

Gain in predicted adult height using the combination of an LHRH analogue and an aromatase inhibitor in early maturing girls with compromised growth for 2 yrs or until the age of 11 is maintained and further improved by aromatase inhibitor monotherapy.

Results on final height of the "GAIL" study ISRCTN11469487

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40 girls with idiopathic early puberty (7.5- 9 yrs) with a PAH < -2 SDS or -1.5 SD lower than their TH consecutively referred, were enrolled for a maximum period of 2 years, or until the age of 11 years

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straightforward results showing a net gain of +7.51 cm in PAH at 24 months in the girls treated with LHRHa + anastrozole therapy vs +1.92 cm with LHRHa

ORIGINAL ARTICLE

## Anastrozole plus leuprorelin in early maturing girls with compromised growth: the "GAIL" study

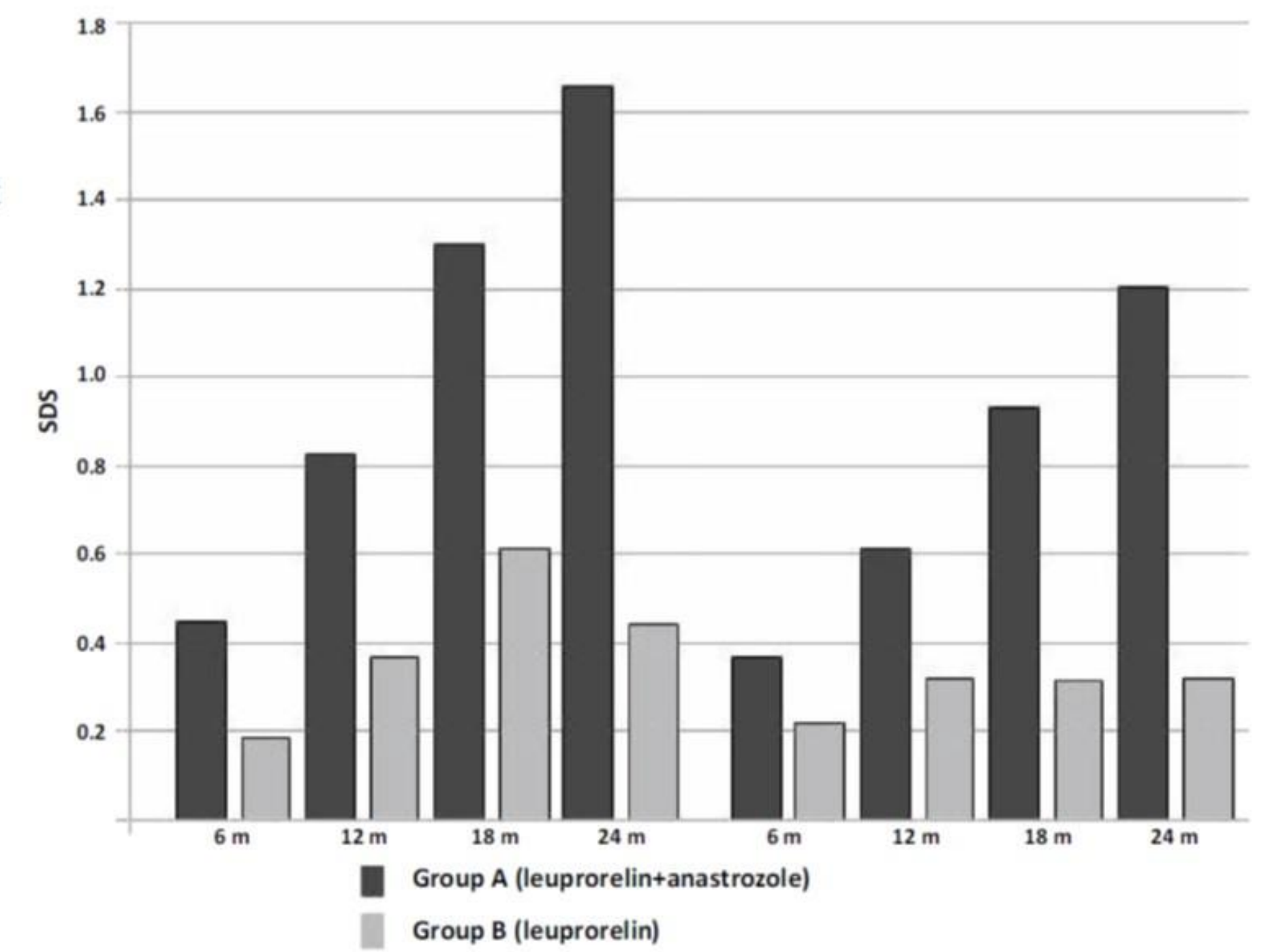
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Table 1 Patient characteristics (mean ± SD)

