FINAL HEIGHT IN ITALIAN PATIENTS WITH CONGENITAL HYPOTHYROIDISM DETECTED BY NEONATAL SCREENING: AN OBSERVATIONAL STUDY OVER 20 YEARS

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Background: The LT4 treatment in congenital hypothyroidism (CH) ensures normal growth and neuropsychological development. The studies focusing on linear growth were run in patients diagnosed in late 70s and 80s, when the age at starting treatment was higher and the starting LT4 dose lower than in 90s and later on.

Objective and hypotheses: to evaluate whether the earlier diagnosis and the higher L-T4 starting dose over the last 2 decades affected FH in a large cohort of patients with permanent CH.

Patients and Method: 215 patients (152 F) born in 80s and 90s were followed-up regularly until FH (GV < 1 cm / year) was attained.

Results: H at puberty -0.1±1.0 SDS, higher than TH (p<0.001) (Fig. 1). FH (-0.1±1.0 SDS) was not different as compared to H at puberty onset but H than TH (-0.8±1.0 SDS, p <0.001) (Fig. 1). FH was significantly correlated with TH (r2=0.564, p<0.001) and H at puberty onset (r2 = 0.685, p<0.001), but not with age at diagnosis or the starting LT4/kg/day dose.

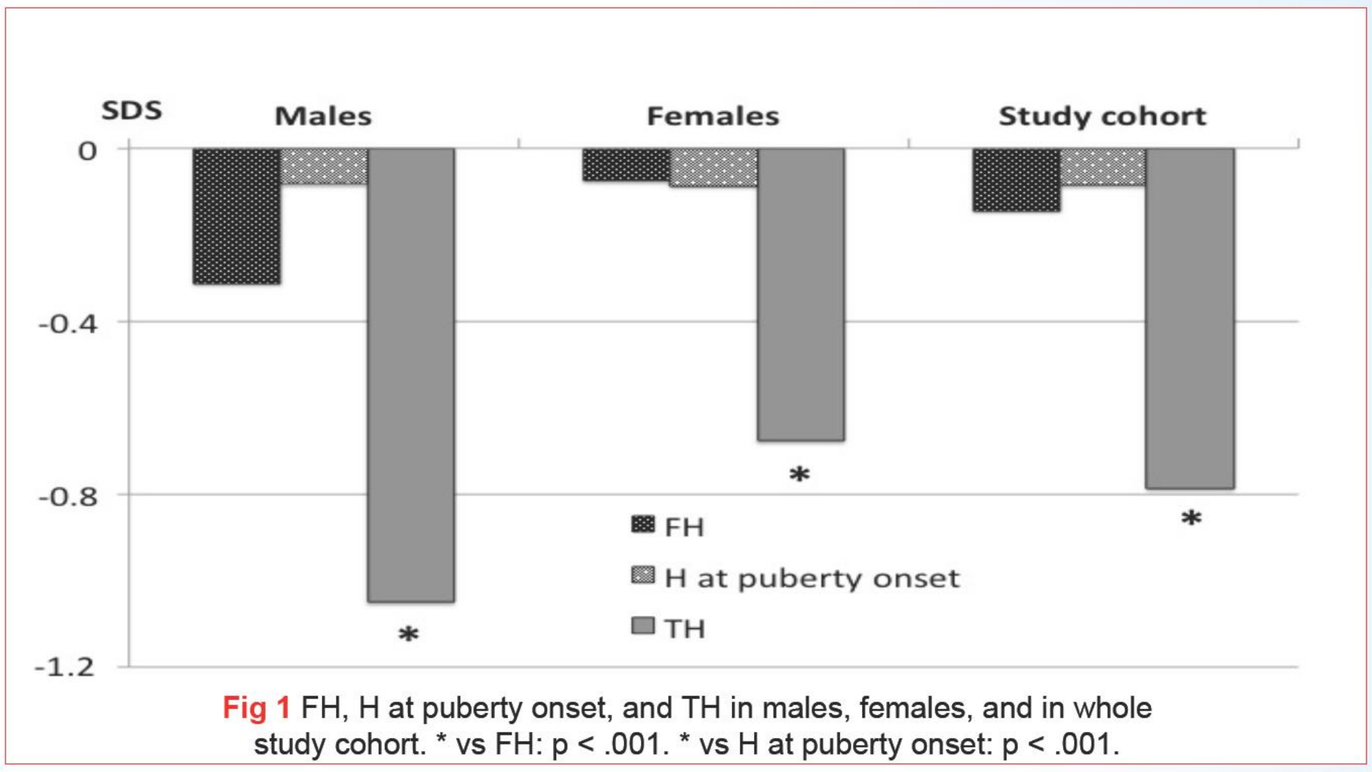
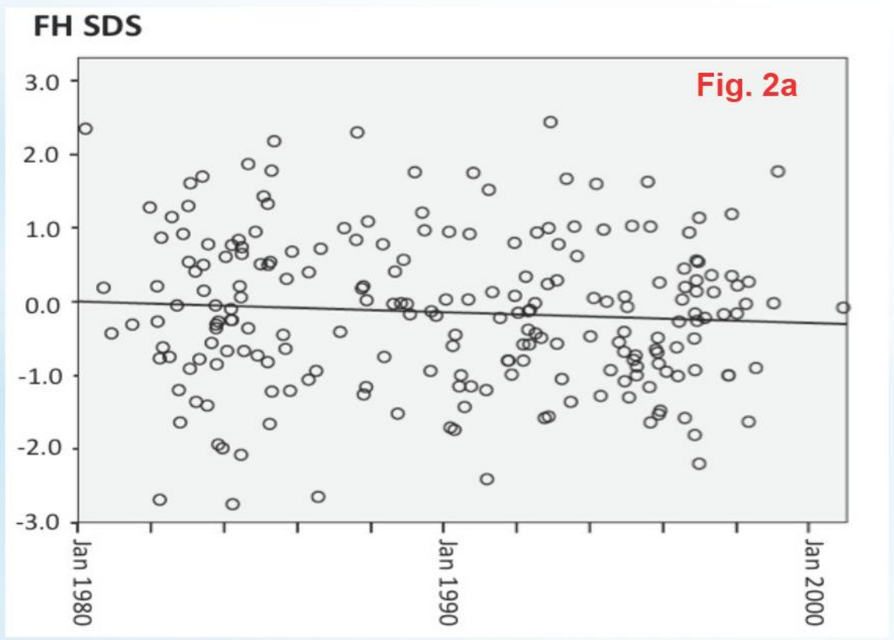


