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Peritoneal interleukin-6 - The trueness of an automated method

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Background/Aims Interleukin-6 (IL-6) measured in ascitic fluid (AF) or peritoneal dialysis effluent (PDE) is known to be a surrogate marker for inflammatory damage to the peritoneal mesothelium. While there is no lack of laboratory methods which determine IL-6 in blood plasma or serum, these assays are not validated for the use in diagnostic peritoneal fluids. This study compares the analytical trueness of peritoneal IL-6 values determined using a routine IL-6 blood assay. Besides the precision, the trueness of a laboratory test is the main criterion in order to gain high accuracy.

Method/Results Each 25 samples of AF and PDE were analyzed with an automated high-throughput electrochemiluminiscence immunoassay (ECLIA) which is validated for measuring IL-6 in human blood between 1.5 to 5000 pg/mL. Consecutively, we analyzed these samples with an enzyme-linked sandwich immunoassay (ELISA) which served as the reference method. Both, the ECLIA and the ELISA were calibrated against the international reference standard for IL-6 (NIBSC 89/548). Passing Bablok regression analysis and Bland Altman Plotting revealed a slight constant bias comparing the PDE results. A good agreement between the ECLIA and the ELISA was seen in the AF group. Furthermore, the IL-6 values were significantly higher ($p<0.001$, Mann-Whitney U test) in the AF than in the PDE group.

Conclusion The results of this method comparison indicate that the ECLIA are safely applicable to peritoneal fluid samples. Presuming an equally good analytical precision (for which further studies are needed), this method would certainly enrich the routine laboratory marker panel for the monitoring of peritoneal integrity in patients with ascites or undergoing peritoneal dialysis.