Peritonitis

Peritonitis is infection and inflammation of the peritoneal membrane and is a clinical diagnosis supported by microbiological testing. It is a complication of peritoneal dialysis and associated with high morbidity and even mortality. It can result in systemic infection, add to decreased longevity of the peritoneal membrane, or necessitate transition to hemodialysis, which in patients who do not live near a hemodialysis unit can mean a (potentially permanent) relocation.

The definition of peritonitis is a dialysate effluent white cell count of greater than 100 with 50% or more neutrophils/polymorphs in the context of the clinical suspicion.

The most common clinical signs of peritonitis are cloudy effluent (drained dialysate) and abdominal pain. Less commonly patients may also present with fever and other signs of systemic infection such as nausea or vomiting.

Patients are taught to examine the appearance of drained effluent for cloudiness if they have any abdominal pain. Patients are asked to present to the closest clinical facility if they are concerned about peritonitis. At the same time, they are instructed to notify the peritoneal dialysis unit. Ideally, they will present with a pre-drained bag of effluent.

If the patient presents with a clinical concern for peritonitis, effluent should be sent for microscopy sensitivity and culture. Empiric intraperitoneal (IP) antibiotics must be administered as early as possible and includes gram positive and gram-negative coverage. The antibiotic loading dose is generally instilled in a 2000cc, 1.5% Dianeal solution and left to dwell for at least 4 hours in the patient's peritoneal cavity to ensure absorption.

Like catheter related infections, most organisms resulting in peritonitis are gram positive commensal skin organisms or water borne organisms. The choice of antibiotic profile is PD unit specific, however the 2 most common regimes in British Columbia (and worldwide) are either: cephalosporin based regime which is dosed daily OR vancomycin and aminoglycoside based regime which is dosed every 3-5 days.

If there is concern that follow-up may not occur within 24 hours, a vancomycin-based regime should be considered.

The majority of patients with peritonitis can be managed as an outpatient. Reasons for admission would include signs of sepsis, inability to manage at home, severe pain, need for surgical intervention, uncontrollable glycemia, etc. The primary PD unit should be notified as early as possible. The PD unit will be able to provide advice for ongoing antibiotic therapy if they cannot provide the follow up themselves.

Related links:

- Collecting a Dialysate Effluent Specimen video & procedure (under development)
- Exit Site Care video & procedure
- Adding Medications video & procedure

Clinical Care Path:
Peritonitis Management

BCRenal
Provincial Health Services Authority

Patient presents with clinical concern of peritonitis.
Abdominal pain, cloudy effluent, fever, systemic features of infection.

Has the pt brought a bag/sample of effluent that has been dwelling for at least 2 hours?

Yes

Using aseptic technique, withdraw 100 ml of effluent into (2) 50cc sterile containers or follow PD unit directions

Send specimens to microbiology lab for: cell count and differential, gram stain, C&S. Label specimens as PD effluent peritonitis

Notify nephrologist on call or primary PD unit when results of STAT cell count are available

Administer IP antibiotics as per primary PD unit advice wherever possible. Contact should not lead to delay in administration of antibiotic loading dose.

No

Ask patient to do CAPD exchange and leave PD solution to dwell for at least 2 hours

Drain effluent and collect specimens

Typical antibiotic loading dose regimes are:

A) Vancomycin 30mg/kg up to 3g IP – round to nearest 250mg AND Tobramycin or gentamicin 1.5 mg/kg up to 160mg IP – round to nearest 40 mg
OR
B) B.Cefazolin 1-2gm (20mg/kg) and Ceftazidine 2 gm (20 mg/kg) AND Tobramycin or gentamicin 1.5mg/kg

Allow antibiotics to dwell for 4-6 hours

In some cases IV or PO antibiotics may be given. Contact Nephrologist for treament direction.

Notify the primary PD unit ASAP to arrange for ongoing antibiotic coverage and care