The cellulitis season is open

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For some infectious diseases specialists, the equivalent of the summer blockbuster was the release of the 'Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections' (SSTI) update on June 18, 2014, by the Infectious Diseases Society of America (IDSA) (1). It is timely because summer is when patients consult the most for SSTI. In the present note, we review the most notable changes compared with the previous version published in 2005 (2).

The new guidelines include a more structured and complete executive summary, and each section is organized around pertinent clinical questions. It is easier for the reader to rapidly identify the recommendations, which facilitate its use as a reference tool in day-to-day practice. It is a clear improvement compared with the 2005 version, which was mostly a hybrid between guidelines and a classical textbook approach. An effort to summarize and organize recommendations is also noted, with new algorithms and tables. Weighting of the quality of the evidence has been performed using the GRADE system (Grading of Recommendations Assessment, Development and Evaluation). Various associations worldwide are increasingly adopting this system, mostly because it provides a way to rate quality of evidence and strength of recommendations that is explicit and comprehensive (3). This system is divided between strong and weak recommendations with different levels to rank the quality of evidence (very low, low, moderate and high), resulting in eight different categories of grading.

Impetigo/echtyma

Authors recommend performing a Gram stain and culture to differentiate *Staphylococcus aureus* from β-hemolytic streptococci (BHS) even if treatment is deemed reasonable without these studies (strong recommendation, moderate-quality evidence). Topical treatment with mupirocin or retapamulin twice daily for five days is recommended for all patients (strong recommendation, high-quality evidence), except those with numerous lesions or if they are part of an outbreak (to help decrease transmission). First-line suggested oral therapy consists of antistaphylococcal penicillins or first-generation cephalosporins (strong recommendation, moderate-quality evidence). If methicillin-resistant *S aureus* (MRSA) is suspected, or in patients allergic to penicillin, doxycycline, trimethoprim-sulfamethoxazole and clindamycin are acceptable options (strong recommendation, moderate quality evidence). The maximum suggested duration is seven days.

Retapamulin 1% ointment was approved in Canada in 2008 and is now included in this update. This antimicrobial belongs to the pleuromutilin class and selectively inhibits bacterial protein synthesis through an interaction at the 50S subunit of the bacterial ribosome. Retapamulin is predominantly bacteriostatic against *S aureus* and BHS. The drug is safe owing to low systemic absorption, and exhibits only minimal side effects of local irritation at the site of application (4).

Purulent SSTI

One important novelty in these guidelines is the creation of a specific section dedicated to purulent SSTI. A strong emphasis is placed on incision and drainage, and that antimicrobials are not mandatory in all cases. The authors suggest the administration of antimicrobials active against MRSA in all patients with systemic inflammatory response syndrome (SIRS), who have failed initial antimicrobial treatment or with markedly impaired host defenses (strong recommendation, low-quality evidence).

Nowhere did the authors mention that MRSA coverage should be influenced by local MRSA epidemiology. In a region where MRSA rates are very low, we would be comfortable suggesting systemic antibiotics targeting methicillin-sensitive *S aureus* (MSSA) and BHS unless patients have severe infections. Our approach is highly influenced by the Canadian epidemiology, which differs enormously from the United States. Recent data from the CANWARD study, a national surveillance study assessing pathogen prevalence and antimicrobial resistance in Canadian hospitals, reported a decrease in the annual proportion of MRSA, from 26% in 2007 to 19% in 2011 (5).

Additionally, in our experience, patients with mild purulent SSTIs will sometimes present with associated cellulitis without systemic symptoms. Apart from incision and drainage, it is not clear what the authors suggest for these patients. We would suggest performing a culture and the use of oral antistaphyloccocal penicillins or first-generation cephalosporins for a short oral course.

Finally, a new section on recurrent skin abscesses is included. Recommendations include: search for a local cause of recurrence (pilonidal cyst, hidradenitis suppurativa or foreign material); drainage and culture; a five- to 10-day course of antimicrobial against the pathogen identified; and evaluation for neutrophil disorders if recurrence is noted in early childhood. A decolonization regimen (intranasal mupirocin, chlorhexidine washes and daily decontamination of personal items) is suggested, but is rated as a weak recommendation with low-quality evidence. No mention is made of the pertinence of nasal cultures, adjunctive oral antimicrobials or whether decolonization protocols should be the same for MSSA or MRSA.

