

# THE RELIABILITY OF SALIVARY CORTISOL FOR DIAGNOSING ADRENAL INSUFFICIENCY IN THE ACTH STIMULATION TEST

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## INTRODUCTION

The high dose ACTH stimulation test is the gold standard for diagnosing adrenal insufficiency (AI). It is performed with the administration of Synacthen® 250 µg i.v. for adults and children aged ≥ 2 years.

However, Synacthen® dose of 1 µg is currently used as an alternative because several studies have shown that both high dose ACTH test (HDT) and low dose ACTH test (LDT) have similar diagnostic accuracy.

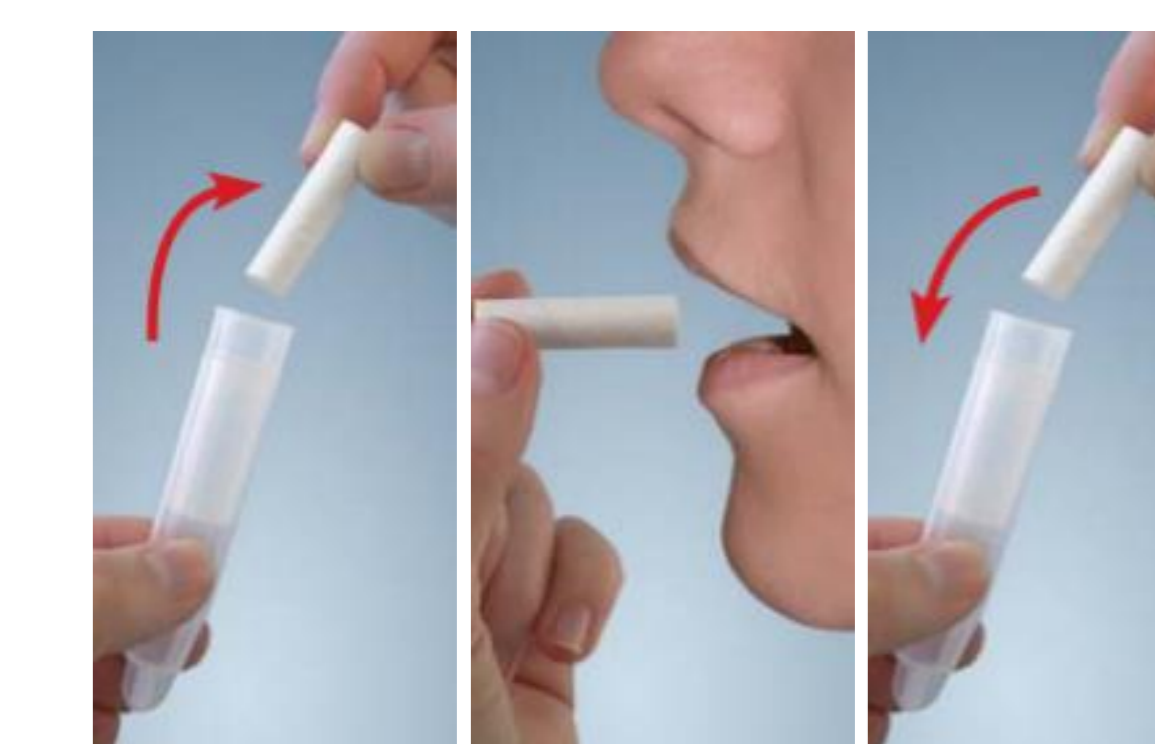
In last years, salivary cortisol has been proposed as a potential alternative to serum cortisol because it is less invasive and reflects free cortisol better than serum cortisol.

## AIM

We aimed to evaluate the reliability of salivary cortisol compared to serum cortisol for diagnosing AI in children that underwent HDT and LDT and to evaluate the sensitivity and specificity of salivary cortisol.

## METHODS

- Data were collected retrospectively in the reference period 2015-2020, including only patients younger than 18 years of age.
- For the HDT salivary and serum samples were collected at the baseline and after 30 and 60 minutes from ACTH i.v. administration.
- For the LDT salivary and serum samples were collected at baseline and after 10, 20, 30, 40 and 60 minutes from ACTH i.v. administration.
- A serum cortisol level >420 nmol/l ruled out AI.



