

References

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Received 2 September 1983

## Precocious puberty: a follow up study

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**SUMMARY** Follow up of women previously seen between 1951 and 1971 with precocious puberty showed that most had normal menstrual cycles and that fertility was generally normal in those with 'constitutional' precocious puberty. Three patients, however, with the McCune-Albright syndrome had not yet proved to be fertile.

There is very little information on subsequent menstrual and fertility patterns in patients presenting with precocious puberty. We undertook the present study to provide further information on this subject.

### Subjects and methods

We reviewed the medical records of all female patients with precocious puberty who were seen at the Hospital for Sick Children, Great Ormond Street, between 1 January 1951 and 1 January 1972. For the purposes of this study precocious puberty was defined as the progressive development of secondary sexual features and accelerated growth before the age of 8 years or menstruation before the age of 10. Seventy one patients who fulfilled these criteria were approached through their family doctors and requested to answer a short questionnaire concerning their height, menstrual pattern, and, if applicable, obstetric history.

Sixty four patients responded to our enquiry. Six patients did not reply to our letters and one patient had died of a brain tumour. Twelve patients had presented with precocious menarche alone—that is, regular menstruation in the absence of secondary sexual development—and as these cases have been

described in detail elsewhere they are not referred to in this paper.<sup>1</sup>

Forty two patients aged between 15 and 37 years (mean age 23.6) at the time of this study had been considered to have constitutional precocious puberty when they initially presented with signs of puberty starting between the ages of 1 and 8 years (mean age 5.0). As most patients were seen before the introduction of computed tomography it is quite possible that some who had a small intracranial lesion, for example a small hypothalamic hamartoma, were included in this idiopathic group. Three patients had been treated with medroxyprogesterone, given as a depot injection in two cases.

Ten patients aged between 15 and 34 years at the time of this study had some pathological condition that had caused the accelerated pubertal changes (Table).

### Results

#### Constitutional precocious puberty.

**Menstrual pattern.** Of the 42 patients with constitutional precocious puberty, 40 reported regular menstruation at roughly monthly intervals. The two remaining patients reported having infrequent and irregular periods.

Table Aetiology of precocious puberty in 52 subjects

Cause	No of patients
Idiopathic	42
Lesion of central nervous system	6
The McCune-Albright syndrome	3
Granulosa cell tumour of ovary	1

**Fertility.** Of the 42 patients with idiopathic precocious puberty, 8 were married and one was divorced. One of these patients was infertile after 9 years of marriage and 8 women had given birth to 14 healthy children. In addition three unmarried patients had become pregnant, two having therapeutic abortions and one giving birth to a healthy child.

**Adult height.** Thirty three patients gave details of their heights, which varied between 142 cm and 175 cm. Seven women were 150 cm or less in height; in five of these 7, puberty began before the age of 5 years.

#### **Other types of precocious puberty.**

In the three patients with the McCune-Albright syndrome no pregnancies were reported, although two were married and one had already been investigated for infertility; the third patient reported irregular menstruation. None of the patients with a lesion of the central nervous system had married or attempted conception. In all but one patient the family reported a regular menstrual pattern. The patient who had a granulosa cell tumour had regular menstruation and had had three normal pregnancies.

#### **Discussion**

There are many reports of pregnancy in girls with precocious puberty—Reuben and Manning collected 16 reports of pregnancy and delivery in girls who presented with precocious puberty aged 6 to 10 years.<sup>2</sup> There is very little information, however, on the outcome for girls with precocious puberty in adult life. The above findings indicate quite clearly that the long term outlook for menstruation and fertility is essentially normal in girls presenting in

early childhood with 'constitutional' precocious puberty. All but two patients reported regular menstruation and only one of the 9 women who had attempted conception reported difficulties; this compares well with the infertility rate in the general population.

It is difficult to comment on the other patients with precocious puberty because of the small numbers. Two of the patients with the McCune-Albright syndrome had married; neither had conceived and one had been investigated for infertility. The patient with precocious puberty caused by a granulosa cell tumour had had three normal pregnancies. None of the patients with an intracranial lesion had married and it is not possible to comment on fertility in this group; however, all but one had normal menstruation indicating a normal pituitary axis.

It has long been recognised that precocious puberty may be associated with short stature in adult life, and 7 of 33 of our patients reported that their height was 150 cm or less; in five of these 7 patients puberty began before the age of 5 years. We have not attempted to verify these measurements, but the results are generally similar to those given by Sigurjonsdottir and Hayles<sup>3</sup>: out of 34 subjects who had completed their growth, 12 were 150 cm or less in height and 8 of those 12 had started their pubertal development before the age of 5 years.

#### **References**

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Received 6 September 1983

## **Short stature caused by obstructive apnoea during sleep**

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**SUMMARY** A 5 year old girl presented to a growth clinic with short stature. Obstructive sleep apnoea was diagnosed. After tonsillectomy her symptoms were alleviated and her rate of growth increased from 4.0 cm/year to 13.6 cm/year.

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Chronic obstruction of the upper airways may disturb normal sleep physiology in children and adults, leading to apnoea, hypercapnia, and hypoxia.<sup>1-3</sup> Serious clinical sequelae including learning difficulties,<sup>2</sup> neurological deficits, cor pulmonale, and failure to thrive<sup>3</sup> have been described in children. Although poor weight gain has been