

## P2-P256. GROWTH AND SYNDROMES (TO INCLUDE TURNER SYNDROME) 2

### BONE MINERAL DENSITY AND BODY COMPOSITION OF YOUNG ADULTS WHO WERE BORN SMALL FOR GESTATIONAL AGE AND TREATED WITH GROWTH HORMONE, AFTER TREATMENT COMPLETION.

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#### INTRODUCTION AND OBJECTIVES

Small for gestational age (SGA) children are at increased risk of metabolic syndrome in adulthood and have below-average bone mineral density (BMD). Growth hormone treatment reduces fat mass and insulin sensitivity, increases lean body mass and improves height and BMD in short SGA children. The present study aimed to evaluate changes in body composition in SGA patients treated with growth hormone (GH), after its cessation, compared with young adults born appropriate for gestational age (AGA).

#### METHODS

A longitudinal study was performed of twenty-one SGA patients without catch-up growth and previously treated with growth hormone. Individuals were followed up from the start for when growth hormone treatment was discontinued. Children's body composition variables (BMD in femoral neck, in lumbar vertebrae, fat and lean body mass proportion) were evaluated annually with dual-energy X-ray absorptiometry (HOLOGIC 2003-ExplorerTM) and after treatment completion and final height. Data was compared with untreated age and sex matched controls.

#### RESULTS

Table and figure 1. Perinatal data

	21 (mean ± SDS)
<b>GESTATIONAL AGE</b>	38,71 (1,92)
<b>BIRTH WEIGHT</b>	2541,62 (395,28)
<b>LENGHT</b>	45,6 (1,65)
<b>TARGET HEIGHT</b>	157,24 (6,55)

