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Evaluation of two new high-sensitivity methods for C-reactive protein

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Abstract

Background: The implementation of a high-sensitivity C-reactive protein (hs-CRP) assay as a routine laboratory parameter may be necessary. It would be most practical to use one CRP method giving reliable results for the whole concentration range. We report here the evaluation of two new hs-CRP methods, which cover both the low and the high concentration ranges.

Methods: The BN ProSpec hs-CRP (Dade Behring) and Synchron LX 20 PRO hs-CRP methods were compared with the existing hs-CRP IMMAGE method (taken as a reference) and, for the high concentration range, also with the routine Synchron LX 20 CRP method (all from Beckman). Agreement among methods was examined for 521 samples. Reference values were estimated in 291 blood donors. Additionally, the influence of sample turbidity, a major problem of the present Synchron LX20 CRP method, was evaluated.

Results: Measurement of CPR by the BN ProSpec was linear down to 0.2 mg/L, whereas the linearity of Synchron LX20 PRO showed some systematic discrepancies. Over the whole measured range (0.2-250 mg/L), precision (coefficient of variation, CV) was < or =3.7% for the BN ProSpec and < or =6.1% for the LX20 PRO. The Synchron LX20 PRO hs-CRP method was found to be superior to the current routine Synchron LX20 CRP method with regard to precision in the low concentration range and the influence of sample turbidity. Both in the low concentration range and especially in the high concentration range, large discrepancies between methods were observed.

Conclusion: Although acceptable performance was found for the Synchron LX20 PRO hs-CRP method, overall the performance of the BN ProSpec hs-CRP method was superior. However, standardization among assays needs further improvement in both the low and the high concentration ranges.

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