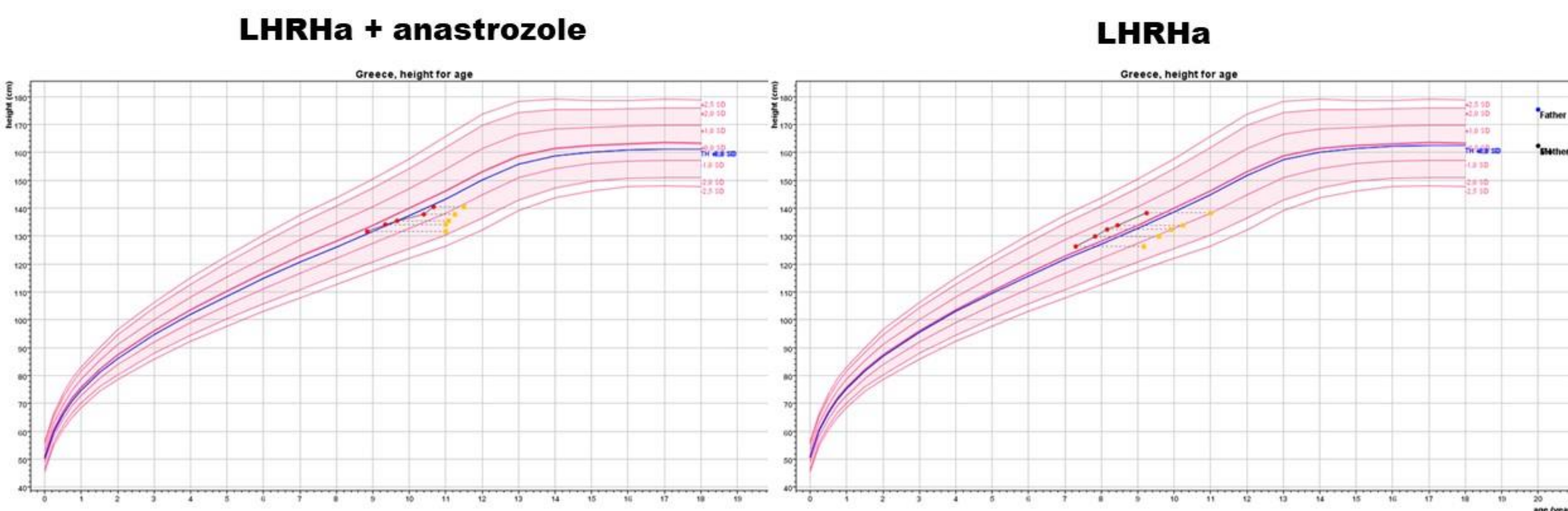
Group	Age (years)	Height (SDS)	BMI (SDS)	TH (SDS)	TH-PAH (SDS)	Bone age advancement (years)
A: LHRHa + AI (n = 20)	8.91 (±0.98)	-0.19 (±1.36)	1.15 (±0.89)	-0.27 (±0.80)	-2.17 (±1.00)	1.88 (±1.11)
B: LHRHa (n = 20)	8.46 (±0.65)	0.53 (±0.83)	1.13 (±1.08)	0.15 (±0.73)	-1.81 (±0.58)	1.95 (±0.67)
p	0.058	0.06	0.47	0.055	0.09	0.40