SDS. Standard deviation

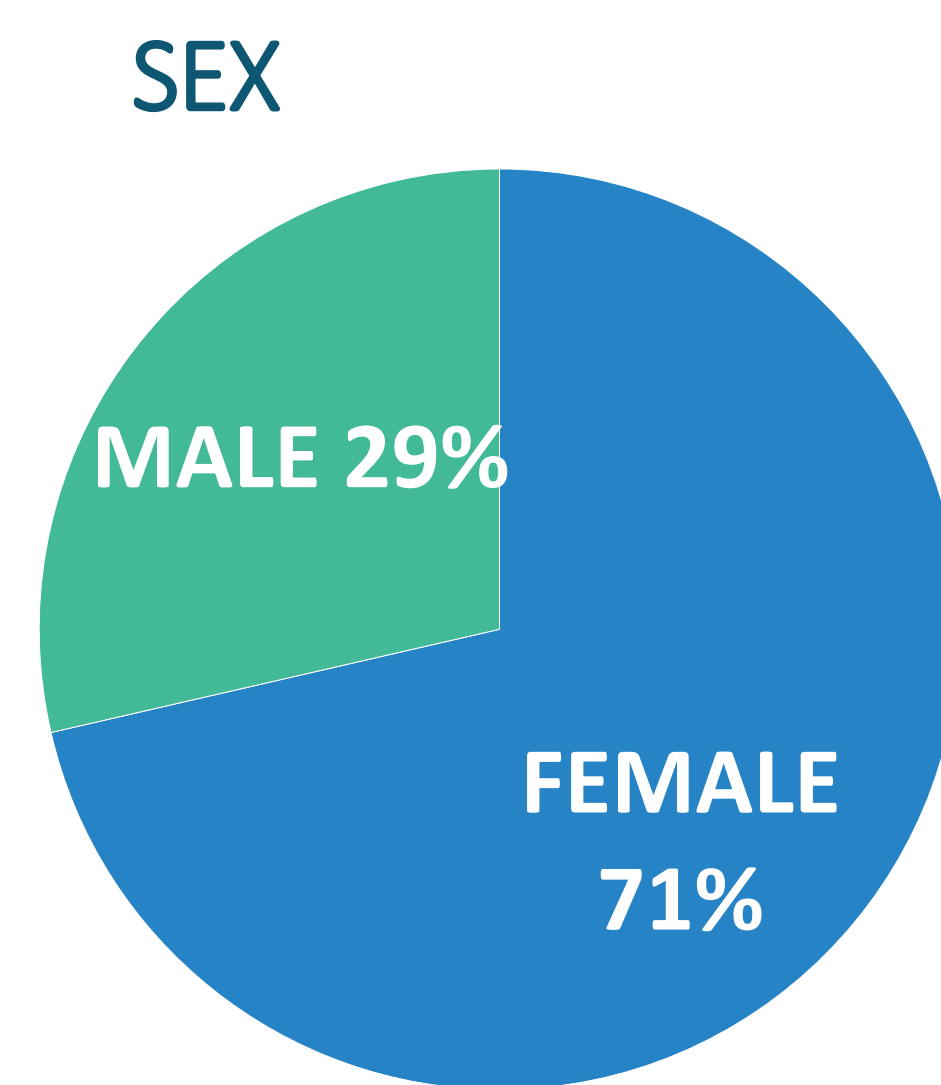


Table 2. Anthropometric parameters during growth hormone treatment

	BASELINE	2 YEARS	TANNER II	TANNER III-IV	FINAL	P
<b>WEIGHT (SDS)</b>	-0,79 (0,95)	-1,23 (0,42)	-1,29 (0,52)	-1,33 (0,45)	<b>-0,98 (0,64)</b>	<b>0,002</b>
<b>HEIGHT (SDS)</b>	-2,60 (0,45)	-1,83 (0,61)	-1,94 (0,73)	-2,06 (0,65)	<b>-1,57 (0,66)</b>	<b>0,000</b>
<b>GROWHT VELOCITY (SDS)</b>	-1,37 (1,87)	2,92 (3,04)	1,14. (1,91)	2,84 (2,30)		<b>0,000</b>
<b>BMI (SDS)</b>	-0,64 (0,56)	-0,70 (0,48)	-0,71 (0,49)	-0,70 (0,46)	-0,37 (0,69)	0,139
<b>WAIST CIRCUMFERENCE (CM)</b>	57,05 (8,59)	59,46 (4,23)	59,90 (4,15)	59,29 (4,28)	65,98 (5,25)	<b>0,000</b>
<b>WAIST CIRCUMFERENCE (SDS)</b>	-0,97 (0,95)	-0,85 (0,52)	-1,04 (0,62)	-0,92. (0,45)	-0,52. (0,93)	<b>0,015</b>