Saliva collection using Salivette®. The vial containing the swab with adsorbed saliva is centrifugated for 2 minutes at 1000 x g yields to obtain a clear saliva sample.

## RESULTS

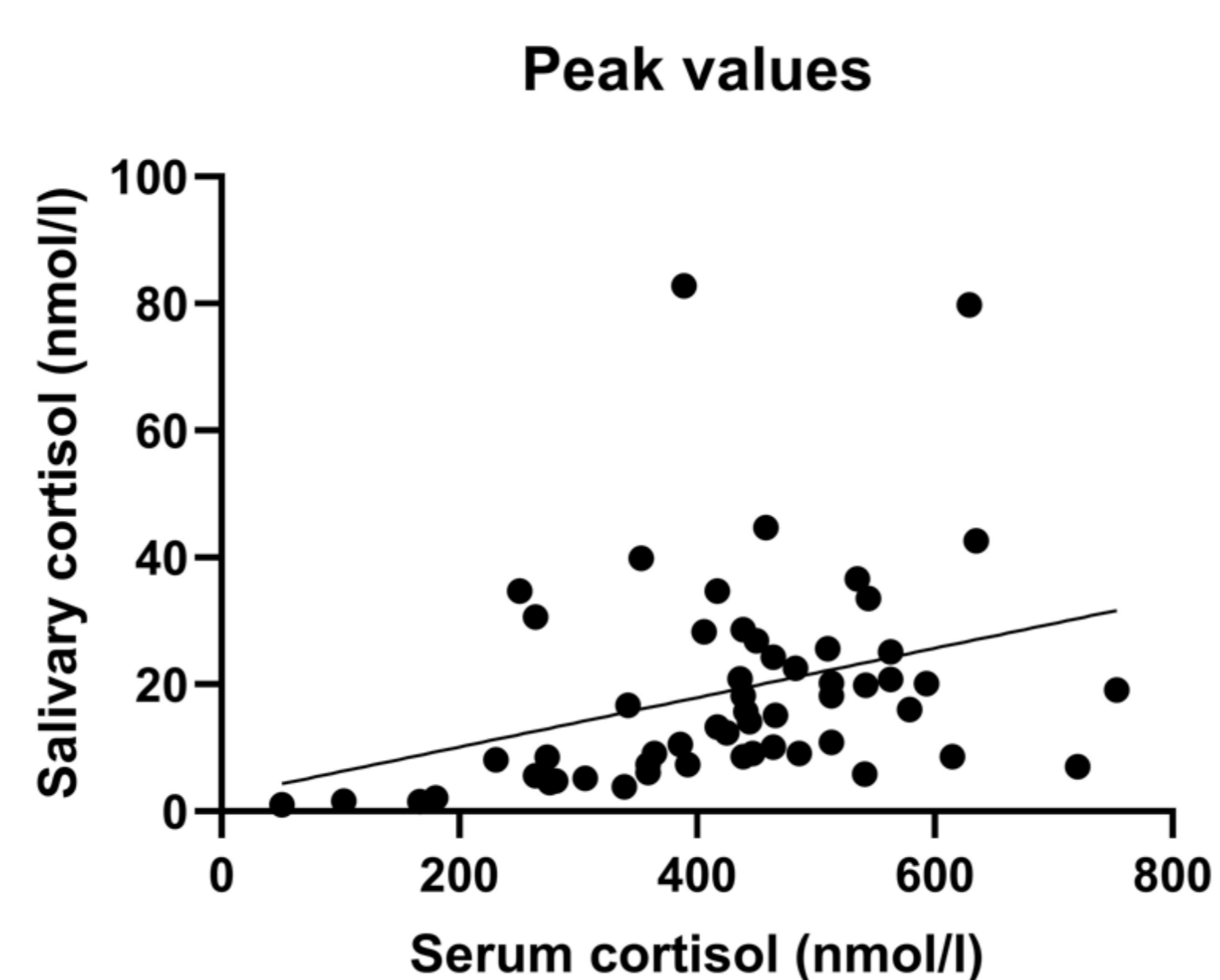
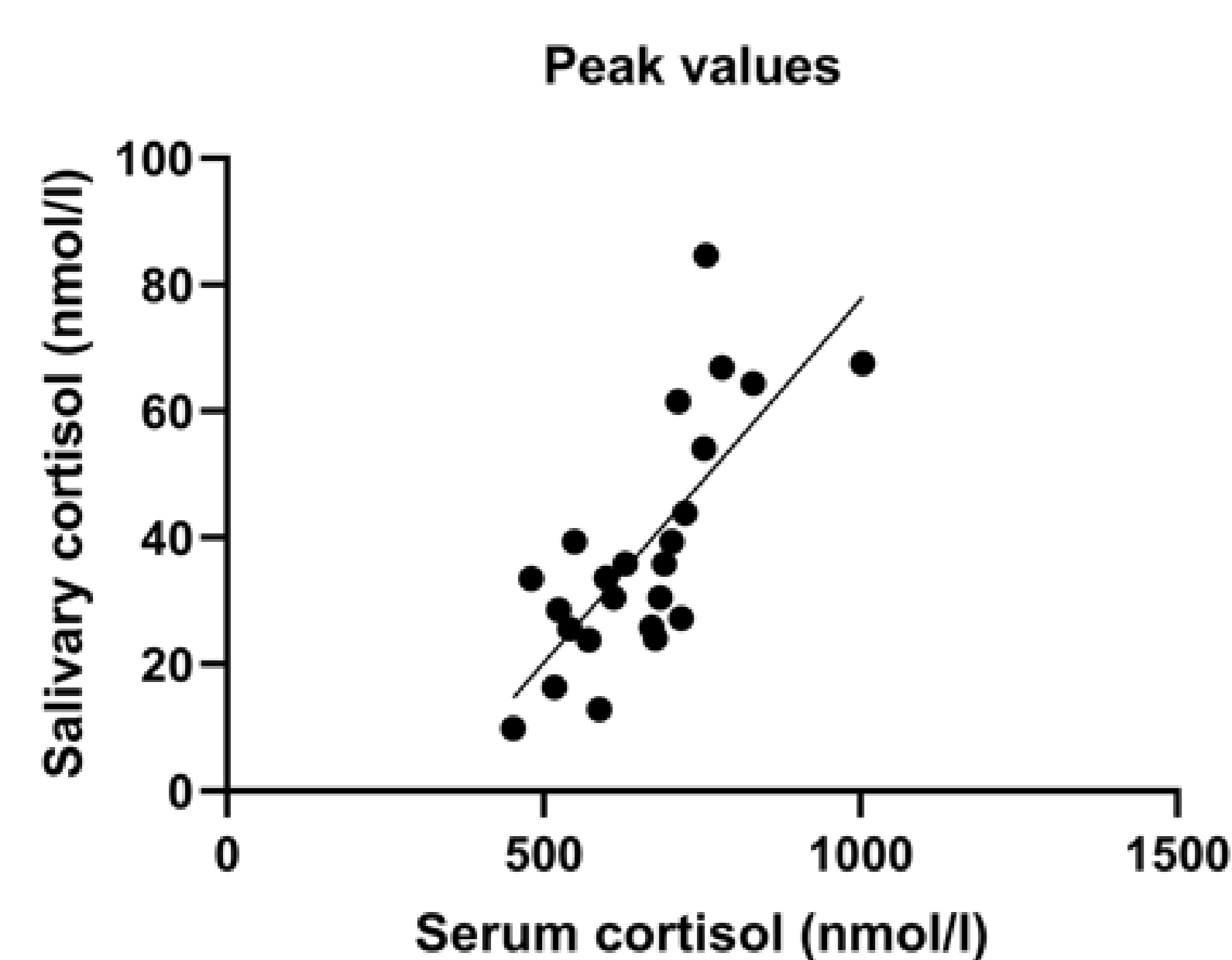
□ A total of 80 ACTH was obtained: 24 HDT and 56 LDT.

