Clinical Guideline

Adrenarche

Management of children presenting with signs of early onset pubic hair/ body odour/ acne

Includes guidance for the distinction between adrenarche, precocious puberty and other abnormalities of secondary sexual development

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Contents

Purpose of this document

- To guide evaluation of a child presenting with features suggestive of adrenarche.
- To guide the distinction between adrenarche, precocious puberty and other abnormalities of secondary sexual development.

Who should use this document

General practitioners, paediatricians and paediatric endocrinologists.

Patients to whom this document applies

Children presenting with pubic hair growth, axillary hair, body odour and acne before the expected age of puberty.

Definition of adrenarche

Adrenarche is the gradual increase in adrenal androgen secretion after approximately the age of 6 years in girls and 7 years in boys. It occurs independently from the gonadotrophin-dependent activation of the gonads in central puberty.

Clinical features

Adrenarche results in the development of pubic hair, axillary hair, body odour and acne.
(It does not result in the enlargement of the breasts, penis or testes).

Biochemical findings

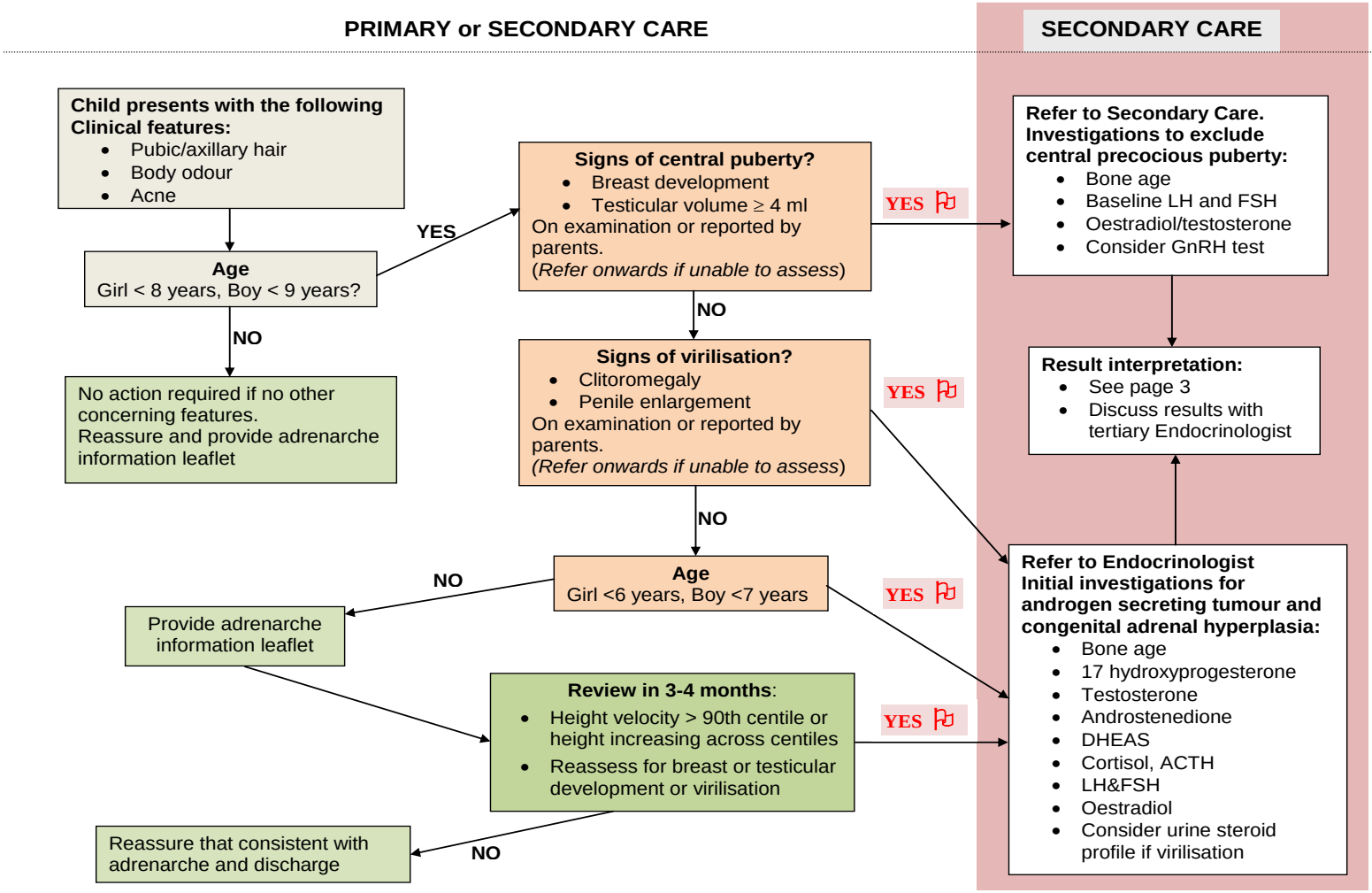
At the time of adrenarche, there is maturation of the adrenal glands, with increased production of dehydroepiandrosterone sulphate (DHEAS) relative to cortisol. The serum concentration of DHEAS can be used as a marker for the presence of adrenarche, with serum testosterone and androstenedione levels being near the upper limit of the normal range. However, the diagnosis can be made on clinical features without further investigations (see next page)

Clinical significance

Adrenarche is a normal variant of pubertal development. It is important to distinguish this from precocious puberty and virilising conditions such as androgen secreting tumours and Congenital Adrenal hyperplasia. Adrenarche itself does not require treatment*.

*There has been previous concern that adrenarche may be associated with the development of insulin resistance, polycystic ovarian syndrome and metabolic syndrome, but this does not alter management or follow-up.

Primary or secondary care



Interpretation of clinical findings and investigation results

	Breast/testicular development	Clitoral/penile growth	Linear growth acceleration	Bone Age	Androgens	Gonadotrophins
Premature adrenarche	Absent	Absent	Absent, or slight initial acceleration	Up to 2 years advanced on chronological age Correlated with height age	Early pubertal, DHEAS may be moderately elevated	Prepubertal
Precocious puberty	Stage 2+ breast development ≥ 4ml testicular volume	Absent or early	Progressively accelerated	Progressively accelerated	May be normal or elevated for age Oestradiol may be elevated	Early pubertal (If suppressed consider oestrogen secreting tumour)
Congenital adrenal hyperplasia	Absent	Enlargement	Moderately to markedly accelerated	Moderately or markedly advanced for age and pubertal stage	Moderately to markedly elevated	Prepubertal
Virilising tumours	Absent	Marked and progressive enlargement	Markedly accelerated	Markedly and progressively advanced	Markedly elevated	Prepubertal or suppressed
Iatrogenic	Absent	Marked and progressive enlargement	Markedly accelerated	Markedly and progressively advanced	Markedly elevated testosterone	Prepubertal or suppressed

References

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