Reviewer's report

Title: Clinical and Microbiological Characteristics of Purulent and Non-purulent Cellulitis in Taiwanese Adults in the Era of CA-MRSA

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Reviewer: Chih-Jung Chen

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Comments on 'Clinical and microbiological characteristics of purulent and non-purulent cellulitis in Taiwanese adults in the era of CA-MRSA'

Lee et al reported the clinical and microbiological features of 465 patients with cellulitis from a single hospital in southern Taiwan. This was a retrospective study in 2013 and data was collected by chart review. The patients were arbitrarily divided into two groups, the purulent cellulitis group (n=96) and non-purulent cellulitis group (n=369). The two groups of patients were different in several clinical parameters including the age distribution, locations of infections, concurrence of dermatophyte infection, dermatitis, recurrent infections, duration of hospital stay and antimicrobial therapy, etc. Beta-hemolytic streptococci was the most common responsible pathogen and was significantly more frequently identified in non-purulent cellulitis than in purulent cellulitis. S. aureus, including MRSA, was more commonly identified in purulent cellulitis. The authors concluded that the findings in this study supported the adoption of the IDSA guidelines in the empirical antimicrobial therapy for cellulitis in Taiwan.

Although with a retrospective design and being conducted in a single center, the study provided valuable clinical and microbiological information of soft tissue infections in adult population in Taiwan. The finding in this study should have been useful for clinicians dealing with this kind of diseases. However, some issues in the study design, data analysis and interpretation may not be adequate and should be clarified.

Major Compulsory Revisions

1. One of the most important findings in this study was the higher positive rate of beta-hemolytic streptococci in non-purulent cellulitis (92, 24.9%) than in purulent cellulitis (4, 4.2%, P < 0.001). However, a majority (82.6%) of the diagnosis of beta-hemolytic streptococci infection was made solely by the measurement of the antistreptolysin O (ASLO) titer. A single ASLO titer > 200 was used to define streptococcal cellulitis in this study. A single ASLO > 200 did not necessary indicate active streptococcal infection but can be due to an infection occurring some time before. The authors should provide solid evidence supporting the use of ASLO in this scenario. Otherwise, those with a single ASLO titer > 200 should not be considered having streptococcal cellulitis.

2. Following the comment #1, ASLO was measured in only 18.8% of patients
with purulent cellulitis. The rate was significantly higher for patients with non-purulent cellulitis (52.0%). This selection bias may lead to an underestimate of the incidence of streptococcal infection in purulent cellulitis.

3. I am surprised that the antimicrobial regimen was not analyzed in this study. This can be an important parameter affecting the treatment outcome and should be included in the analysis.

4. In line 190-191 on page 8, the statement ‘Multivariable analysis of predicting factors for MRSA…’ was of much confusion. What exactly did the authors want to predict? The factors of purulent cellulitis, or the factor of MRSA infection? Further, how was the multivariate analysis performed? The detailed methods including the factors and the case numbers included in the final model of regression should be stated.

5. MRSA was identified as a significant factor associated with purulent cellulitis. Was it the only significant factor in the analysis? The other significant factors should also be listed.

Minor Essential Revisions

1. Were all the cases in-patients? If yes, the finding in this study should be limited to those with severe infections requiring hospitalization, but not be generalized to all patients with cellulitis. This should be clearly stated in the manuscript.

2. Background, line 79-80, page 4, ‘The microbiological findings are …failure to distinguish non-purulent from purulent cellulitis’. This meaning of the sentence was not clear. Revision is needed.

3. For non-purulent cellulitis, 18.2% had wound cultures. What specimen was obtained for the wound culture if it was ‘non-purulent’?

4. Results, line 212, page 9, the statement was not true. The comorbidity score was also different for purulent and non-purulent cellulitis (Table 1).

5.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.