

Genetic influences on testosterone levels in early puberty

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Results

Aim

To estimate genetic and environmental influences on variation in salivary testosterone (T) levels in 12-year old children.

Methods

Subjects:

183 unselected twin pairs, boys and girls, 12 years of age.

Data collection:

- Midday saliva collection in plastic devices by passive drool on two consecutive days
- Salivary testosterone reflects the unbound (physiologically active) form of the hormone
- Testosterone analyzed using radioimmunoassay

Genetic modeling:

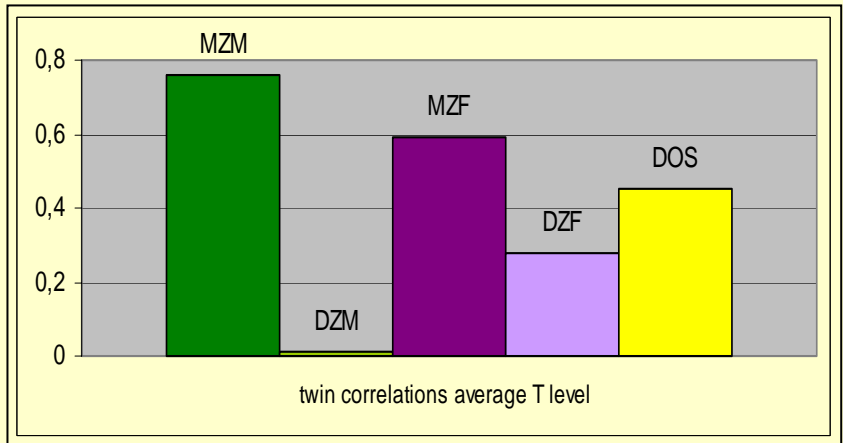
- Univariate ADE model using mean T concentration averaged over two samples.
- Test for sex differences

Discussion

Previous research (Harris et al, 1998) indicated marked sex difference in heritability of T levels in 14-21 year olds. Also, they found no correlation between adolescent twins and their parents, suggesting that different genetic mechanisms influence T concentrations across the life span. The results of our study indicate that in pre- and early puberty sex differences in gene expression for T concentration have not yet developed.

	N*	Mean (SD)
♂s1	140	71.57 (23.25)
♂s2	134	70.67 (24.23)
♀s1	145	85.39 (29.85)
♀s2	145	81.25 (28.07)

* Number of children in the study



- T level higher in girls compared to boys, consistent with their earlier onset of puberty
- No differences in T levels between same sex DZ twin girls and girls from a DOS twin pair → no evidence for effect male co-twin on postnatal T-levels in DOS-girls
- **Genetic influences (A) could explain 68% of the variation** in both boys and girls. The remaining proportion, **32%, was accounted for by non-shared environmental influences (E).**