In this prospective study, we examined the effect of prolonging cultures of peritoneal dialysis fluid to 21 days. The extended culture period did not lead to any new or clinically important findings, although late culture findings were obtained in a small number of cases. Prolonged culture of the effluent does not appear to be necessary, although it can lead to extended duration of antibiotic therapy if time on therapy is guided by the first negative effluent culture.

Key words
Laboratory methods, peritonitis

Introduction
For more than 30 years at our unit, specimens of peritoneal dialysis (PD) effluent from patients with suspected peritonitis have been cultured in BacT/Alert FA and FN blood culture bottles (bioMérieux Canada, St. Laurent, QC, Canada) for up to 5 days in the microbiology laboratory. Treatment is based on the culture results and the white blood cell count and its differential from the first positive culture. Typically, duration of treatment is guided by the timing of the first negative culture.

Extending the culture time may be helpful in isolating more fastidious, slower-growing organisms, and such extension is often used for specimens from patients suspected of having infective endocarditis. It is unknown whether similarly prolonged culture of effluent from PD patients with peritonitis could increase the detection of causative organisms.

We set out to determine whether prolonging the culture of effluent from PD patients with peritonitis increases the detection of causative organisms and improves the treatment of PD peritonitis.

Methods
All PD effluent specimens sent for processing at the Department of Microbiology in the University Health Network/Mount Sinai Hospital during a 1-year period (July 1, 2009, to June 30, 2010) were included in this study.

If the effluent was clear, aerobic and anaerobic BacT/Alert blood culture bottles were each inoculated with 8 – 9 mL of effluent and incubated for a total of 21 days. If the specimen was cloudy, Gram staining was also done, and the specimen was also inoculated onto blood, chocolate, and MacConkey agar (Oxoid Company, Nepean, ON, Canada) and incubated for 4 days to shorten the turnaround time for reporting a positive result.

All isolates were identified using conventional identification methods, and susceptibility testing was completed according to the recommendations of the Clinical Laboratory Standards Institute (1).

The total number of positive cultures and the proportion that became positive after 5 days of incubation was determined using the laboratory information system. Clinical significance of the positive cultures was determined by chart review.

Results
During the study period, 192 specimens became culture-positive. Of the positive specimens, 8 (4.2%) in 6 patients became positive after 5 days of incubation (Figure 1). Of those 8 specimens, 3 (from 2 patients) grew Staphylococcus aureus. In the 1st patient, the culture became positive on day 10, and in the 2nd, cultures became positive on days 6 and
However, those patients were already on targeted antibiotic therapy, because the specimen taken at presentation had already grown *S. aureus*. In the 3rd patient, previous blood and effluent cultures had been positive for *Enterococcus faecalis*, and that patient was on appropriate antibiotic therapy when samples that were obtained on days 4 and 5 grew the organism 14 and 17 days later. Cultures from the 4th patient’s specimen grew coagulase-negative *Staphylococcus* on day 10, but that patient was already on treatment for “culture-negative” peritonitis, and treatment included an antibiotic active against coagulase-negative staphylococci. In the final 2 patients, who had clear effluent, specimen cultures grew *Mycobacterium mucogenicum* and *Bacillus* species; those patients were not treated.

**Conclusions**

Culture positivity after 5 days of incubation appears to be uncommon and of little clinical importance. However, such results may extend the duration of treatment in patients already on appropriate antibiotics if duration of therapy is guided by the timing of the first negative culture.

**Disclosures**

None of the authors has any conflict of interest to declare.

**References**


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