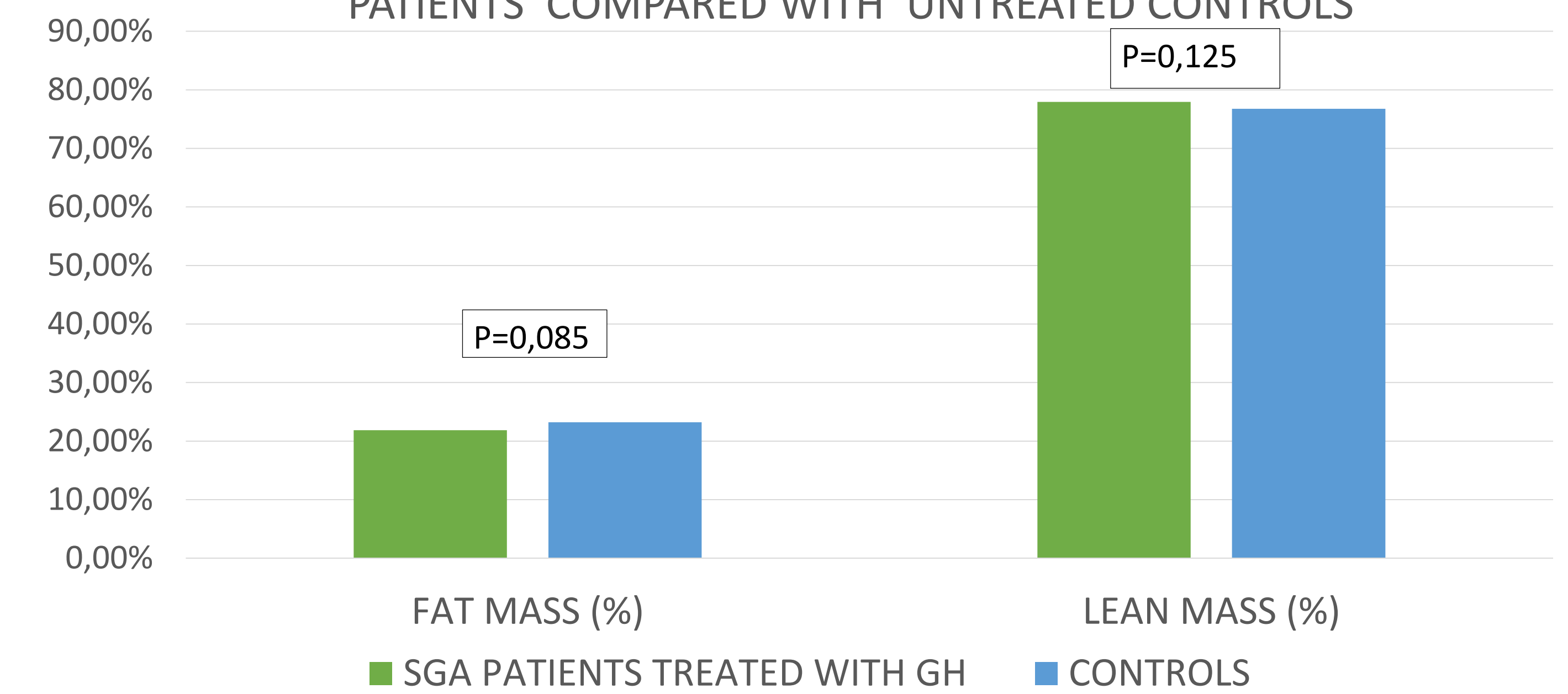
SDS. Standard deviation

Table 3. Body composition of smal gestational age patients compared with untreated controls

	SGA TREATED WITH GH (n = 21)	UNTREATED CONTROLS (n = 21)	p
<b>MALE (%)</b>	6 (28,6%)	6 (28,6%)	1
<b>AGE (mean ± SDS)</b>	16,392 (1,68)	16,323 (1,87)	0,609
<b>BMI (&lt; -2 DE)</b>	21 (100%)	21 (100%)	-
<b>FAT MASS (g)</b>	9854,13 (5238,81)	11937,87 (3905,61)	0,231
<b>FAT MASS (%)</b>	21,857 (8,93)	23,22 (6,30)	0,085
<b>LEAN MASS (g)</b>	39636,94 (9456,33)	37733,89 (5946,53)	0,061
<b>LEAN MASS (%)</b>	77,95 (8,88)	76,77 (6,30)	0,125
<b>L1-L4 ZSCORE (&lt;-2 SDS)</b>	0	5 (23,8%)	0,020
<b>FEMORAL NECK Z-SCORE (&lt;-2 SDS)</b>	3 (15%)	4 (19%)	0,731
<b>% FAT MASS 10-19%</b>	5 (23,8%)	4 (19%)	0,707

SDS. Standard deviation

FIGURE 3. BODY COMPOSITION IN SMALL GESTATIONAL AGE PATIENTS COMPARED WITH UNTREATED CONTROLS



#### CONCLUSIONS

Once treatment is discontinued, fat mass, lean mass and bone mineral density in femoral neck show no significant differences compared to those of matched controls. BMD in lumbar vertebrae was higher in SGA patients compare to controls, indicating that long-term growth hormone treatment in SGA children has no unfavourable effects on metabolic health after cessation treatment.

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