Salivary androgens represent a non-invasive marker of puberty that may have utility in population studies as well as in the clinical arena.

To understand age and sex related variation in salivary androgens using LC-MS/MS and demonstrate the correlations between salivary androgens and pubertal development in boys:

- 1,166 saliva samples were available from 929 boys aged between 11-16 yrs at two time points approximately 2 years apart from school-based adolescent cohort study.
- Five androgens (T, A4, 17-OHP, 11-KT and 11-OHA4) were analyzed in saliva samples using LC-MS/MS.
- Self-reported assessment of puberty through the Pubertal Development Scale (PDS) was also collected at both time points.

All salivary androgens exhibited an increasing trend by an advancing age (ANOVA, p < .001) (Figure A, B).

Salivary T concentrations revealed the highest correlation with age (r=0.55, p < .001).

In a subgroup analysis of 147 saliva samples that were collected within 90 days before or after PDS, salivary T showed the highest correlation with composite PDS score & self-reported voice-breaking on PDS (r=0.75, r=0.67, respectively).

The capacity of salivary T and A4 to predict major voice change (score > 3) on PDS self-report with AUC of 0.84 and 0.78, respectively.

ROC curve analysis showed that a salivary T of 84.2 pmol/L and a salivary A4 of 106.9 pmol/L provided a sensitivity of 76% and 71%, respectively and a specificity of 74% and 74%, respectively to predict notable voice change on PDS self-report (Figure C, D).

Salivary T concentrations revealed the highest linear correlation with salivary A4 (r= 0.75; p < 0.01).

In boys aged 11-16yrs, an increase in salivary T and A4 is associated with self-reported pubertal progress including voice change.

These two biochemical markers represent valid non-invasive biomarkers of puberty in population studies.

REFERENCES

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