Amdev's "Lytening 2" Lithium Analyzer Evaluated

To the Editor:

An evaluation of the Lytening® 2 (Amdev, Inc., Danvers, MA) sodium and potassium analyzer has been reported (1). We have evaluated Amdev's "Lytening® 2" Lithium Analyzer, in which a direct-reading ion-selective electrode (ISE) is used for the analysis.

The operation of the Lytening 2 is fast and simple. Initially, cleaning solution is aspirated and a 30-s cleaning process begins. The instrument then performs an automatic 3-min calibration, and is then ready for use. Serum samples are aspirated (100 µL) and results appear within 20 s, followed by a 10-s rinse cycle. Results are simultaneously printed and displayed and the Lytening 2 is then ready for the next specimen. Lithium results (mmol/L) are reported to two decimal places.

I studied within-run and day-to-day precision, using in-house quality-control materials. The following tabulation summarizes the results (in mmol/L):

<table>
<thead>
<tr>
<th>Within-run (n = 10)</th>
<th>Mean</th>
<th>SD</th>
<th>CV, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0.76</td>
<td>0.01</td>
<td>1.3</td>
</tr>
<tr>
<td>Abnormal</td>
<td>2.43</td>
<td>0.01</td>
<td>0.4</td>
</tr>
<tr>
<td>Day-to-Day (n = 10)</td>
<td>Normal</td>
<td>0.76</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Abnormal</td>
<td>2.35</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Linearity was examined over the range of 0.1 to 2.5 mmol/L. Linear regression analysis gave an r value of 0.993, a slope of 0.98, and an intercept of −0.06. The Lytening 2 meets criteria for usefulness. I conclude that the ISE has a wide linear range, is fast, and has exceptional accuracy and precision.

Reference


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Sex-Related Correlation between Zinc and Calcium in Serum

To the Editor:

A recent Letter (1) described a positive linear correlation (r = 0.54, P < 0.001) between calcium and zinc concentrations in plasma from 58 "controls" (mean age = 42.8 y, 2 SD = 15.9), while other workers (2) found the correlation between these two analytes

in serum samples to be insignificant (r = 0.167, P > 0.05).

To re-examine this question, we sampled venous blood from 355 apparently healthy volunteers (123 men, mean age = 32.96, 2 SD = 11.39, and 232 women, mean age = 29.89, 2 SD = 9.97). Serum zinc was measured (3) in an electrothermal atomic absorption spectrophotometer (Model 703; Perkin-Elmer Corp., Analytical Instruments Div., Norwalk, CT 06856). Serum albumin and calcium were measured in the "SMAC-20" continuous-flow analyzer (Technicon Instruments Corp., Tarrytown, NY 10591). We measured albumin by the bromcresol green dye-binding method (4, 5) and calcium with the metal-complexing dye "cresolphthalein complexone" (6, 7).

Simple linear correlations were plotted for zinc vs albumin, calcium vs albumin, and zinc vs calcium. The results showed (Table 1) a positive correlation between zinc and calcium in serum, significant for both sexes. This is to be expected, because serum albumin binds certain proportions of both zinc and calcium (8, 9). Hence, partial correlation analysis between zinc and calcium concentrations, independent of albumin, revealed a correlation coefficient of 0.353 in men and 0.070 in women. This clearly indicates that the association between zinc and calcium in serum is sex-dependent, and therefore any further investigations on the relationship between these two metals should take this factor into consideration.

References

3. Foote JW, Delves HT. Determination of zinc in small volume of serum using atomic