

Body Fat Distribution in Turner Syndrome and the Influence of Puberty

Abstract:

Sir

Girls with Turner syndrome (TS) may encounter a wide range of problems. We aim to describe the body composition and its relation to the pubertal development, in affected girls. Precocious pubarche has been found to be associated with excess total body and central fat mass throughout all pubertal stages¹. Early menarche has impact on body fatness². In girls with TS, growth hormone (GH) was associated with favourable changes in body composition. The consensus, with respect to the association between body composition and pubertal development, has still not been reached in those with TS. We therefore set out to determine the body fat distribution in Irish girls with TS who have attained with breast Tanner stage 2 or more with or without menarche. The influence of pubertal development on fat distribution was also examined. The fat mass of the total body, trunk, arms, and legs was estimated by dual-energy X-ray absorptiometry. Fisher's Exact test or Mann-Whitney U test was used to compare groups and correlation was assessed using the Pearson's or Spearman method, where appropriate.

Of 33 TS girls with breast Tanner stage 2 or more, with or without menarche, 30 (mean age 16.45; SD 2.34 years) agreed to participate, of whom 17 (56.7%) were postmenarchal. Oestrogen therapy was received by 18 of 30 (60%) girls, of whom 10 (55.55%) had completed pubertal induction. The majority of girls (26/ 30; 86.7%) received GH therapy. Mean fat mass at arm, trunk and total body, but not leg, was significantly higher in TS girls with breast tanner stages 4-5, compared with those with stages 2-3 (Table 1). However fat distribution did not differ significantly between girls with breast Tanner stage 2 or more without menarche and postmenarchal individuals (Table 1). Height or age was not significantly correlated with fat mass at arm, leg, trunk or total body (p value >0.05).

In conclusion, it seems that breast Tanner stages, but not menarchal status, influence body fat distribution in girls with TS. This highlights the importance of discussing the influence of pubertal development, in particular breast development, on body fat distribution in this patient group.

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References

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