Reviewer's report

Title: Aetiology, antimicrobial therapy and outcome of patients with community acquired severe sepsis: A prospective study in a Norwegian university hospital

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Reviewer: Steven Opal

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Comments To The Author: This is an epidemiologic study from a single center in Norway where they analyze the incidence of sepsis at their medical center (both ICU admissions and medical ward admissions) from a total of 220 patients. They find that up to 30% of septic patients needed to have a revision in the initial suspected site of infection by the time their medical care was complete. They also noted that up to 20% of patients were given suboptimal antibiotic therapy. Delayed treatment was notable, particularly in patients with intra-abdominal infections and in elderly patients. These delays in therapy resulted in higher mortality rate in these patient populations.

While the data presented is of considerable interest, the authors may wish to consider the following comments:

1. Page 4, Third Paragraph: Is it possible that some scoring system for the global severity of illness could be provided for these patients? For example, was an APACHE2 score, or a SAPS score or a SOFA score calculated on these patients during their first day of hospital admission or admission to the Intensive Care Unit? This would help compare the severity of illness of this patient population to other studies looking at similar large populations of septic patients.

2. Page 4, Third Paragraph, Second To Last Sentence: Is it possible to calculate the 28-day- all cause mortality rate in this group of patients in addition to the in-hospital case fatality rate. It would be useful to compare the 28-day all cause mortality rate with other sepsis studies. The hospital discharge mortality rate is a perfectly valid measure but it is less frequently used than 28-day all-cause mortality for this type of patient study.

3. Page 7, First Paragraph: The data from the older patients in this study (greater than 75 years) is particularly interesting. Do the authors think that these patients are more likely to present with atypical symptoms or were they more likely to undergo expanded diagnostic testing before antibiotic therapy was given? Is it possible these patients more likely present with an acute confusional state, making it more difficult to get a detailed history to understand what was taking place in these patients? Alternatively, are they sufficiently complicated with comorbid illnesses and concerns from drug interactions and toxicities that took longer to decide what type of antimicrobial therapy would be best used in this group of patients?

4. Page 7, Second Paragraph, First Sentence: As it seems that
community-acquired sepsis was the primary reason for admission for these patients, would it be possible to do a cost analysis of the total care necessary to manage these patients? You probably have the length of stay for each patient and if you calculate the main cost per day to manage these patients, both in the Intensive Care Unit and the Medical Floors, it might be possible to calculate the total expenses for the patient’s survival rate and for patients who ultimately died during their hospitalization. I assume that no long-term data is available or any evidence of functional disability related to sepsis is available in these patients. If that is incorrect and this data is available, it would be very help to add this to the manuscript.

5. Page 8, Second Paragraph, First Sentence: Do the authors have any idea of the degree to which the community is covered by the pneumococcal vaccine? It appears that Streptococcus pneumonia is the primary pathogen and if vaccine coverage is light, it might provide an argument to attempt a more comprehensive vaccine strategy to protect at-risk patients from this important cause of sepsis. Is there a program to administer a pneumococcal vaccine and/or influenza vaccine for patients hospitalized with severe infections prior to their discharge home?

6. Page 12, Table 2: Pneumococcal urinary antigen. Were there any false/negative urinary antigen tests in patients who have positive blood cultures or respiratory cultures in this study? I would also change the category listed as PUSS as abscess drainage.

7. Page 13, Table 3: metronidazole usually has an “e” at the end.

8. Page 14, Last Three Rows: Is this meant to be pre-hospital administration of antibiotics. If so, do the authors have any ideas why individuals who received antibiotics before hospitalization had apparently worse mortality compared to those who did not get antibiotics as an outpatient? Were they sicker patients who had been receiving care before their hospitalization? Did they have multi-drug resistant bacteria because of prior antibiotic exposure? Were any of these patients septic from Clostridium difficile associated diarrhea which can be associated with a high mortality rate.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

no conflicts