Aldosterone determination: Comparison of a RIA assay and a CLIA assay

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Introduction and objectives

To extend knowledge about the clinical performances of a new chemiluminescent immunoassay (CLIA) for aldosterone set up in available analysers.

Methods

We compared the results of a RIA assay (Coat-a-count, Siemens) to those of a CLIA assay (Liaison automated analyser, Diasorin) in 198 serum and 80 urine samples from patients in endocrine and hypertension departments. Furthermore, we investigated the avoidance of boric acid as a preservative in urine samples (rapid transit to our laboratory <3 h).

Serum comparison results

- Passing-Bablok regression: \( y = 0.988x + 70.4 \)
- Pearson correlation coefficient: 0.9113
- Bland-Altman plot:

Urine comparison results

- Urine aldosterone concentrations with the RIA and CLIA assays.
- A) Distribution of concentrations aldosterone with Passing-Bablok regression line \( (y = 0.987x + 2.64) \) with 95% confidence intervals (dotted line)
- B) Bland–Altman plot.

Avoidance boric acid in urine

Urine aldosterone concentrations with the RIA and CLIA assays.

Evolution of concentrations in samples without (open symbols) or with (closed symbols) boric acid.

Results and conclusion

The RIA and CLIA assays were well correlated for the serum and urine samples. No modification of aldosterone concentration when omitting boric acid in urine samples up to 48 h after collection.

References:

- Schirrenbach C., Seiler L., Maser-Gluth C., Beuschlein F., Reiner M., Bidlingmaier M. Automated chemiluminescence-immunoassay for aldosterone during dynamic testing: comparison to radioimmunoassays with or without extraction steps. Clin Chem 2006

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