

PROTOCOL #37 - Maternal Fetal Medicine, University of New Mexico

**ENDOMETRITIS**

General:

Endometritis is a common complication of delivery, especially after cesarean section. The optimal treatment regimen has not been developed for this condition. Ampicillin/sulbactam is one of a number of agents that are currently being used for post-partum endometritis. It has proven highly efficacious in this setting, with 81 to 87% primary cure rates reported, which is equivalent to or better than all other regimens it has been compared against. It has advantages over these other agents in several respects. It is a combination agent and saves nursing and pharmacy time and expense in administration compared to multiple drug regimens. Ampicillin/sulbactam does not require expensive and time consuming blood level determinations as do the aminoglycosides. Ampicillin/sulbactam also effectively covers the agents most commonly known to be causative in endometritis and associated wound infections: staphylococcus, aerobic and anaerobic streptococcus, Escherichia coli and bacteroides species and various other anaerobes.

1. Diagnosis:

Endometritis will be diagnosed by one of the following criteria; 1) a single temperature above 38.6 or two temperatures at least 4 hours apart above 38.0, or 2) a WBC count above 15,000 or at least 10% bands. They must also have at least one of the following criteria: 1) lower abdominal pain, 2) local or generalized tenderness of the lower abdomen on palpation of the pelvic organs, 3) malodorous vaginal discharge, or 4) diagnostic studies suggestive of pelvic abscess or other gynecologic infection, i.e., pelvic ultrasound, CT scan, or MRI. All patients also must have other sources of infection ruled out by thorough physical examination and testing, i.e. pneumonia, appendicitis, pyelonephritis or wound infection. All patients being treated with this protocol will have a CBC with differential, a catheterized U/A and urine culture, and 1 set of aerobic and anaerobic blood cultures.

2. Treatment:

Routine care for febrile patients will be carried out, such as acetaminophen 1000mg po q4h, adequate hydration either parenterally or enterally and fever blankets if needed.

**A.** There are several pertinent questions that have to be asked in order to properly treat this disease. The first is: Is the patient in septic shock? If shock is present then the standard treatment for endometritis causing shock is triple agent therapy. This consists of Ampicillin 2 gram I.V. Q6h, Clindamycin 600mg I.V. Q6h and gentamicin 2.5 mg per Kg. I.V. as loading dose and then 1.0 mg. per Kg. I.V. Q8h in patients with normal creatinine clearance. The patient should also be treated aggressively for shock which

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- requires involved care not further discussed in this protocol. If a patient is not deemed to be in shock they will receive 3 grams of Ampicillin/sulbactam I.V. Q6h. Once initiated antibiotics will be continued intravenously for at least 48 hours.
- B.** The next question to be asked is: Is the patient improving within 48 hours of the initiation of treatment? If the answer to this question is yes, treatment is continued until the patient has been afebrile for 24 hours. At that point the antibiotic regimen should be discontinued and the patient discharged to home unless she lives far away. If the patient lives a considerable distance away, further observation for an additional 24 hours is reasonable. If no improvement is seen in 48 hours, the patient's cultures might be positive and be available for guiding treatment alteration. If the predominant organism is not sensitive to Ampicillin/sulbactam, then Ampicillin/sulbactam should be discontinued and appropriate antibiotics started. If the predominant organism is sensitive to Ampicillin/sulbactam, appropriate antibiotics should be added. If cultures are all negative, which is the usual clinical case, then the patient will have gentamicin at a loading dosage of 2.5mg/Kg. and a continuing dosage of 1.0 mg/Kg. I.V. Q8H, added to Ampicillin/sulbactam, if her creatinine clearance is within the normal range. After the addition of gentamicin another 48 hour therapy period should then take place.
- C.** The next question to be answered is: Is the patient now improving on this protocol? If the patient is improving continue her antibiotic regimen until she is afebrile 24 hours the antibiotics may be discontinued and the patient discharged, unless the patient is a transport from a long distance whereupon we will observe her a further 24 hours before discharge. If the patient is not improving then additional physical examination and diagnostic procedures will need to be carried out; i.e. flat plate and upright of the abdomen, Pelvic U/S, CT scan, or MRI may be ordered to determine the answer to the next question.
- D.** The next question is: Does the patient have an intraabdominal abscess, wound abscess, or fascial or myometrial gangrene? If the answer is yes, the patient needs intense supportive care and probably exploratory surgery. If the results of these diagnostic tests do not point to a surgical condition the patient probably has septic pelvic thrombophlebitis. This is an ill-defined clinical condition in which bacteria are thought to be intermeshed with blood clots in the small and possibly large pelvic veins. Therapy is heparinization and the appropriate orders are available in the department's protocol for heparinization. The previously used antibiotics are continued 7 to 10 days or until the patient is afebrile 48 hours, whichever is longer, at which time they may be discontinued. The heparin may also be discontinued at this time if a minimum of 7 days has passed since it was initiated. Otherwise it can be continued as a q 12 hour subcutaneous injection.

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An attached diagram summarizing these steps is included if this descriptive information is confusing.

- E. Patients allergic to penicillins should be treated with a second generation cephalosporin cefoxitin 2 grams I.V. Q6h along with clindamicin 600 mg. I.V. Q6H instead of Ampicillin/sulbactam. Second generation cephalosporins have little antigenic cross reactivity with penicillins and so the incidence of crossover allergy would be expected to be low, but not zero.

If aminoglycosides are used peak and trough levels should be obtained only in patients who: have a serum creatinine above 1 mg/%, who have abnormal kidney functioning or disease, have a proven decreased creatinine clearance, have underwent kidney transplant, etc. or patients who have not responded to aminoglycosides with clinical improvement. Peak and trough levels are expensive and add considerably to the cost of treatment with aminoglycosides but are an important safeguard to prevent both overtreatment and undertreatment in selected patients.

**CONSULTATION:** Twenty-Four hour consultation is available by calling the Maternal Fetal Medicine service at the University of New Mexico Hospital, 1-888-866-7257.