Nonpurulent SSTI

As for purulent SSTI, an algorithm for management is included in the 2014 SSTI update. This is a welcome addition to the previous version. Again, the authors favour an approach to use narrow-spectrum antimicrobials whenever possible, and suggest treatment of mild/moderate cases with oral or intravenous penicillin for typical streptococcal SSTI. However, as mentioned, many clinicians could include coverage against MSSA in all mild to moderate nonpurulent SSTI (weak recommendation, low-quality evidence). In our practice, we rarely see patients treated with penicillin alone. MRSA coverage for nonsevere nonpurulent SSTI is deemed to be 'prudent' in patients with penetrating trauma (including sites of illicit drug injection), evidence of

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MRSA elsewhere (infection or colonization), purulent drainage or SIRS (strong recommendation, moderate quality evidence). Again, these suggestions do not take into consideration local epidemiology, which we believe is important. The overall duration of treatment is suggested to be five days in most cases, unless no improvement is noted (strong recommendation, high-quality evidence).

Necrotizing infections

No important change in the diagnosis and management of these severe infections is noted. Broad-spectrum antimicrobials are suggested empirically (eg, piperacillin-tazobactam plus vancomycin) and specific treatments are listed. First-line antimicrobial agents for *Aeromonas hydrophila* and *Vibrio vulnificus* are now included in the table of treatment. Because two of the most important causes of severe necrotizing infection (*Clostridium perfringens* and group A streptococcus) should include coverage with clindamycin, we usually include this antimicrobial in our empirical selection.

Compared with the 2005 version, in which intravenous immunoglobulins (IVIG) were graded as having moderate evidence to support a recommendation, IVIG are not suggested in the current version, based on the lack of clinical data on efficacy and considerable batch-to-batch variation. Authors suggest that additional clinical studies are mandatory before a recommendation can be made to support IVIG in group A streptococcus necrotizing fasciitis.

Other infections/special patients

No important change is noted in the section dedicated to animal/human bites. One small but important change is the removal of first-generation cephalosporins in the table of recommended therapies. Even if it was specifically mentioned that these agents were not covering *Pasteurella multocida*, nonexpert clinicians could have wrongly interpreted its presence in the list of potential treatments for this condition. The approach for the management of surgical site infections is also very similar; the algorithm present in the 2005 version is essentially the same. A new table for the treatment of incisional surgical site infection based on the site of the infection has been added. Guidance on the management of SSTIs in severely immunosuppressed patients is still present and highly appreciated because these patients represent important challenges in our practice.

What we would like to see in the next version

Several conditions can imitate SSTI. Differential diagnosis of cellulitis and management of these conditions would be an interesting addition. The ability to identify and adequately manage noninfectious conditions mimicking SSTI (inflammatory leg edema due to venous insufficiency, bee/wasp stings, poison ivy dermatitis, second-degree burns, etc) is paramount to limit inappropriate usage of antimicrobials.

Septic bursitis is also a frequent condition. It should appear in a special section. Should they be drained/aspirated? Is a culture mandatory? Should treatment be longer or should initial treatment be given intravenously? When should they be evaluated for surgery?

Additionally, the place of outpatient intravenous therapy has not been discussed in these guidelines. With the explosion of these clinics, it would have been interesting to see where experts place this clinical strategy (6). At least they suggest criteria for hospitalization: suspicion of deeper infection, altered mental status, poor adherence to therapy, severe immunosuppression or if outpatient treatment is failing (strong recommendation, moderate quality evidence). We believe that patients with SIRS alone and/or nonresponse to oral therapy could be considered to be candidates for outpatient parenteral antimicrobial therapy.

CONCLUSION

As with all guidelines, a main goal is to provide an update and summary of scientific literature for busy practicing physicians as a time-saving continuing medical education exercise. In addition, as a general rule, if physicians manage patients in a 'guideline-compliant' fashion, even if not necessarily optimal, one may reasonably expect that a certain accepted standard of care is met. While publication of the IDSA guidelines serves an important role, there are a few considerations that are noteworthy. We expect that guidelines are rationally based on a significant body of high-quality and relevant clinical evidence. While SSTI guidelines incorporate the results of a number of important clinical trials, much of the recommendations are based on expert opinion, as in most IDSA guidelines (7).

A second major consideration is that while guidelines such as these are important to summarize the literature and provide broadly generalizable recommendations, specific aspects may not be broadly applicable to all jurisdictions, including but not limited to differences in delivery of care, rates of resistance, availability of certain antimicrobial therapies and access to surgical expertise for source control. These features are often cited as arguments to develop further guidelines by different associations or at various national, provincial or regional levels. We are of the opinion that this process of redeveloping guidelines at various levels is rarely justified and that guidelines are better modified to fit local features rather than be reinvented.

While guidelines undoubtedly help us to manage our patients, key features of managing bacterial infectious diseases include identifying the infecting organism, adequate source control and use of the narrowest-spectrum agents that have acceptable clinical efficacy. Indeed, these are the principles of infectious disease management that we learned as medical students and value as practicing physicians.

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