Low positive predictive value of midnight salivary cortisol measurement to detect hypercortisolism in type 2 diabetes

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OBJECTIVES

- Hypercortisolism is prevalent in type 2 diabetes (T2D), but analytical and functional uncertainties prevail.
- The usefulness of salivary cortisol in the context of T2D is uncertain.
- The objective of this study was to determine sensitivity, specificity and accuracy of a single LNSC with the 1 mg DST as reference standard in T2D patients.

METHODS

- 382 patients (150 women and 232 men, median age 62 (range 23 - 85) years) recruited from the Danish Centre for Strategic Research in Type 2 Diabetes (DD2) Project (12), and diagnosed with T2D after January 2009, participated in the study.
- Exclusion criteria were: use of any kind of exogenous glucocorticoids or estrogen containing medications, psychiatric disease, alcohol intake > 14 units/week for men and 7 units/week for women, and evidence of any acute medical condition.
- Cut-off values for hypercortisolism: LNSC ≤ 3.6 nmol/l and DST ≤ 50 nmol/l.

RESULTS

- 84 T2D patients (22%) did not suppress serum cortisol < 50 nmol/l after 1 mg DST.
- 329 T2D patients (86%) had elevated LNSC.
- The sensitivity of LNSC was 85% and the specificity was 14%.
- Positive predictive value of LNSC was 22% and the negative predictive value was 76%.
- ROC curve: the area under the curve revealed an accuracy of LNSC of 0.57 (95% CI: 0.49 – 0.64).
- Linear regression established that neither age, BMI nor HbA1c could predict LNSC or DST.

CONCLUSIONS

- LNSC is characterized by very low specificity and poor positive predictive value to detect hypercortisolism in T2D.
- LNSC is not suitable as a stand-alone test to screen for hypercortisolism in T2D.
- Further methodological and clinical studies are needed to substantiate the relevance of cortisol status in T2D.

References
