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Health-Related Quality of Life and Growth Hormone Treatment

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademin, Göteborgs universitet kommer att offentligen försvaras i Arvid Carlsson, Medicinaregatan 3, 413 90 Göteborg, den 13:e december, 2019, klockan 9:00

av Emily Krantz (née Amundson), Leg. läkare

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Lunds Universitet, Lund, Sverige

Avhandlingen baseras på följande delarbeten

I. Amundson E, Wide Boman U, Barrenäs M-L, Bryman I, Landin-Wilhelmsen K. Impact of Growth Hormone Therapy on Quality of Life in Adults with Turner Syndrome. *J Clin Endocrinol Metab. 2010;95(3):1355-9*

II. Krantz E, Landin-Wilhelmsen K, Trimpou P, Bryman I, Wide, U. Health-Related Quality of Life of Adult Women with Turner Syndrome and the Influence of Growth Promoting Therapy: A 20-year Follow-up. *J Clin Endocrinol Metab. 2019;104(11):5073-83*

III. Krantz E, Trimpou P, Landin-Wilhelmsen K. Effect of Growth Hormone Treatment on Fractures and Quality of Life in Postmenopausal Osteoporosis: A 10-year Follow-up Study. *J Clin Endocrinol Metab. 2015;100(9):3251-9*

IV. Krantz, E, Wide U, Trimpou P, Bryman I, Landin-Wilhelmsen K. Comparison Between Different Instruments for Measuring Health-Related Quality of life in a Population Sample, the WHO MONICA Project, Gothenburg, Sweden – an Observational, Cross-Sectional Study. *BMJ Open. 2019;9:e24454*

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Health-Related Quality of Life and Growth Hormone Treatment

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Abstract

Introduction Growth Hormone (GH) is used to increase height in Turner Syndrome (TS), the most common sex-chromosome aberration in women. GH is also beneficial for bone mass. However, little is known about how GH treatment affects Health-Related Quality of Life (HRQoL).

Aims To study if previous GH treatment for short stature in TS, and for strengthening bone in postmenopausal osteoporosis, leads to an improved HRQoL and to compare HRQoL to that of women in the general population.

Methods HRQoL was evaluated using questionnaires: The Short Form-36, the Nottingham Health Profile, the Psychological General Well-Being index, and a Self-Rated Health scale (0-100). Women with TS were followed every 5th year for up to 20 years, (n=200, age 16-71 yrs). Women with osteoporosis who participated in a clinical trial of GH treatment for 3 years (n=80, age 50-70 yrs), were followed annually for a total of 10 years. A reference population from the WHO MONICA project, Gothenburg (n=414, 77% women, age 39-78 yrs) was used for comparison and method evaluation of the HRQoL questionnaires.

Results HRQoL in adults with TS was not associated with previous GH treatment in childhood, despite a mean 6 cm taller adult height, during up to 20 years of follow-up. HRQoL was negatively affected by higher age, higher age at TS diagnosis, and hearing impairment but it was similar to that of women in the population. In the women with osteoporosis, HRQoL did not change during the GH treatment or during follow-up despite an increase in bone mineral content ($p<0.01$ vs placebo) and a decrease in fracture incidence from 56% to 28% ($p<0.001$). HRQoL did not differ between the women with osteoporosis and the population. All of the HRQoL questionnaires had acceptable internal consistency (α) when applied in men and women in a population sample. Similar sub-scales correlated strongly ($p<0.01$). All HRQoL questionnaires could differentiate the presence of ill-health ($p<0.01$).

Conclusion Previous GH treatment was not associated with improved HRQoL in the women with TS despite 6 cm taller adult height, nor was GH associated with an improved HRQoL in postmenopausal osteoporosis despite a reduced fracture incidence. HRQoL in both study groups was similar to that of women in the population. The HRQoL questionnaires were reliable and valid.

Keywords: Health-related quality of life, Growth hormone, Turner syndrome, Postmenopausal osteoporosis

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