Comparison between Perkin-Elmer and Chromsytem Vitamin D kit on TQ 5500 from AB SCIEX.

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Introduction:Twenty-five hydroxy-vitamin D (25(OH) D) determination is now routinely prescribed in the Laboratory. Recently, different new methods have been available for this determination. Among them, LCMS/MS methods have emerged in some laboratories. However these methods are generally "home-brewed" and an important variability between them can be seen on different external quality controls, mainly due to a lack of standardization. Recently, Perkin-Elmer (PE) (Turku, Finland) and Chromsystem (CS) (Grafelfing, Germany) launched a standardised method for 25(OH)D determination on LCMS/MS. The aim of our study was to compare these methods on the AB SCIEX TQ5500 (Framingham, Massachusetts, USA) LCMS/MS to measure 25(OH) D3.

Materials and Methods: All the samples were treated according to our preanalyitical procedure: after sampling, they were spun at +4°c at 3500G, aliquoted and kept frozen at -20°c until determination. A method comparison was assessed with CS and PE for the measurement of the 25(OH)D3. We selected 110 remnant samples with 25(OH)D3 levels ranging from 1.6 to 136.7 ng/ml with the PE method to cover the range of usually values Slope and intercept were calculated using Passing and Bablock linear regression and we compared the methods with the Bland and Altman plots.

Results: For CS, the method is linear up to 250 µg/L, the LOQ is 3.6 µg/L, the intra-assay CV is < 5% and the inter-assay is < 7%. For PE, the method is linear up to 314 µg/L, the LOQ is 3.4 µg/L, the intra-assay CV is < 7.8% and the inter-assay is < 8.5%. On the whole range of measure (n=110), the regression equation is PE = 0.8521+0.9226 (CS) (95%CI of the intercept: (-0.0048;1.37) and 95% CI of the slope (0.89;0.95) (Fig. 1). The Bland and Altman plot does not show any bias between the two methods (mean difference CS-PE= -2.5 ng/ml) and the standard deviation of the mean is 3,98 ng/ml (Fig 2).

Figure 1

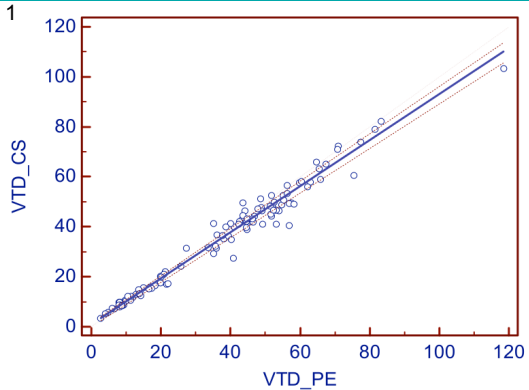
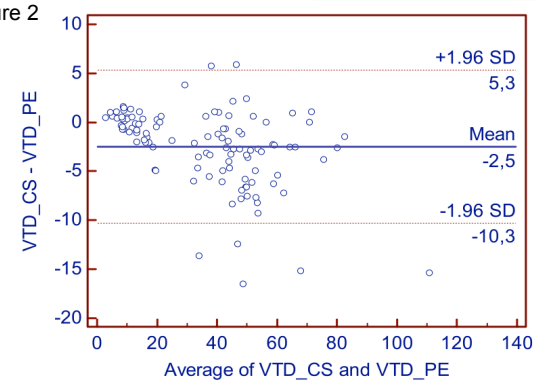


Figure 2



Conclusions: The performances of these methods are comparable on our new TQ 5500 from AB SCIEX. For now, there is no consensus on a "reference" method for vitamin D quantification. We notice only that the values obtained by CS are systematically a little bit lower than PE's values, especially for results below 20 ng/ml. However, we have no clear explanation for such behaviour.