

Hypothyroidism as a Cause of Precocious Puberty

PALETTI, MIKELE T.1, Arbex, Alberto K.1, 2; Rocha, Denise R.1, 2; de Jesus, Ana Luísa C.3; Miranda, Angela Cristina M.1; Sanseverino, Bruna L.1; Cosson, Eliane L. M.1; Takahashi, Fabiana S.1; Caldeira, Flavia Renata S.1; dos Anjos, Hesio José M.1; de Oliveira, Julimar Benedita G. S.1; Faria, Leonardo César S.1; Amicone, Martin A.1; Aguiar, Nícia M. M.1; Júnior, Odon P. B.1; de Souza, Tânia Mara P. A.1; Codonho, Thatiani C. P.1
 1. Division of Endocrinology, IPEMED Medical School, São Paulo, Brazil.
 2. Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.
 3. Graduate of Sergipe Medical School, Federal University of Sergipe.



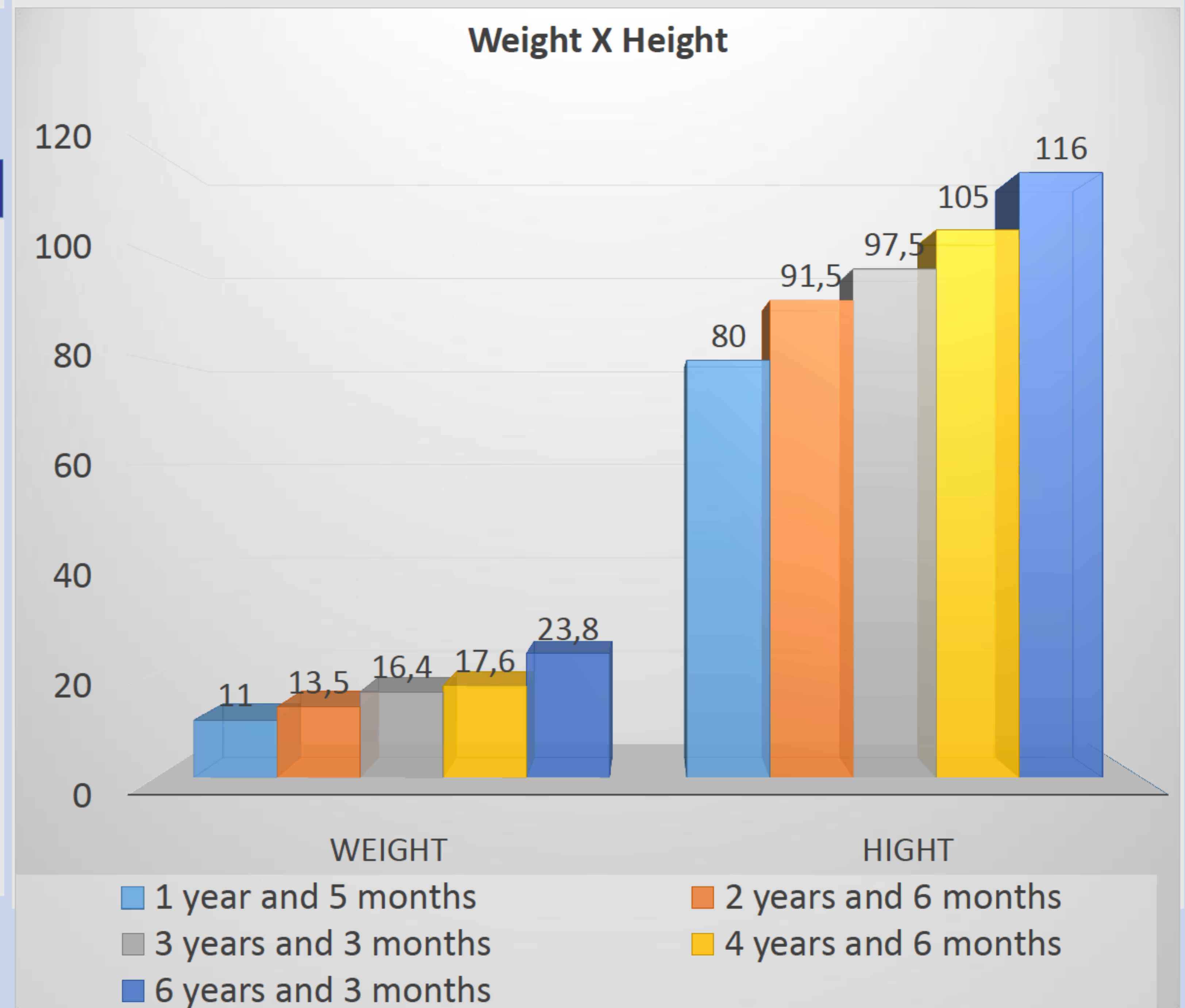
Introduction

Hypothyroidism is a rare cause of early puberty in childhood. It reduces the growth rate by decreasing the amplitude of GH pulses. We report the case of a child who developed precocious puberty and reduced speed consequent to hypothyroidism growth. The treatment of thyroid disease with levothyroxine led to regression of pubertal development and resumption of growth.

	March 2011	April 2014
Tanner Criteria	M2 P1	M2 P1
Weight	11 Kg	17.6 Kg
Height	80 cm	105 cm
TSH (NR:0,4/4,5)	7.48 U/L	7.94 U/L
FSH (NR< 4 mUI/MI)	4.1 U/L	3.79 U/L
Estradiol (NR< 18,0)	15 U/L	33.6 U/L
Bone age	18 months – 2 years	2 years

Methods

A.J.S., female, 1 year and 5 months of age at first consultation. She came the endocrinology service in March 2011, complaining about bilateral breast enlargement since birth. Her mother reported pregnancy without complications. Cesarean delivery, birth weight and height were 48cm and 3.3 kg, respectively. Breast feeding up to 10 months, and she denied the use of medications. Physical examination in 2011 showed Tanner M2 P1, genitals and thyroid gland without changes on physical examination, 11kg weight and 80cm in height (50-75 percentile).



