

Vitamin D assays in Lebanon: An overview

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Introduction and goal

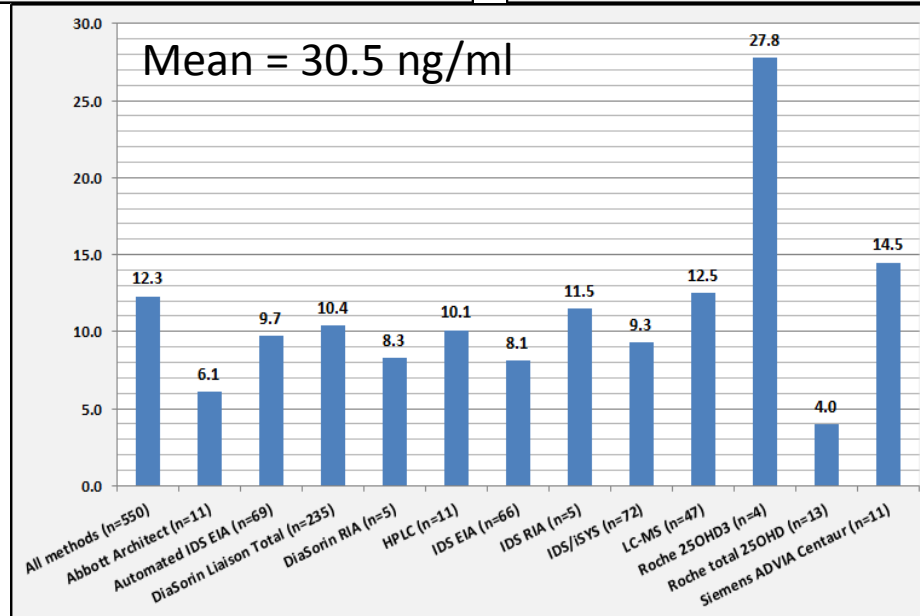
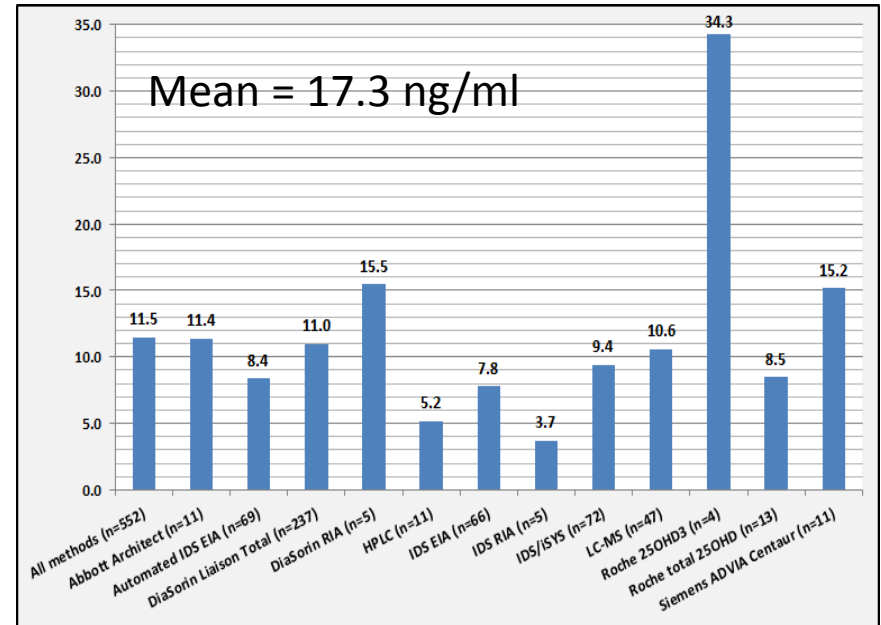
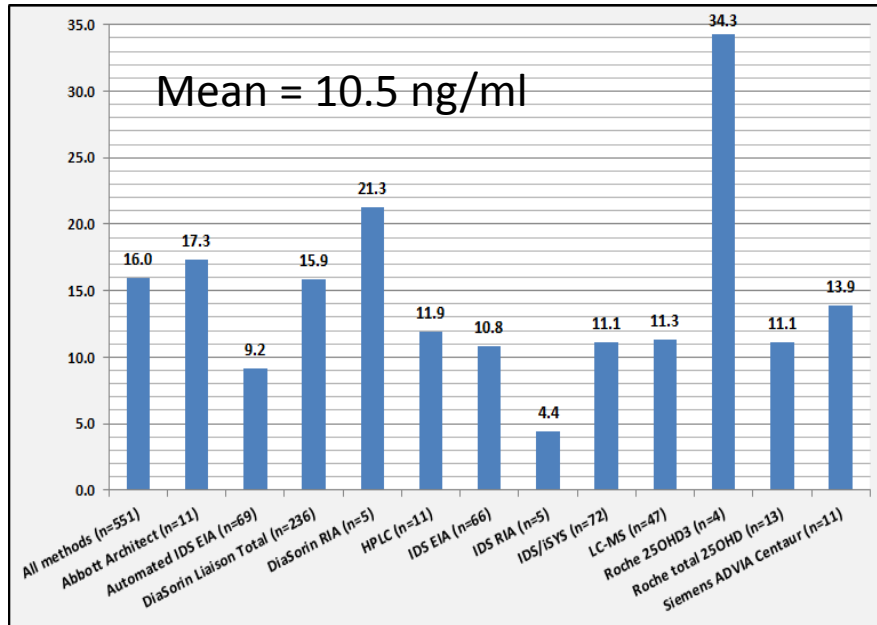
- Several assays are available for the measurement of 25(OH) Vitamin D (D2 and D3) levels.
- Results are not comparable between methods and there are substantial inter-assay and intra-assay differences in performance due to several inherent analytical reasons.
- Currently, enormous efforts by various international organizations are being invested in the standardization of these assays to improve traceability and harmonization of results.
- The purpose of this presentation is to highlight the status and the practices related to the measurement of 25(OH) vitamin D in Lebanon.
 - Method: A questionnaire was submitted to laboratories performing 25(OH) vitamin D analysis in Lebanon and focused on the following elements:
 - the type of practice
 - the methodology used (RIA, EIA, CLIA, HPLC, or LCMS)
 - the internal quality control practices including the inter-assay precision
 - the type of external quality assessment program
 - the reporting format and thresholds used for various decision levels
 - the volume of testing

