

Cognition, health-related quality of life and psychosocial functioning after GH/GnRHa treatment in young adults born SGA

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Conclusion

Combined GH/GnRHa treatment has no long-term negative effects on cognition, HRQoL, self-perception and problem behaviour in early adulthood, compared to GH treatment only.

Background

Children born small for gestational age (SGA) with a poor adult height expectation benefit from treatment with growth hormone (GH) and additional 2 years of gonadotropin-releasing hormone analogue (GnRHa).

As both SGA birth and GnRHa-treatment might negatively influence cognition, HRQoL and psychosocial functioning, we assessed these outcomes at adult height (AH).

Objective

To compare cognitive functioning and HRQoL at AH attainment in subjects born SGA treated with GH, either with additional 2 years of GnRHa treatment after onset of puberty (GH/GnRHa), or with GH treatment only (GH)¹.

Methods

Study groups: GH/GnRHa (*n*=69) vs GH (*n*=67)

Questionnaires at adult height

- Cognitive functioning (WAIS)
- Health-related quality of life (TAAQOL)
- Self-perception (CBSA)
- Problem behaviour (ABCL/CBCL)

Clinical characteristics

Clinical characteristics were similar in both groups.

Clinical characteristics			
	GH/GnRHa	GH	
	Means (SD)	Means (SD)	p-value
Male/Female	24/37	22/16	0.072
Gestational age	37.76 (3.27)	37.64 (2.82)	0.847
Birth weight (SDS)	-1.99 (0.89)	-1.83 (0.99)	0.410
Birth length (SDS)	-2.72 (1.04)	-2.47 (0.95)	0.289
Height at start GH	-3.07 (0.65)	-3.06 (0.55)	0.930
Adult height SDS	-1.70 (0.79)	-1.45 (0.86)	0.184

Table 1: Clinical characteristics

¹Lem, van der Kaay et al. *JCEM* 2012

Results

Cognitive functioning at adult height

	GH/GnRHa		GH		p-value
	Means (SD)	SD-scores	Means (SD)	SD-scores	
Verbal	96.31 (14.09)	-0.25 (0.94)	92.87 (10.52)	-0.48 (0.70)	0.198
Performance	97.15 (13.63)	-0.19 (0.91)	94.21 (12.12)	-0.39 (0.81)	0.280
Total	96.33 (13.47)	-0.24 (0.90)	92.47 (10.38)	-0.51 (0.69)	0.135

Table 2: Mean (SD) cognitive functioning at adult height in GH/GnRHa and GH groups. SD-scores: Standard deviation scores for reference population.

Health-related quality of life at adult height

	GH/GnRHa	GH	GH/GnRHa vs. GH	References	All groups
	Means (SD)	Means (SD)	p-value	Means (SD)	p-value
Gross motor function	95.23 (12.43)	95.42 (9.28)	0.660	96.46 (9.54)	0.735
Fine motor function	99.19 (2.72)	98.33 (6.34)	0.755	98.60 (6.78)	0.771
Cognitive function	78.42 (21.29)	82.76 (18.04)	0.422	87.86 (18.46)	0.002
Sleep	74.42 (27.10)	74.78 (22.99)	0.904	82.95 (17.88)	0.159
Pain	81.25 (18.69)	79.53 (21.96)	0.989	86.95 (14.75)	0.129
Social function	93.06 (11.24)	92.86 (11.12)	0.592	91.66 (13.52)	0.876
Daily activities	90.45 (12.05)	88.61 (17.09)	0.784	85.23 (19.34)	0.566
Vitality	71.13 (18.21)	69.54 (15.55)	0.418	69.34 (19.57)	0.763
Positive emotion	76.63 (19.00)	66.39 (25.47)	0.039	74.34 (18.42)	0.093
Depressive emotion	85.89 (16.27)	83.15 (19.64)	0.539	82.61 (15.22)	0.237
Aggressive emotion	92.00 (10.54)	83.91 (19.15)	0.066	89.32 (14.23)	0.176

Table 3: Mean (SD) health-related quality of life in GH/GnRHa, GH group and reference population. Bold p-scores indicate significance.

Cognitive functioning:

- IQ scores between normal ranges.
- Intelligence quotient scores were similar in GH/GnRHa and GH-group (96.33 vs. 92.47).
- After correcting for the difference in socioeconomic status, the two groups did not differ in IQ-scores.

Health-related quality of life

- GH/GnRHa-group had a significantly lower perception of cognitive functioning.
- HRQoL was similar between both groups for all other categories.

Self-perception & Problem behaviour

- Self-perception and problem behaviour were similar in the GH/GnRHa and GH-group.

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