Introduction

Prader-Willi syndrome (PWS) is a complex multisystem disorder due to loss of expression of paternally derived genes in the PWS critical region on chromosome 15q11-q13. The majority of the cases are due to the deletion of this region (del15), while 20-30% are caused by a maternal uniparental disomy of chromosome 15 (UPD15). The syndrome affects multiple organ systems (Box1), including numerous endocrine abnormalities. Disturbances in the hypothalamic-pituitary-thyroid axis are observed with variable frequency in PWS. Hypothyroidism is the most frequent alteration, mainly but not exclusively of central origin. Other thyroid abnormalities in PWS subjects are rarely reported, including congenital hypothyroidism caused by an ectopic sublingual thyroid gland and fetal goiter. On the other hand, data on the ultrasonographic examination of the thyroid gland in PWS subjects are not currently available.

Objectives

Aim of this study was to evaluate the thyroid morphology and function in a group of young adults with PWS.

Patients and Methods

The patients’ group consisted of 20 subjects with typical PWS clinical phenotype (12 females, aged 30.6±5.9 yr (mean±SD) (range 18-39 yr), Body Mass Index (kg/m²) 46.7±8.8 (range 35.8-63.5). Thyroid function tests (FT3, FT4 and TSH), including anti-thyroid antibodies (TPOAbs and TgAbs), and thyroid ultrasonography (TUS) were performed in all individuals. All TUS were performed and analyzed by the same operator.

Results

Eighteen PWS subjects were euthyroid, while 1 female had central hypothyroidism and 1 female showed an overt hyperthyroidism. Anti-thyroid antibodies were negative in all patients (including thyrotropin receptor antibody in the hyperthyroid individual). TUS characteristics of the study group are reported in Tables 1 & 2.

Conclusions

Up until the last decade the thyroid axis of PWS subjects was generally considered to be normal or slightly altered, with a similar frequency of hypothyroidism in comparison to the general population. More recently, other studies reported a higher prevalence of hypothyroidism in PWS, mostly due to a central defect of central origin (hypothyroid hypothalamic hypothyroidism). At present, data on the incidence of other thyroid alterations, including primary hypothyroidism, are inconsistent in these patients. In this context, no data on ultrasonographic features of the thyroid in PWS subjects has been previously reported. Overall we found that alterations in thyroid structure can be frequently observed in young adults with PWS, indicating that screening for altered thyroid morphology should be a routine element of care for people with PWS.

References