LHRHa: LHRH analogue; AI: aromatase inhibitor; BA: bone age; BMI: body mass index; TH: target height; PAH: predicted adult height

Fig. 2 Reduction in bone age advancement (BAA, years: left side) and gain in predicted adult height PAH (SDS: right side) in group-A (LHRHa + AI) and group-B (LHRHa) at 6, 12, 18, 24 months



"virtual" growth curve of girls treated with LHRHa + anastrozole (left) vs LHRHa alone (right)



The 20 girls on combination therapy after completion of the initial phase, were randomized in 2 subgroups:

	BMI	TH	PAH cm
Group A1	1,18	160,98	152,36
Group A2	1,16	161,33	153,92
p	0,12	0,31	0,31

A1 received anastrozole until bone age 14 yrs and A2 no therapy at all.

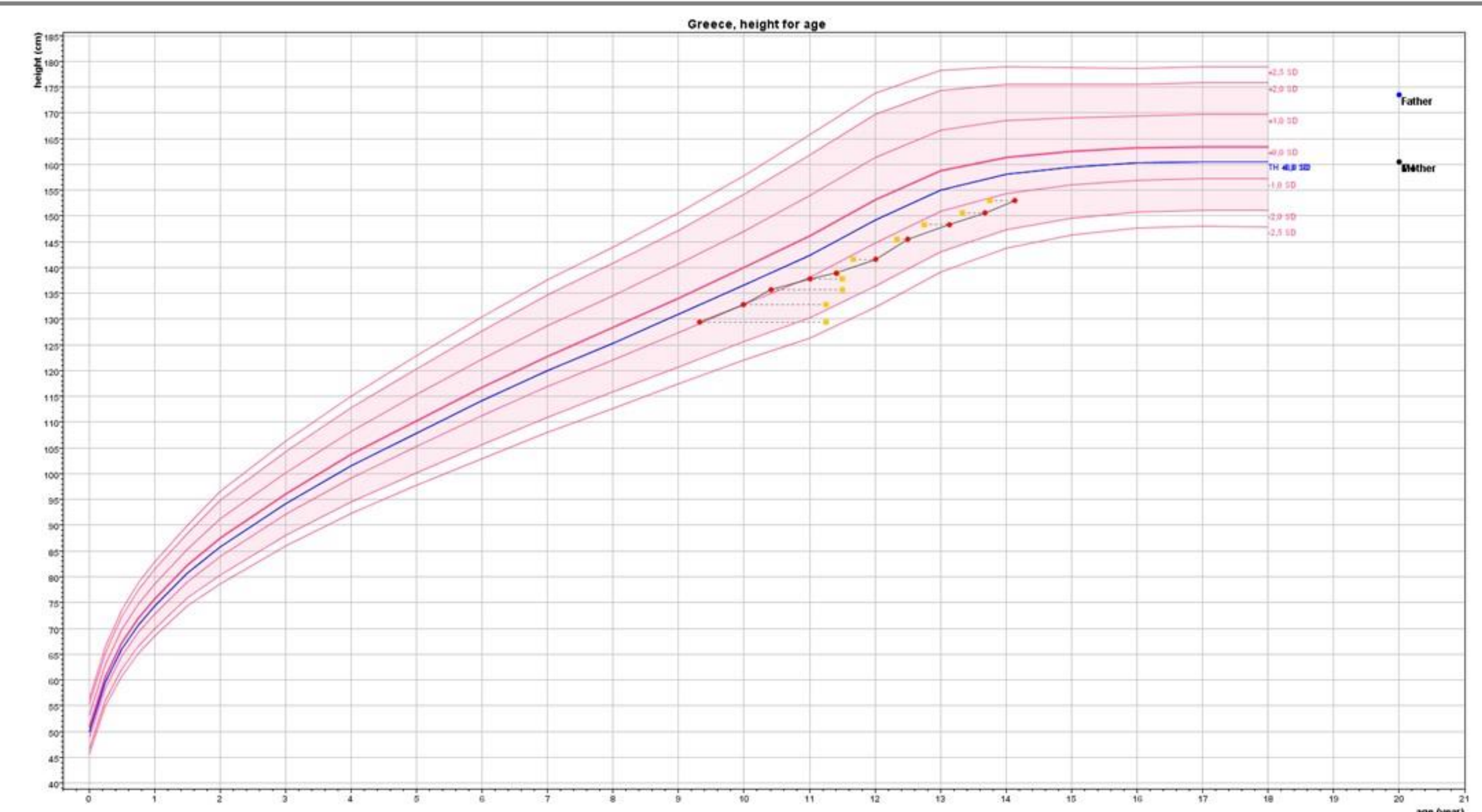
Anastrozole is safe as monotherapy in early maturing girls with compromised growth, further improving gain in predicted adult height by the initial combination therapy of an LHRH analogue and an aromatase inhibitor. Results from the "GAIL" study ISRCTN114