Results

In 2011, TSH was 7.48U/L, LH: <0.71U/L, FSH: 4.1U/L, Estradiol: 15 U/L. US breast: stromal gland was stimulated. Pelvic US showed no change. Bone age was 18 months to 2 years. The conduct was to prescribe levothyroxine 50mcg / day. When she became 2 years and 6 months old she had a Tanner M2P2. Weight: 13.5 kg and height: 91.5 cm. TSH: 1.69U/L, Free T4: 33.6U/L. Growth rate of 11.5cm/year. She came back in January 2013, with Tanner M2P2, Height: 97.5cm, Weight: 16.4Kg. On April 2014: Weight: 17.6 kg and Height: 105 cm, Tanner M2P1, free T4 was 1.18U/L, TSH: 7.94U/L. Estradiol: 33.6, FSH: 3.79U/L. Bone age = 2 years old. Growth rate 04/2014 to 04/2015: 8.5 cm/year, the patient was euthyroid. January 2016 she was asymptomatic, in use of levothyroxine 75mcg / day, Tanner: M2P1, Height: 116cm, Weight: 23.8 Kg The patient's target height is 162.5cm.

Discussion

Precocious puberty may be associated with thyroid hypofunction, and the action of estrogen on the epiphyseal plates might reduce this delay. Patients with high levels of TSH are more likely to develop precocious puberty.

References

1. Cabrera, S.M., DiMeglio, L.A. and Eugster, E.A., 2013. Incidence and characteristics of pseudoprecocious puberty because of severe primary hypothyroidism. *The Journal of pediatrics*, 162(3), pp.637-639.
2. Anasti, J.N., Flack, M.R., Froehlich, J., Nelson, L.M. and Nisula, B.C., 1995. A potential novel mechanism for precocious puberty in juvenile hypothyroidism. *The Journal of Clinical Endocrinology & Metabolism*, 80(1), pp.276-279.
3. Fuqua, J.S., 2013. Treatment and outcomes of precocious puberty: an update. *The Journal of Clinical Endocrinology & Metabolism*, 98(6), pp.2198-2207.

Contact

albertoarbex@gmail.com