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Endotoxins in Dialysate Cause Outbreak of Peritonitis

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In August 1996, five states identified outbreaks of culture-negative peritonitis in peritoneal dialysis patients. The CDC investigated these outbreaks to determine the cause and extent of culture-negative peritonitis among New York patients on either continuous ambulatory peritoneal dialysis (CAPD) or continuous cyclic peritoneal dialysis (CCPD). Information from patients was obtained by a telephone survey of all New York outpatient dialysis centers, using a standardized questionnaire. Dialysis solutions from one manufacturer were tested by the FDA for bacterial and endotoxin contamination. The results of the investigation found that 95 dialysis centers, with a total of 2,471 peritoneal dialysis patients, reported 97 cases (3.9%) of culture-negative peritonitis. This included culture-negative peritonitis in 79 (8.7%) of 1,554 CCPD patients compared to 18 (1.2%) of 907 CAPD patients. Among the CCPD patients, 27.2% (73/268) using products from company A developed culture-negative peritonitis, compared with 0.9% (6/639) using products from company B. No association was found between products used and culture-negative peritonitis in CAPD patients. Two samples of company A dialysate retrieved from CCPD case patients had high levels of endotoxin (>1.25 endotoxin units/mL). The investigation implicated the use of dialysate from company A by CCPD patients in the largest reported outbreak of culture-negative peritonitis in peritoneal dialysis patients. The authors conclude that current standards for testing dialysate solutions prior to sterilization may not protect these patients from illness due to residual endotoxin.

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