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Comparison of the fluorescence polarization immunoassay and the microbiological assay methods for the determination of gentamicin concentration in human serum.

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Abstract

The performance of the fluorescence polarization immunoassay (FPIA) was compared with that of a microbiological assay for the measurement of serum gentamicin concentrations. Within-run precision from duplicate assays of two concentrations (4 and 8 micrograms/ml) using FPIA and the microbiological assay yielded coefficients of variation (r) of 2.62%, 1.76% (n = 12) and 8.06%, 6.87% (n = 12), respectively. Day-to-day precision was estimated by repetitive analysis of 4 and 8 micrograms/ml control samples over a 3-week period. Coefficients of variation (r) were 2.57%, 3.09% (n = 8) and 10.71%, 14.20% (n = 8) for FPIA and the microbiological assay, respectively. Linear regression analysis performed on data from parallel determinations on 143 patient samples by the two methods showed correlations in the order of 0.74. The FPIA offers a rapid, efficient, and accurate system for therapeutic monitoring of gentamicin serum levels