On – Line Dialysate Filtration: A Method of Dialysate Endotoxin Removal or Only Reduction?

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On-line dialysate filtration is a method of dialysate endotoxin removal or only reduction?
Our results are in contrast to the results of Frinak’s [5] study in which never crossing over for endotoxins was demonstrated in on-line dialysate filtration (double polysulfone filtration). One explanation for these differences could be the type (bacterial contamination of the dialysate with endotoxin release) and the concentration (30-300 ng/ml) of the endotoxin. Our results (Table 1) demonstrate the crossing over 1 polysulfone membrane for endotoxins (site 1) with a highly sensitive method (LAL test) and with a highly specific method (electrophoresis). One filtration allows a progressive reduction in endotoxin concentration. In the same way, a double polysulfone filtration (site 2) achieves a high percentage reduction in the concentration of endotoxins; the samples were below the limit of sensitivity of the electrophoresis technique.

We feel that the on-line polysulfone filtration system is a very effective and reliable method only for reduction of endotoxin substances from the dialysate. But total removal is dependent from the initial level of dialysate contamination and the limit of detection of the test used.

Table 1. Endotoxin determination after 1 (site 1) or 2 (site 2) polysulfone ultrafiltrations by LAL test (ng/ml, sensitivity 0.03 ng/ml) and electrophoresis (bands, sensitivity 25 ng/ml, ++++, ++ or + decrease in band intensity)

References