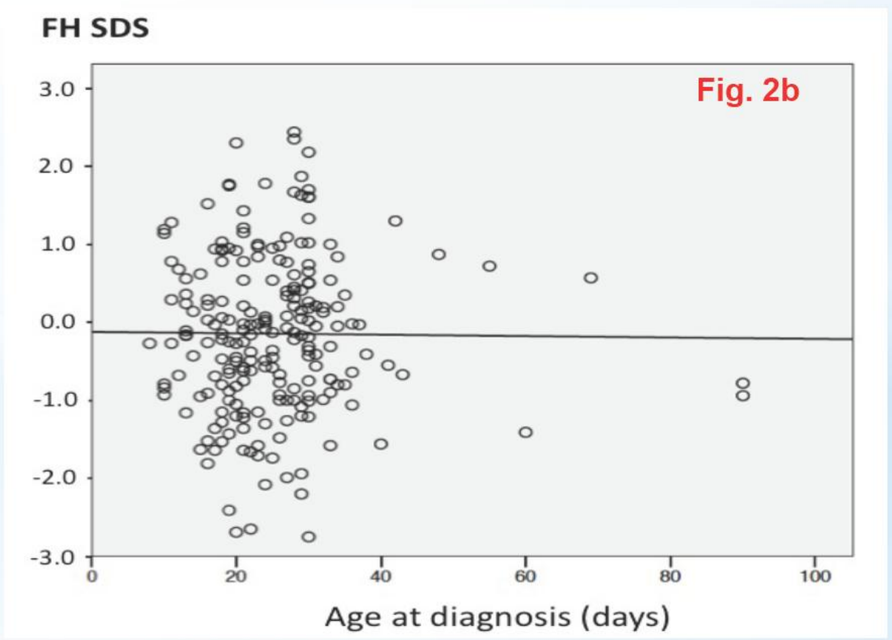
Fig 1 FH, H at puberty onset, and TH in males, females, and in whole study cohort. * vs FH: p < .001. * vs H at puberty onset: p < .001.

The patients were classified on the basis of the quartile for birthdate (Table 1). The curve fitting analysis showed that over the 2 decades the age at diagnosis progressively decreased (r^2=0.083, p<0.001), while the TH and the starting LT4/kg/day progressively increased (r^2=0.200, p<0.001, and r^2=0.033, p=0.007, respectively). FH was not affected by the birthdate (Fig 2a), the age at diagnosis (Fig 2b), nor the starting LT4 replacement dose.

	1st quartile	2nd quartile	3rd quartile	4th quartile
Age at diagnosis (days)	28.5 ± 11.9 *	27.6 ±12.6 §	23.4 ± 7.3	20.8 ± 7.4
Starting LT4/kg/day (µg)	7.5 ± 2.4 *	7.6 ± 2.3 *	8.9 ± 2.4 *, #	11.2 ± 3.0
H at puberty (SDS)	-0.2 ± 1.0	0.0 ± 1.0	0.0 ± 1.0	-0.1 ± 0.8
FH (SDS)	-0.1 ± 1.1	0.1 ± 1.1	-0.1 ± 1.0	-0.3 ± 0.9
TH (SDS)	-1.0 ± 0.9 *	-0.9 ± 1.2	-0.7 ± 0.8	-0.5 ± 0.9

Tab 1 * vs 4th quartile p≤ .001; § vs 4 thquartile p ≤ .005; # vs 1st and vs 2nd quartile p < .05





Conclusion: Age at puberty onset was normal, as well as FH which was significantly higher than TH. The age at diagnosis did not play any role on FH. Despite the large improvement in the screening strategy and the treatment approach FH did not improve in patients born in 80s and 90s. The findings of this study are in keeping with the described secular trend in height. The early diagnosis and the treatment strategy do not seem to affect the FH.

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Thyroid

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