PUBERTY AND GONADAL FUNCTION IN ADOLESCENTS GIRLS AFTER RENAL TRANSPLANTATION

Blandine Hecquet[1,2], Marina Charbit[3], Michel Polak[1,2,4,5], Maud Bidet[1,2]

[1]Endocrinologie, Gynécologie et Diabétologie Pédiatriques, Hôpital Universitaire Necker Enfants Malades,[2]Centre des Pathologies Gynécologiques Rares, Hôpital Universitaire Necker Enfants, [3]Néphrologie pédiatrique, Hôpital Universitaire Necker-Enfants Malades, Assistance Publique-Hôpitaux de Paris, Paris, France, [4]Université Paris Descartes, Sorbonne Paris Cité, Paris, France, [5]INSERM U1016, IMAGINE Institute, Paris, France

Background

- Renal transplantation (RTx) is the most common solid organ transplant procedure. Several studies have reported on puberty and gonadal function in female RTx recipients with controversial results.

Subjects and Methods

- We reported retrospectively the clinical signs of puberty, growth, medication and graft function of 20 girls transplanted before 16 years old.
- Furthermore, hormonal and ultrasonographic characteristics were performed in these girls followed from 2014 to 2015 in Necker Hospital.

The etiologies presented by our patients:
- 7 glomerulopathies
- 3 hemolytic uremic syndrome,

bilateral renal hypoplasia, a cystinosis, Bartter syndrome, cloacal malformation, a nephronophthisis, polycystic kidney disease, poly microscopic vasculitis, and kidney failure on multi-organ failure.

Age (yr)	19.6 ± 4.2 (12-29) ; 19
Time on dialysis (months)	13.7 ± 11.2 (0-36) ; 19
Age at transplantation (yr)	10.5 ± 4.5 (1-16) ; 19

Objectives

We sought to describe puberty and gonadal function in adolescents after Renal Transplantation before16 years.

Results

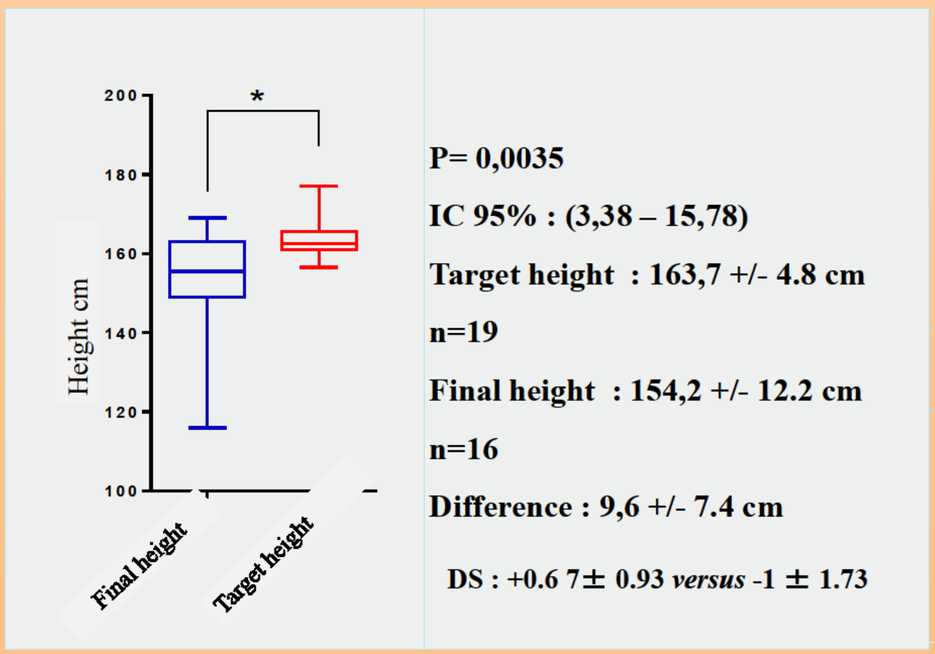
- The age of onset of puberty was 12.4 ± 1.6 (10-16) years and the age of menarche was 14.1 ± 1.6 (11-17.5) years.
- Final height was significantly delayed compared to the target height (154.2 ± 3.1 versus 163.7 ± 1.1cm, p = 0.0035)
- There was no significant correlation between age at telarche and age at RTx or with the corticosteroid dose
- The patients with renal function below 60 ml/min/ 1.73m2 had a slightly delayed menarche (14 ± 2 years vs 12.5 ± 0.5 years, p = 0.29)

Table 1: Age at the onset of puberty in relationship to possible associating factors

	Age of B2		Age at menarche	
Age at diagnosis of CRF				
< 8 years	12.2 ± 0.4 (n=14)	ns	13.9±1.8 (n=11)	ns
≥ 8 years	13.1 ± 0.8 (n=5)	p=0,2	14.8±1.5 (n=4)	p=0.18
Lengh of CRF				
< 3 years	13.0 ± 0.6 (n=9)	ns	14.8±1.7 (n=8)	ns
≥ 3 years	11.9 ± 0.4 (n=10)	p=0.38	13.7±1.7 (n=9)	p= 0.2
Lengh of dialysis				
≤ 7 months	12,5 ± 0.7 (n=8)	ns	13.9±2 (n=8)	ns
> 7 months	12.4 ± 0.4 (n=11)	p=0.7	14.4±1.5 (n=9)	p=0.56
Age at renal graft				
< 8 years	12.0 ± 0.2 (n=4)	ns	14±1.4 (n=2)	ns
≥ 8 years	12.6 ± 0.5 (n=15)	p=0.5	14.2±1.8 (n=15)	p=0.94
Corticoid dose				
< 0,20mg/kg/d	12.1 ± 0.2 (n=5)	ns	13.3 ± 1.3 (n=3)	ns
≥ 0,20mg/kg/d	12.9 ± 0.8 (n=5)	p=0.45	12.2 ± 0.3 (n=7)	p=0.64
GFR				
< 60mL/min/1,73m²	(n=0)		14 ± 2.0 (n=2)	ns
≥ 60mL/min/1,73m²	12.6 ± 1.9 (n=12)		12.5 ± 0.5 (n=11)	p=0.62
BMI at B2				
<18	12.2 ± 0.6 (n=8)	ns		
≥18 kg/m²	12.4 ± 0.7 (n=7)	p=0.9		
Donor				
Living	12.7 ± 1.4 (n=4)	ns	14.1±2.8 (n=4)	ns
Dead	12.4 ± 0.3 (n=15)	p=0.68	14.2±1.4 (n=13)	p=0.86

CRF: chronic renal failure, GFR, glomerular filtration rate.
BMI: body max index, ns : non significatif

Figure 1:Target height and final height



- Fifteen percents were amenorrheic, 21% spaniomenorrheic.
- The median FSH levels were 5.2 ± 2.75 (2.8-96) IU/L.
- Three patients had a low AMH level (<1 ng/ml). They were respectively 21, 13 and 12 years old, FSH values were 10, 96, 10.3 UI/L and their pathologies were a glomerulopathy for 2 and multiorgans failure.
- All patients had an immunosuppressive therapy with a calcineurin inhibitor, an anti metabolite and corticosteroids.

Conclusions

- Pubertal development was normal in female adolescents after RTx with age at menarche slightly higher than that reported in the general population.
- Although she appears to be broadly conserved ovarian function may be impaired, but the mechanisms are not elucidated.

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