

Adolescence and kidney transplantation: A hazardous combination? An ESPN/ERA-EDTA Registry Study

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Background

- Transplant survival is poorest during adolescence
- Non-compliance is high in adolescence
- *But*, acute rejection rates are higher in the first months after transplantation in adolescents, when effect of non-compliance is not yet suspected; possible effect of puberty
- Puberty is delayed in CKD patients by ± 2 years
- AIM: to determine the function and survival of kidney allografts in adolescents; compared to both younger children and young adults, across Europe, in relation to transplantation related factors

Methods

Subjects

- First transplant recipients
- Age: 6-30 years at time of transplantation
- Transplanted between 1995 and 2010

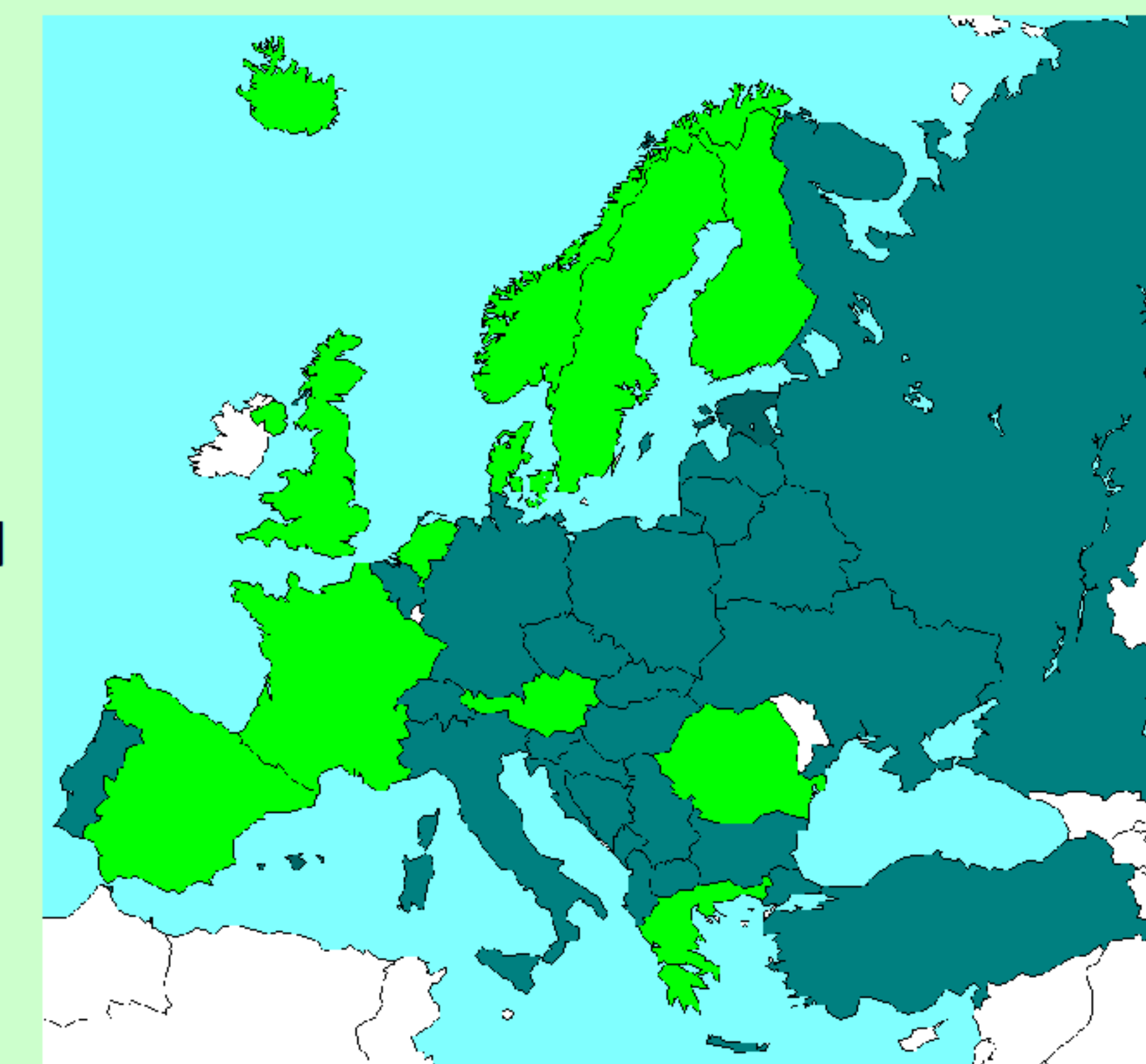
Definition of variables

- *High recurrence risk*: primary disease is FSGS, MPGN type 1 and 2, HUS and Lupus

Statistics

- Kaplan Meier for graft survival
- Cox-regression for risk of graft loss
- Time dependent Cox-regression for turning a specific age, after transplantation

