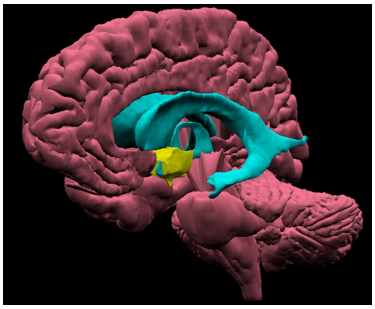
GH STIMULATED LEVELS IN PRADER-WILLI SYNDROME DURING THE TRANSITION PERIOD BETWEEN CHILDHOOD AND ADULTHOOD

Grugni G, Corrias A, Di Candia S, Fintini D, Gargantini L, Iughetti L, Ragusa L, Salvatoni A, Sartorio A, Cappa M, Delvecchio M, Chiumello G, Crinò A

on behalf of the Genetic Obesity Study Group of the Italian Society of Pediatric Endocrinology and Diabetology - ITALY

All Authors have nothing to disclose.

Background



Previous reports support the hypothesis of an age dependent derangement of the hypothalamus–pituitary axis occurring in PWS subjects. In this context, transition years represent an important phase of growth process when somatic development reaches its completion. In the general population, GH deficiency (GHD) during the transition phase is associated with deterioration of body composition, metabolic alterations and reduced bone mineral density. PWS subjects have reduced muscle mass, increased risk of cardiovascular disease and osteoporosis, similarly to what observed in patients with non-syndromal GHD. Consequently, assessment of the GH status from late teenage years until 6-7 years after achievement of final height may be particularly helpful in the management of PWS in this particular period.

Aim

The objective of our study was to evaluate the GH response after a standard provocative test in a large group of PWS patients during the transition period.

Patients and Methods

The characteristics of the study group are reported in Table 1. After an overnight fast, all subjects underwent a standard GHRH+arginine test. Tests started at 8:30 am after overnight fasting, with the patients recumbent. Fifteen minutes after an indwelling catheter had been placed in an antecubital vein, each subject received GHRH (1–29) injection (GHRH, Ferring GmbH, Kiel, Germany; 1 lg/kg as i.v. bolus at 0 min). From 0 to 30 min after GHRH administration, 0.5 g/kg (maximum dose 30 g) of ARG hydrochloride (SALF, Bergamo, Italy) was infused. Blood samples for GH determination were drawn at -15, 0, 30, 45, 60, 90 and 120 min after the i.v. bolus of GHRH. In addition, basal sample was obtained for IGF-I determination. In order to define GHD, the appropriate BMI-related diagnostic cut-off limits of GH peak (GHp) have been used (Corneli et al, Eur J Endocrinol 2005). In addition, we have adopted the cut-off limit specific for transition phase [GHp <19 µg/l] (Corneli et al, Eur J Endocrinol 2007).

Patients

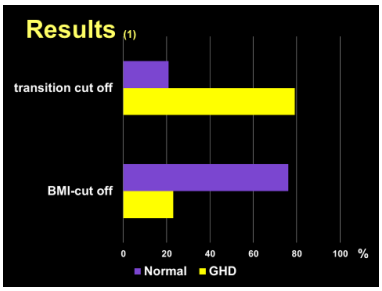
		Karyotype	
n (f:m)	67 (29:38)	del15	45
age (yr)	20.0±2.6	UPD15	21
age (range)	16.0-24.9	IC	1
HSDS	-2.12±1.26	prevGHT	
BMI (kg/m²)	36.9±9.8	yes/no	50/17
		48 obese	
		11 overweight	
		8 normal weight	

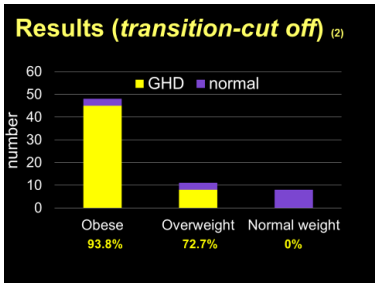
Data are expressed as mean±SD

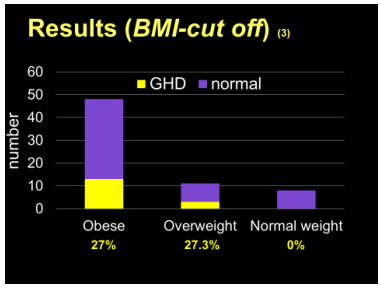
Table 1

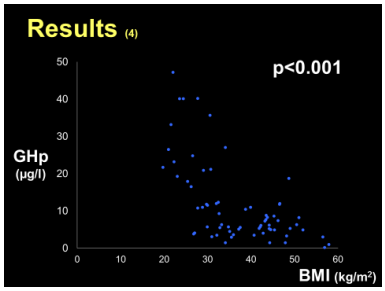
Results

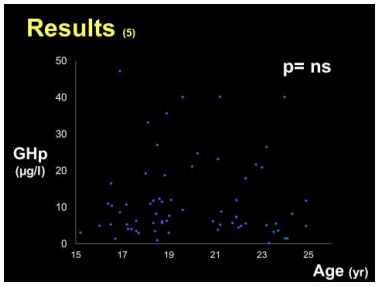
No adverse effects were noticed during or after testing in any of the subjects studied. Below normal IGF-I-values were present in 39 PWS patients (52%).

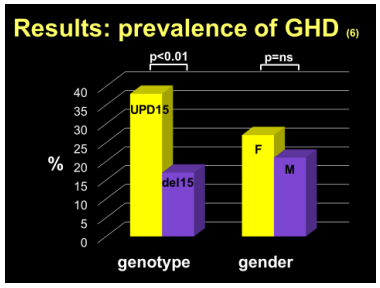












Conclusions

- Impaired GH response occurred in a significant % of PWS during transition phase, particularly in PWS patients with UPD15.
- GH stimulated response is significantly affected by weight status.
- We suggest to test PWS subjects after attainment of adult height, in order to determine the presence of GHD.
- Appropriate BMI-related diagnostic cut-off limits of GH peak seem to be more reliable than the cut-off limit specific for transition phase.

ESPE European Society for Paediatric Endocrinology