IMMUNORADIOMETRIC DETERMINATION OF INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 IN HUMAN SERUM

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AIM: Insulin-like growth factors (IGFs) are peptides with mitogenic and metabolic actions that are modulated by several binding proteins (IGFBPs). IGFBP-3 is the most abundant binding protein in the circulation and its role is the most important. In this work we report the development and analytical validation of an IRMA for the quantitative determination of IGFBP-3.

MATERIALS AND METHODS: Goat polyclonal anti-rhIGFBP-3 antibodies were used for the formulation of a one step »sandwich« assay IRMA IGFBP-3. Standardization of the assay was done against recombinant human IGFBP-3 (DSL-R00502). The determined IGFBP-3 concentrations by the developed assay was correlated with the IRMA IGFBP-3 DSL (DSL-6600). The correlation of IGFBP-3 and IGF-I concentrations in 39 sera was also investigated. The differences in the results were evaluated using the Interactive Graph T-test.

RESULTS: The detection limit of the IRMA IGFBP-3 is 0.5 μg/L. The concentrations of IGFBP-3 determined by developed assay correlated well with those obtained by DSL assay ($r = 0.83$, $p = 0.84$). Satisfactory correlation was achieved for determined concentrations of IGFBP-3 and IGF-I in tested human sera ($r = 0.62$ for all samples and $r = 0.70$ for the samples with IGF-I and IGFBP-3 concentrations within the reference range).

CONCLUSION: Analytical validation demonstrated the reliable determination of IGFBP-3 concentration in human serum by IRMA IGFBP-3 (INEP). In combination with other assays our IRMA IGFBP-3 may be useful to fully understand the IGFBP-3 profile in human sera.