Poster Number: P1-P201

Evolution of Predicted Adult Height (PAH) and Bone Age Advancement (BAA) in the 10 girls that continued for 2.5 yrs with anastrozole monotherapy 1 mg/day

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
PAH <sub>cm</sub>	152,36	154	155,17	155,4	155,9	156,36
p		0,18	0,059	0,06	0,04	0,03
BAA	0,14	-0,24	-0,21	-0,22	-0,23	-0,29
p		0,12	0,16	0,12	0,16	0,11
BMI	1,14	1,03	0,9	0,96	0,91	0,97
p		0,35	0,20	0,29	0,23	0,31
HV	-3,44	-3,39	-0,73	-0,42	0,94	2,58
p		0,47	0,002	<0,001	<0,001	<0,001

second phase of the GAIL study: "virtual" growth curve of girls treated with anastrozole monotherapy



Final results on Adult or Near Adult Height (NAH) compared to Predicted Adult Height (PAH) at the beginning and at the end of the initial phase in all groups

	PAH inclusion	PAH at 2 yrs	NAH cm	NAH-PAH (at 2 yrs)	NAH-PAH (inclusion)	TH-NAH
GROUP A1	146,5	152,36	156,21	3,85	9,7	4,7
p			0,01		0,001	
GROUP A2	148,1	153,92	155,58	1,66	7,4	5,7
p			0,26		0,006	
p (A1 vs A2)				0,043	0,13	
GROUP B	151,08	153,0	154,7	1,7	3,6	8,7
p			0,08		0,004	
p (A1 vs B)				0,03	0,002	0,01
p (A2 vs B)				0,47	0,02	0,05

### Conclusions

- In early maturing girls with compromised growth, treatment for 2 yrs or until the age of 11 yrs with LHRHa + anastrozole 1 mg/day
- gain +9.7 cm in total when treated with anastrozole monotherapy until they reach NAH
- that is +2.3 cm more than
- the gain of +7.4 cm if they do not continue with anastrozole monotherapy
- and +6.1 cm more from those treated with an LHRHa alone
- who gain only +3.6 cm

As a result, the combination therapy continued with anastrozole monotherapy, ends in the shortest distance from target height

- 4.7 cm (from 14.48 at inclusion)
- compared with 5.7 cm (from 13.48 at inclusion)
- and 8.7 cm from 12.82 in girls treated with an LHRHa alone

Which implies that the addition of anastrozole to an LHRHa analogue apart from being safe, is effective in ameliorating substantially Near Adult Height making the intervention meaningful.

