and dynorphin provide autocrine regulation. The etiologies of precocious puberty may be subdivided into GnRH-dependent and GnRH-independent causes. GnRH-dependent precocious puberty, often called central precocious puberty (CPP), is usually treated with GnRH analogs. Newer developments in the treatment of CPP include expanded data on the safety and efficacy of the subdermal histrelin implant, which is useful for long-term treatment, although removal may be difficult in some cases. Preliminary data suggest that the implant may be left in place for up to 2 years without loss of biochemical suppression. In the last 2 years, more data have been published concerning extended-release leuprolide acetate injections that indicate that the 11.25-mg dose may not provide full biochemical suppression but may clinically suppress signs of puberty, including the accelerated growth velocity and advanced skeletal maturation seen in CPP. Treatment options for familial male-limited precocious puberty and McCune-Albright syndrome are expanding as well, although data are preliminary. Long-term outcome studies of CPP indicate overall good menstrual and reproductive function, but the prevalence of polycystic ovary syndrome may be higher than in the general population. Remarkably few studies have evaluated the behavioral and psychological outcomes of precocious puberty, in contrast to early normal maturation. Additional outcome studies of endocrine, metabolic, and psychological effects of CPP are clearly needed. (***J Clin Endocrinol Metab*** **98: 2198–2207, 2013)**