Approach for Initial Treatment of Skin and Soft Tissue Infection

TO THE EDITOR—Recently the Infectious Diseases Society of America (IDSA) Guideline for the Management of Skin and Soft Tissue Infections (SSTIs) [1] were published. Understanding that the best approach to the management of this condition is included in this guideline, we would like to discuss a first approximation algorithm in the emergency department to this disease [2], implemented this year by Infection Group of the Spanish Society of Emergency Medicine (INFURG-SEMES). In recent studies by this group, it was determined that the SSTI constituted 11% of infections treated by Spanish emergency departments [3], and that only 1 in 3 cases of infections by methicillin-resistant Staphylococcus aureus (MRSA), the initial empirical treatment was appropriate [4]. The significance in terms of survival of the initial
Figure 1. Treatment algorithm for the infection of skin and soft tissue in emergency services. Abbreviations: ESBL, extended-spectrum β-lactamase; MRSA, methicillin-resistant Staphylococcus aureus.
adequacy of antibiotic treatment [5] led us to conduct a practical management algorithm to improve our initial approach to this infection model, always from the point of view of emergency care.

In this treatment algorithm (Figure 1), decisions are based on 3 aspects: rule out necrotizing infection, assess the severity and comorbidity of the patient, and determine the risk of MRSA infection or enterobacteria with extended-spectrum β-lactamases (ESBLs).

To rule out necrotizing infection, the Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) scale [6] is used, which in studies has shown a negative predictive value of 96% for values <6 points, as clinical signs usually present late but are nevertheless described in the algorithm. The recommendation is that if the patient has a LRINEC score ≥6, an imaging test must be performed to confirm or rule out the clinical suspicion. Regarding to patient severity, it is advisable to consider the hemodynamic stability, clinical signs of severe sepsis or septic shock, and the use of some biomarkers such as procalcitonin or lactate. We also consider that it is vital to establish the comorbidity of the patient, using the Charlson index [7], which determines a priori patient prognosis. The cutoff we have established is ≥3, as it correlates with hospital mortality of more than 10% and 30% per year, which shows that the patients we attend have a high risk of poor outcome. Finally, risk factors of MRSA and ESBL are assessed for a priori patient prognosis. The cutoff we use is ≥10% and 30% per year, which shows this infection model.

As far as recommended treatment for necrotizing infection is concerned, we emphasize the inclusion of an inhibitor of protein synthesis antibiotic (clindamycin or linezolid) to decrease endotoxemia produced, which can translate into better patient prognosis [8], without forgetting that the most important part in these cases is surgical debridement. In the case of presence of risk factors for ESBL, we opt for a carbapenem, ertapenem being the first choice to avoid selective pressure on Pseudomonas aeruginosa, but provided there is no risk for these and patient does not present necrotizing infection. Options for coverage of MRSA infection are vancomycin, linezolid, daptomycin, and ceftaroline. Due to its oral availability, high volume of distribution, and ability to inhibit protein synthesis and reduce nephrotoxicity compared to vancomycin, we consider linezolid to be a first-line antibiotic in the treatment of these infections when there is risk of MRSA, especially if the patient has any degree of renal insufficiency. Moreover, we believe that daptomycin is especially recommended in clinical situations of greater severity due to its high bactericidal strength [9], which can influence early control of the infectious process and in turn easier patient stabilization of comorbidity. A final noteworthy aspect is the possibility of raising the empirical coverage against MRSA infection in patients without risk factors but with high comorbidity due to poorer prognosis of these patients.

In any case, this is only a first approximation in emergency antibiotic treatment of these infections and must be supplemented with adequate knowledge of international guidelines, such as the IDSA, which perform a deeper analysis of the management and treatment of this infection model.

Note
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