Reviewer's report

Title: Surgical Site Infection in critically ill patients with secondary and tertiary peritonitis: epidemiology, microbiology and influence in outcomes.

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Reviewer: Emilio Maseda

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The study reports a 4-year prospective observational study in a single center. The primary outcome of interest were microbiology and mortality of SSI.

Major points

1) The major problem I have with this paper is the microbiological method for obtaining the microbiological samples for diagnosis purposes. Tissue biopsy or aspiration sampling of infected tissue is the “gold standard” for culture of skin and soft tissue infection and is especially important with serious infection, systemic toxicity, or failure of initial therapy. Swab cultures are probably the most commonly used method to determine the resistance pattern of skin pathogens treated in nursing home residents. However, they are controversial through this method. We can obtain colonizer microorganisms that are not responsible for the infection. And furthermore, cultures of the superficial wound may be misleading because results may not reflect organisms in the deep tissue infection. Direct needle aspiration of an area of cutaneous inflammation may yield fluid for Gram stain and culture.

2) The authors state in Conclusion (p.2 and p.8) that “physicians should consider antibiotic resistant pathogens …”. However, the authors don’t show the resistance pattern of isolated microorganisms. It should be clarified whether isolates of Enterobacteriaceae are ESBL producers, and whether isolates of Pseudomonas aeruginosa were carbapenem-resistant or not.

In addition, the authors state in page 6, line 159 “antibiotic resistance to two or more antibiotics occurred in 64.9%”. The problem is that they didn’t provide data on which antibiotics were resistant to isolated microorganisms.

3) The authors should give information on the microorganisms that were isolated from intra-abdominal fluid and if there is any relation to the microorganisms that were isolated in the surgical site infection

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I declare that I have no competing interest.