Case study

Community-acquired methicillin-resistant *Staphylococcus aureus* infection

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Case

A 25-year-old previously healthy male presented to his general practitioner with a painful lesion on his right leg. On examination, he appeared generally fit and well, but had a temperature of 37.8°C. There was a large carbuncle on the upper anterior aspect of his right thigh, with surrounding cellulitis and associated tender inguinal lymphadenopathy. The general practitioner prescribed oral dicloxacillin 250 mg four times daily and advised local application of heat to the area to encourage spontaneous drainage of the carbuncle.

The patient presented to the local emergency department 72 hours later with fevers, rigors and severe pain. He was commenced on intravenous flucloxacillin, and underwent incision and drainage of the carbuncle in theatre later that day. Methicillin-resistant *Staphylococcus aureus* (MRSA) was cultured from the copious pus. The organism was susceptible to erythromycin, clindamycin, doxycycline and trimethoprim with sulfamethoxazole. After discussion with a clinical microbiologist, treatment was changed to oral clindamycin 450 mg three times daily and the patient was discharged to complete a seven-day course of treatment.

Comment

Until recently, MRSA was considered to be an organism exclusively found in hospitals, long-term healthcare facilities or in patients with recent contact with such institutions. However, MRSA infection acquired in the community is becoming increasingly common.[1] Disease caused by community-acquired MRSA ranges in severity from mild skin and soft tissue infection to life-threatening systemic infection.[1,2] Some strains of community-acquired MRSA produce exotoxins (for example Panton-Valentine leukocidin) and are therefore not only resistant to usual first-line antistaphylococcal beta-lactam antimicrobials (for example flucloxacillin, dicloxacillin and cephalexin), but are also potentially more virulent than other *Staphylococcus aureus* strains which do not usually produce these toxins.[3]

In all cases of suspected *Staphylococcus aureus* infection, drainage of pus and debridement of infected tissue is critical to ensure an optimal clinical response to antimicrobial therapy. Given the increasing prevalence of community-acquired MRSA, any specimens (for example swabs, pus or tissue) obtained at the time of presentation with suspected *Staphylococcus aureus* infection should routinely be sent to the laboratory for microscopy, culture and susceptibility testing.

Quality clinical data regarding the optimal antimicrobial treatment of community-acquired MRSA infection are currently lacking. At present, therapy should be based on susceptibility testing results and current knowledge of the efficacy of non-beta-lactam antimicrobial drugs in treating suspected or proven staphylococcal infection. Options for mild to moderate infection include clindamycin, trimethoprim with sulfamethoxazole, and doxycycline. Vancomycin is usually recommended for severe or invasive infection.

Conclusion

Antistaphylococcal/streptococcal beta-lactam antimicrobials are currently still recommended for empiric treatment of most uncomplicated skin or soft tissue infections. However, MRSA is an increasingly important cause of these and other infections acquired in the general community. If practical, clinical specimens should be submitted to the microbiology laboratory in order to detect infection with community-acquired MRSA. Antimicrobial therapy should be reviewed once results are available, or if the clinical response to empiric therapy is not as expected.

References

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Dr Murray has received funding from Pfizer to attend an international conference.

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