Participating countries



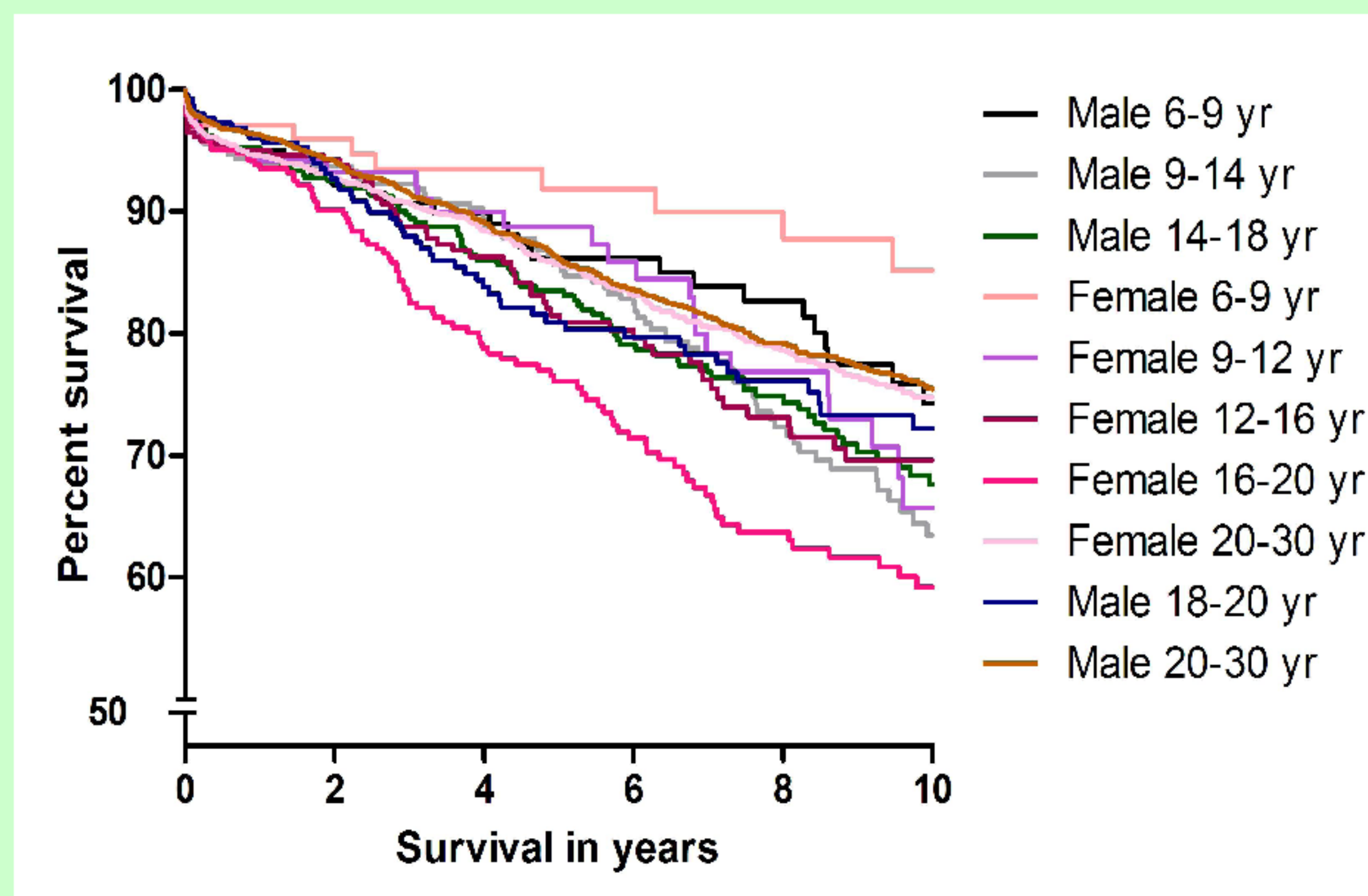
Results

General Patient Characteristics

Gender	Male 6-9 yr	Male 9-14 yr	Male 14-18 yr	Female 6-9 yr	Female 9-12 yr	Female 12-16 yr	Female 16-20 yr	Female 20-30 yr	Male 18-20 yr	Male 20-30 yr
# of patients (N=6064)	162	329	405	104	128	289	336	1518	261	2532
Living donor	81 (50.0%)	122 (37.0%)	178 (43.9%)	44 (42.3%)	50 (39.0%)	104 (35.9%)	159 (47.3%)	552 (36.4%)	127 (48.7%)	944 (37.3%)
Graft loss	28 (17.3%)	84 (25.5%)	93 (23%)	12 (11.5%)	32 (25.0%)	62 (21.5%)	100 (29.8%)	286 (18.8%)	56 (21.5%)	457 (18%)
High recurrence risk	27 (16.7%)	29 (8.8%)	37 (9.1%)	22 (21.2%)	21 (16.4%)	31 (10.7%)	42 (12.5%)	192 (12.6%)	20 (7.7%)	122 (4.8%)
Pre-emptive	53 (32.7%)	110 (33.4%)	133 (32.8%)	26 (25.0%)	30 (23.4%)	79 (27.3%)	71 (21.1%)	225 (14.8%)	56 (21.5%)	303 (12.0%)
Patients deceased	4 (2.5%)	10 (3.0%)	7 (1.7%)	2 (1.9%)	0 (0%)	9 (3.1%)	6 (1.8%)	38 (2.5%)	7 (2.7%)	64 (2.5%)

Graft survival

Gender / age at transplant	10-year survival
male 6-9 yr	74.3%
male 9-14 yr	61.9%
male 14-18 yr	66.8%
female 6-9 yr	83.5%
female 9-12 yr	62.1%
female 12-16 yr	68.7%
female 16-20 yr	58.3%
female 20-30 yr	74.1%
male 18-20 yr	72.3%
male 20-30 yr	74.5%



Risk of Graft loss of females 16-20 yr :

