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Markers of fertility and quality of life in adolescents with chronic endocrine diseases at the time of transition from paediatric to adult care

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Introduction: 25-50% of paediatric patients with chronic endocrine diseases are lost for follow-up in adult care. After reaching the goals of paediatric hormone therapy according to national and/or international treatment guidelines, other objectives became relevant to patients further life. The adolescent patient has to deal with complications of his chronic endocrinopathy. Consequently we established a standardized medical and psychological work-up in order to identify disease specific morbidity and to comprehend quality of life in adolescents with chronic endocrine disease s at time of transition.

Methods: Serum markers of fertility (anti-mullerian hormone (AMH), inhibin B, estradiol , testosterone) and quality of life (DISABKIDS[1] and KIDSSCREEN[2]) were examined in adolescence after near final height was reached. Scale scores are transformed into transformed raw scores (TRS) ranged from 0-100, with higher scores indicating better quality of life. Patients and parents gave informed consent and approval by local ethic committee was obtained.

Results: 120 patients aged 14 to 30.6 (70 females, 50 males) were recruited between 5/2010 and 12/2014 (figure 1). DISABKIDS TRS was 82.3±14.0 (reference 76.9±18.3)[1] and KIDSCREEN TRS (10 sub-scales) ranged between 64.7±24.9 and 92.9±11.6 (reference 66.8±19.3 and 90.3±15.5; ns)[2]. Serum-markers of fertility are indicated in table 1.

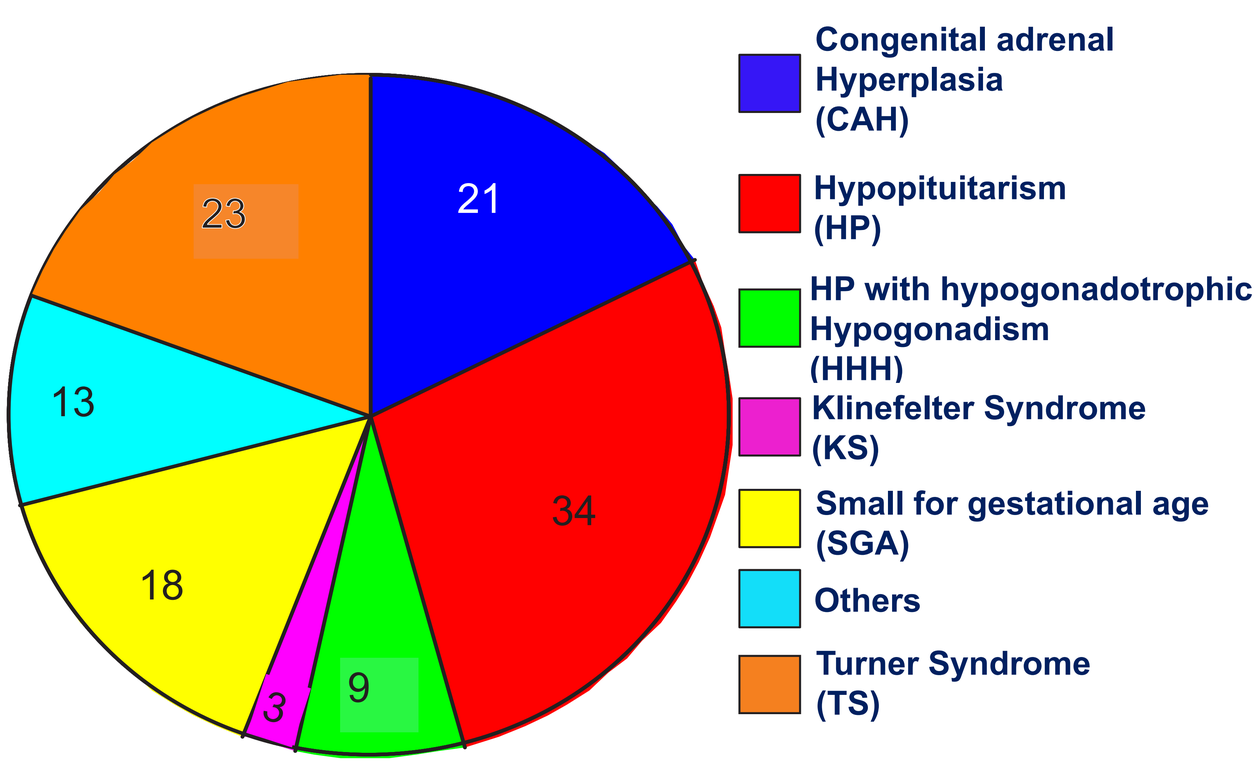

Figure 1: Diagnoses of all patients, respective numbers of specific diagnosis are indicated .

Table 1: Serum markers of fertility: anti-mullerian hormone (AMH), Inhibin B, estradiol and testosterone are presented as mean ± SD according to diagnosis and gender. Significant different results are indicated as *, •, ˣ, ¤, ∧,⌂, †,˘ (p< 0.05).

	Age (years)	**AMH** (ng/ml) (♀:1.3-7.0 ♂:2-4)	**Inhibin B** (ng/l) (♀:10-200 ♂:100-400)	**estradiol** (pg/ml) (♀:40-250)	**testosterone** (ng/dl) (♂:250-1000)	**testes** (ml)
Female						
HHH (n= 4)	26.2 ±2.8	0.9±0.6 *	8.7±2.9	94.3±40.3	-	-
HP (n=14)	18.0 ±3.2	2.8±1.3	60.8±42.3	77.0±101.9	-	-
CAH (n=12)	19.7 ±4.0	3.1±3.8	46.7±49.5	132.8±193.1	-	-
SGA (n=9)	15.0 ±1.3	2.7±1.6	79.7±41.2	101.3±116.2		
TS (n=23)	18.5 ±2.3	0.3±0.8 *	21.9±37.8	58.6±30.2	-	-
Male **HHH** (n=5)	20.2 ±2.8	23.1±21.6 •	67.0±35.1 ˣ,¤, ∧	-	737.4± 312.0	li10.4 ±8.4 re10.2 ±8.6
HP (n=20)	18.3 ±3.0	6.4±3.5	272.0±170.2 ˣ,⌂	-	629.1± 258.2	li19.3 ±4.3 re19.8 ±4.3
CAH (n=9)	18.6 ±3.2	6.0±3.0	180.7±92.1 †, ¤	-	482.8± 186.7	li18.6 ±6.0 re18.9 ±5.6
SGA (n=9)	16.5 ±0.7	6.5±3.4	285.9±106.1˘ , ∧	-	496.2± 153.0	li15.8 ±2.6 re16.3 ±2.9
KS (n=3)	18.2 ±0.2	14.2±5.3 •	40.0±29.5 ⌂, ˘, †	-	501.0 ±163.6	li 4.0 ±0.0 re 3.7 ±0.6

Conclusion:

- The quality of life in these patients is normal
- HHH in girls and boys and adolescents with TS and KS are associated with a gonadal dysfunction regardless from localisation in the gonadotrophic axis
- It remains unclear if this gonadal dysfunction is apriori or a sequelae of sex-steroid treatment
- The individual fertility of all patients remains unclear.

[1] The DISABKIDS Group Europe. The DISABKIDS Questionnaires. Lengerich: Papst; 2006
[2] The KIDSSCREEN Group Europe. The KIDSCREEN Questionnaires. Lengerich: Papst; 2006
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