Insulin Sensitivity in Adolescents with Gender Dysphoria during Puberty Suppressing Therapy with GnRH Agonists

Introduction
According to the endocrine society guidelines, GnRH analogues (GnRHa) are used to suppress pubertal development of the natal sex in gender dysphoric adolescents. The metabolic implications of pubertal suppression have not yet been explored. During puberty a decrease in insulin sensitivity is normally observed, perhaps mediated by changes in growth hormone production and in body composition.

Objective
The effects of GnRH agonists on insulin sensitivity during 2 years of treatment in adolescents with Gender Dysphoria were examined.

Conclusions
No significant change in insulin sensitivity occurred during two years of treatment with GnRH analogue therapy in gender dysphoric adolescents. It is reassuring that our puberty delaying protocol in gender dysphoric adolescents, using GnRHa, does not impair insulin sensitivity.

Experimental Setup
During GnRHa treatment fasting blood samples were drawn every six months to determine fasting glucose, serum insulin and IGF1 levels. QUICKI was calculated to determine insulin sensitivity. Fat percentage was measured yearly using DXA (Hologic QDR 2000).

Subjects
Ninety-one adolescents with GD, 41 male-to-females (Mtf) and 50 female-to-males (Ftm) receiving 3.75 mg of the GnRH agonist triptorelin s.c./i.m. every 4 weeks, were included in this study.

Statistics
Mixed Model linear analyses were performed.

Results
No significant changes in QUICKI were observed in either sex during two years of GnRHa treatment (figure 1).

Both groups showed a significant decrease in IGF1 and increase in fat percentage (figure 2). A significant correlation between QUICKI and IGF1 was found in Ftm and a significant correlation between QUICKI and fat percentage in both groups (table 1).

References

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