

# Height in Turner syndrome: Does Growth Hormone Therapy Have Impact?

## Abstract:

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Sir

Short stature is a cardinal feature of Turner syndrome. We examined height outcome and its relation to growth hormone therapy in Irish girls with Turner syndrome. In those with Turner syndrome (TS), the adult stature is an average 20 cm shorter than the general population<sup>1</sup>. By 15 years of age, the average height of an untreated girl with TS is equivalent to that of only a 9.5-year-old girl in the general population<sup>2</sup>. We therefore set out to describe height outcome in Irish girls with TS. The impact of growth hormone (GH) therapy on height was also examined. Height measurement was taken according to the standard guidelines. Mean height standard deviation scores (SDS) was calculated. Fisher's Exact test was used to compare groups and the association between the height and age at GH initiation or duration of GH therapy and was assessed using regression analysis.

In total, 32 out of 35 girls agreed to participate. Mean (SD) age was 16.7 (2.6) years. Compared with age- and sex-matched Irish general population<sup>3</sup>, subjects with TS were shorter, with height SDS being -2.1 (p value 0.00). Irish girls with TS are taller (mean height SDS 1.59; p value 0.000), compared with previous published data on height in girls with TS (4). The mean (SD) height did not differ between girls with monosomy X, those with mosaic without structural X abnormalities and subjects with structural abnormalities with or without mosaicism (p value 0.08). Of 32 girls, 28 received GH therapy, of whom mean height SDS increased from -0.22 (at time of GH initiation) to 1.59 (mean duration of GH therapy 7.5; SD 3.7 years) compared with previous published data on height in untreated girls with TS<sup>4</sup>, (p value 0.00). However height increased from -3.1 SDS to -2.1 SDS, compared with age- and sex-matched Irish general population (3), [p value (P) = 0.005]. This finding is similar to the previously published findings that GH therapy has a positive impact on height in girls with TS. The results of the regression analysis showed that there was no significant association between height and age of GH initiation [confidence interval (CI) = -0.68: 0.83]; P = 0.84 or duration of GH therapy [CI = -0.3: 1.14; P = 0.21]

Girls with TS are shorter than the general population and it appears that GH therapy has a positive impact on height in girls with TS. Other previous studies have found key factors in GH response to be age onset and duration. However, the relatively small number of patients in our study precludes any definitive statement about the impact of age at GH initiation or duration of GH therapy on height.

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