Classification of Vitamin D Assays

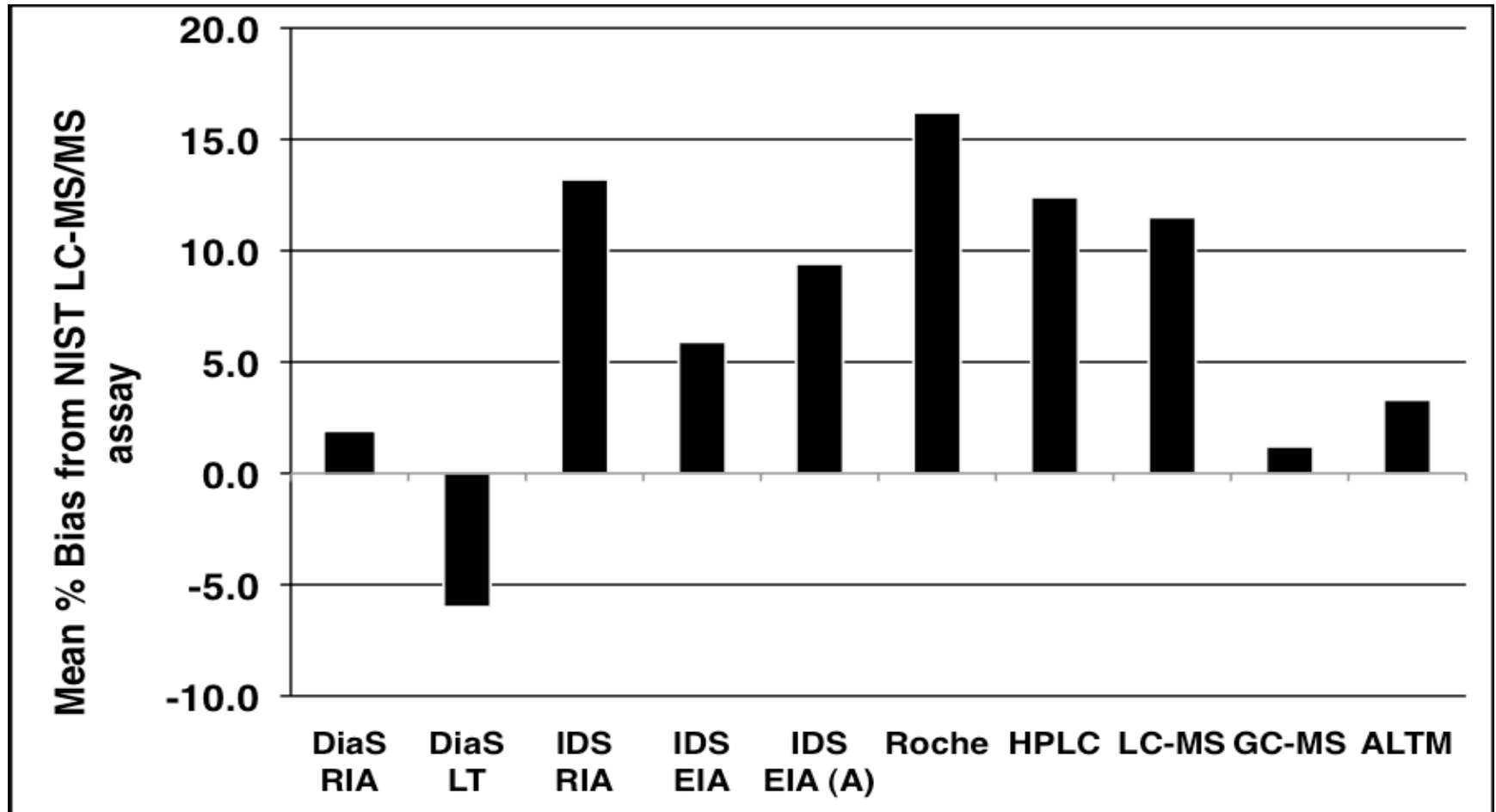
- Binding Assays:
 - Binding Protein: CPBA
 - Immunoassays: RIA (Diasorin, IDS); EIA (IDS); CLIA (Diasorin); ECL (Roche)
- Chemical Assays:
 - HPLC-UV
 - GC-MS
 - LC-MS/MS
- Analytical goals:
 - bias $\leq 5\%$ and
 - imprecision $\leq 10\%$
 - when analyte concentrations are ≥ 8 ng/ml (20 nmol/L) [*DEQAS July 2011 Distribution*].

Imprecision for Major Method Groups according to DEQAS

Data – July 2011



Deviation (% bias) of methods from the NIST candidate Reference Measurement Procedure (LC-MS/MS)



DiaS , DiaSorin; (A), automated; Roche, Roche 25-OHD3; LC-MS, LCMS/MS; GC-MS, prototype DEQAS GC-MS method (25-OHD3 on 5 samples); ALTM, All-Laboratory Trimmed Mean (current DEQAS target value).

G. D. Carter. *Current Drug Targets*, 2011, 12, 00-00

Vitamin D Methodologies in Lebanon : a National Survey

[To be presented during the meeting]

- Summarize the most widely used methods for determination of vitamin D in Lebanon.
- Help increase the awareness of Lebanese laboratorians and physicians about the current methodologic differences in 25(OH) vitamin D and their impact on clinical interpretation.
- Emphasize the significance of rigorous internal and external quality control programs in the assessment and monitoring of assay variability.