compared to younger females: HR 1.7 (95%CI 1.2 – 2.2, $P=0.001$) *
compared to older females: HR 1.9 (95%CI 1.4 - 2.4, $P<0.001$) *
compared to males 16-20 yr: HR 1.3 (95%CI 0.9-1.7, $P=0.115$) *

Univariate analysis

Factor	Relation with Graft failure
Gender	$P=0.46$
Non pre-emptive	$P<0.001$
High recurrence risk	$P<0.001$
Deceased donor source	$P<0.001$
Tx age	$P<0.001$
Time on dialysis	$P<0.001$
Changing of treatment center	$P<0.001$

Cox-regression time dependent analysis

Based on the -2Log Likelihood, the highest risk for graft loss was observed when transplanted females turned 17 and transplanted males turned 17.5. *

* Adjusted for: pre-emptive transplantation, living donor, high recurrence risk, and time on dialysis

Conclusions

Female patients transplanted between the age of 16 and 20 years had poorest graft survival. Turning 17 highly increased the risk of graft loss among young females when included in a time dependent analyses and was more predictive than the age of transplantation.

We speculate that because of cosmetic or social reasons medication adherence may be lower in this age group.

WE WOULD LIKE TO THANK ALL FOR CONTRIBUTING TO THE ESPN/ERA-EDTA REGISTRY

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