

## Comparative analysis of two models for adult height prediction and predicted age at menarche for girls with idiopathic central precocious puberty treated with GnRH Analog

*Academic authors:* Mateus Cavarzan Lopes

*Academic advisors:* Vinicius Nahime de Brito

**Introduction:** Idiopathic Central Precocious Puberty (ICPP) in girls happens when pubertal signs are present before 8 years of age without an organic cause. Lower predicted adult height (AH) and psychosocial inadequacy are parameters used to indicate treatment with gonadotropin-releasing hormone analogs (GnRHa).

**Aim:** To compare methods for AH prediction and to validate a tool for predicting age at menarche (AAM) in ICPP girls.

**Methods:** Predicted AH of 48 ICCP girls treated with GnRHa was calculated by Bayley- Pinneau (BP) tables at diagnosis and at the end of treatment (EOT) and compared with a mathematical model (MM) created by Giabicani *et al.* Predicted AH was compared with AH and target height (TH). Predicted AAM by MM was compared with actual AAM. Student's t- test and linear regression models were used.

**Results:** Using BP, the mean predicted AH (MPAH) was  $152.77 \pm 7.9$  cm at diagnosis and  $158.78 \pm 6.76$  cm at EOT. AH was  $158.4 \pm 6.2$  cm, TH was  $157.9 \pm 6.1$  cm and mean AAM was  $11.9 \pm 0.72$  years. Using the MM at diagnosis, the MPAH was  $160.04 \pm 4.95$  cm while the mean AM was  $10.14 \pm 0.45$  years. We found a weak correlation between BP at diagnosis and AH (0.48;  $p < 0.001$ ), a moderate correlation between MM and AH (0.58;  $p < 0.001$ ) and a strong correlation between BP at EOT and AH (0.74;  $p < 0.001$ ).

**Conclusion:** At diagnosis of CPP, the MM is more accurate for AH prediction than BP and can be used to predict AAM, helping in clinical decision.

**Keywords:** Adult height; Central precocious puberty; Bayley Pinneau; GnRH analog.