



GROWTH HORMONE THERAPY IN TURNER SYNDROM - GROWTH RATE INDIRECTLY CORRELATED WITH AGE OF THERAPY INITIATION

Authors: Ioana Hristov¹, Elena Ramona Axinte¹, Maria Christina Ungureanu^{1 2}, Cristina Preda^{1 2}, Voichita Mogos^{1 2}

1-Department of Endocrinology, St Spiridon University Hospital, Iasi, Romania;

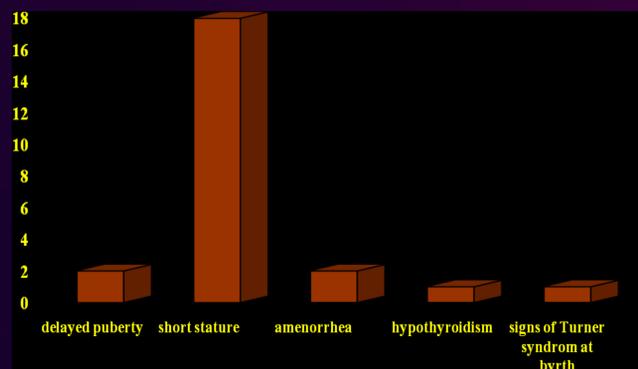
2-University of Medicine and Pharmacy 'Gr.T.Popa', Iasi, Romania

INTRODUCTION: Turner syndrome (TS) affects about one in 1,500 to 2,500 live-born females. Short stature is the most common physical abnormality in Turner syndrome, with adult stature average 20 cm shorter compared to the general population. Randomized, placebo-controlled studies to final adult height have proven that GH therapy is effective in increasing stature in Turner syndrome.

AIME: To study the efficiency of early initiation for GH therapy on final stature for patients with Turner syndrome and to prove its important role in obtaining optimal growth rates.

METHODS: We studied a lot of 24 patients with Turner syndrome diagnosed and followed up in our Department of Endocrinology.

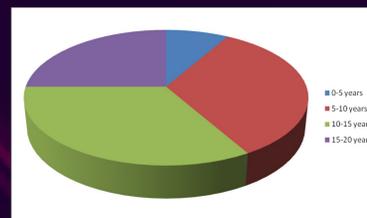
They were referred to our department for various reasons:



Turner's syndrome may be associated with cardiovascular, skeletal, renal, thyroid, cognitive and reproductive disorders and diabetes type II. The most frequently congenital malformations associated with Turner syndrome were: congenital heart disease (7 cases), hypothyroidism (5 cases) and structural malformations of the kidneys (5 cases).

Considering the diagnosis age for Turner syndrome, 4 categories were defined:

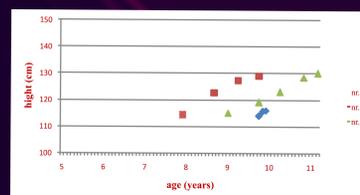
- 1) 0-5 years (5%- 2 patients)
- 2) 5-10 years (36%- 8 patients)
- 3) 10-15 years (36%- 8 patients)
- 4) 15-20 years (23%- 6 patients)



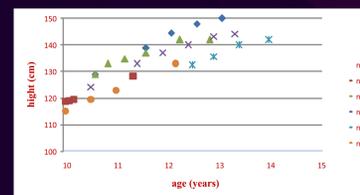
Recombined GH therapy was initiated for the last 3 categories.

RESULTS: The growth rate were significant in the 3 groups :

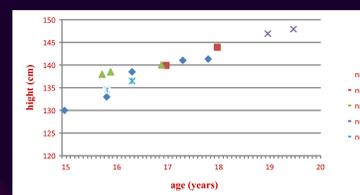
- 1) age 5-10 years: - average initial stature: 113,3 cm
- follow up: 18 months
- average growth rate: 0,736 cm/year
- mean total height gain: 11,7 cm



- 2) age 10-15 years:- average initial stature: 124,6 cm
- follow up: 24 months
- average growth rate: 0,561 cm/year
- mean total height gain: 15,0 cm



- 3) age 15-20 years:- average initial stature: 137,6 cm
- follow up: 18 month
- average growth: 0,278 cm/year
- mean total height gain: 4,6 cm



CONCLUSION: Comparing the growth curves and the growth velocity in the 3 groups we noticed that growth rate decreased with late therapy initiation, which becomes an important factor for the final stature prognosis. Longer follow-up is important for evaluating the efficiency of early initiated GH therapy.

DISCUSSION: In patients group of 15-20 years we obtained the lowest growth rate, the incriminated factor being the associated substitutive oestrogen therapy and its effects on the bone plate. Estrogen therapy increases IGFBP-1, which will tend to lower free IGF-I. IGFBP-1 in itself is considered to be an inhibitory IGF binding protein.

REFERENCES:

- 1) Davenport ML, Source Department of Pediatrics, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7032, USA.; Recombinant growth hormone in children and adolescents with Turner syndrome. *Cave CB, Bryant J, Milne R.*
- 2) Wessex Institute for Health Research and Development, University of Southampton, Bassett Crescent East, Mailpoint 728, Biomedical Sciences Building, Southampton, UK, SO16 7PX;
- 3) Kavoussi SK, Christman GM, Smith YR. Healthcare for adolescents with Turner syndrome. *J Pediatr Adolesc Gynecol.* 2006; 19(4): 257-265
- 4) Epidemiological, endocrine and metabolic features in Turner syndrome
Claus Højbjerg Gravholt Medical Department M (Endocrinology and Diabetes) and Medical Research Laboratories, Aarhus Sygehus, Aarhus University Hospital, DK-8000 Aarhus C, Denmark