□ For the HDT, the correlation coefficients between serum and salivary cortisol were 0.80 at t0, 0.48 at t30 and 0.75 at t60 and at the peak.

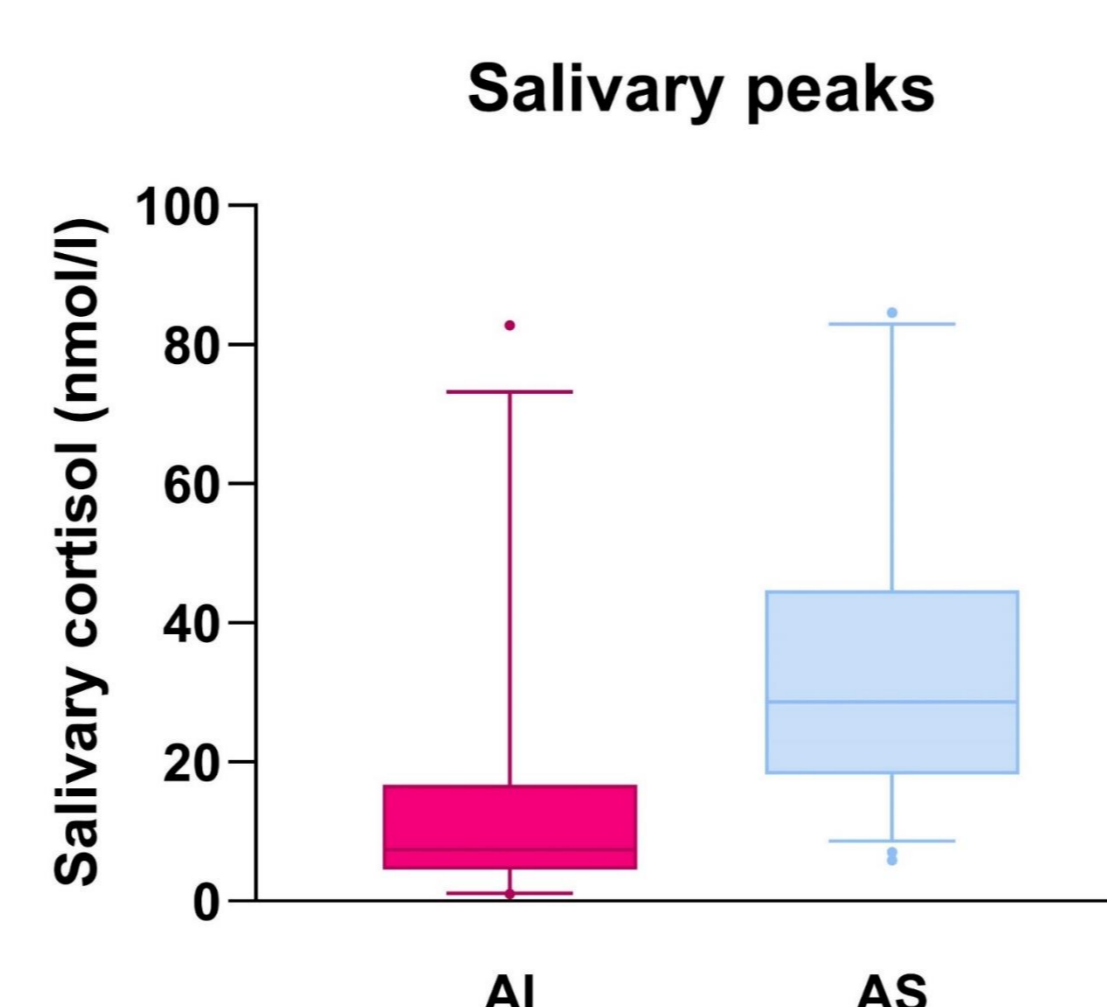
□ All patients tested with HDT were adrenal sufficient.

□ Among patients tested with LDT, 41% showed a peak of serum cortisol indicative of insufficient adrenal function.

□ The correlation coefficients between serum and salivary cortisol were 0.59 at t0 and 0.33 at the peak.



□ For a cut-off of salivary cortisol <15 nmol/l, we calculated a sensitivity of 73.9% and a specificity of 69.6%.



## CONCLUSIONS

Our data do not support salivary cortisol as a valid alternative to serum cortisol in LDT.

In regard to the HDT, data about the correlation between salivary and serum cortisol are more encouraging but further studies are needed.

## REFERENCES

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