CELLULITIS
Supporting information

This guideline has been prepared with reference to the following:

NICE. Cellulitis and erysipelas: antimicrobial prescribing. 2019. London. NICE

https://www.nice.org.uk/guidance/ng141

Clinical Resource Efficiency Support Team. Guidelines on the management of cellulitis in adults. 2005. Belfast. CREST

What is the most appropriate antibiotic treatment for cellulitis?
A 2019 systematic review found no evidence to support the superiority of any one antibiotic over another (Brindle, 2019). The same review also found that the use of intravenous antibiotics over oral antibiotics and treatment duration of longer than 5 days were not supported by evidence. Another systematic review from 2020 arrived at the same conclusions (Cross, 2020).
A systematic review of 25 studies with a total of 2488 participants (Kilburn, 2010) found macrolides/streptogramins to be more effective than penicillin antibiotics (RR 0.84, 95% CI 0.73 to 0.97). In 3 trials involving 419 people, 2 of these studies used oral macrolide against intravenous (iv) penicillin demonstrating that oral therapies can be more effective than iv therapies (RR 0.85, 95% CI 0.73 to 0.98).Three studies with a total of 88 people comparing a penicillin with a cephalosporin showed no difference in treatment effect (RR 0.99, 95% CI 0.68 to 1.43).Six trials which included 538 people that compared different generations of cephalosporin, showed no difference in treatment effect (RR 1.00, 95% CI 0.94 to1.06). The authors concluded that it was impossible to make firm recommendations and called for further trials.

Brindle R, Williams OM, Barton E et al. Assessment of Antibiotic Treatment of Cellulitis and Erysipelas: A Systematic Review and Meta-analysis. JAMA Dermatol. 2019 [Epub ahead of print]
https://jamanetwork.com/journals/jamadermatology/fullarticle/2735896

Cross E, Jordan H, Godfrey R et al. Route and duration of antibiotic therapy in acute cellulitis: A systematic review and meta-analysis of the effectiveness and harms of antibiotic treatment. J Infect. 2020;81:521-31

Kilburn SA, Featherstone P, Higgins B, et al. Interventions for cellulitis and erysipelas. Cochrane Database Syst Rev. 2010;6:CD004299
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004299.pub2/full

Evidence Level: I

Staphylococcus aureus is the most likely causative organism?
A systematic review involving 808 patients with cellulitis (Chira, 2010) found that 127-129 (15.7-16.0%) patients had positive needle aspiration and/or punch biopsy cultures from intact skin. Of the patients with positive cultures, 65 (50.4-51.2%) had cultures positive for Staphylococcus aureus, 35 (27.1-27.6%) for group A streptococcus, and 35-37 (27.1-29.1%) for other pathogens. The most common aetiology of cellulitis with intact skin was S. aureus, outnumbering group A streptococcus by a ratio of nearly 2:1.

Chira S; Miller LG. Staphylococcus aureus is the most common identified cause of cellulitis: a systematic review. Epidemiol Infect 2010;138:313-7

Evidence Level: I

Adding benzylpenicillin to flucloxacillin improves clinical response?
A randomised controlled trial in 81 patients with lower limb cellulitis diameter >100 mm (Leman, 2005) found the mean number of antibiotic doses required for a clinical response was 8.47 (95% CI 7.09 to 9.86) in the benzylpenicillin and flucloxacillin combined group. In the flucloxacillin only group it was 8.71 doses (95% CI 6.90 to 10.5), a mean difference of -0.24 doses (95% CI -2.48 to 2.01, p = 0.83). Other markers of treatment efficacy showed no difference between groups at review the following day; temperature decrease (mean difference -0.07 degrees C, 95% CI -0.76 to 0.62, p = 0.84), or diameter decrease of affected area (mean difference -34 mm, 95% CI -99 to 31, p = 0.30). Patient subjective assessments were also similar between the different drug regimen; improvement on a visual analogue scale of pain/discomfort from admission to first review (mean difference 10 mm, 95%

CI -12.6 to 14.2, p = 0.91) and on second review (mean difference 15 mm, 95% CI -18.6 to 21.6, p = 0.88). Patient overall subjective feelings of improvement on first review (p = 0.32) and on second review (p =0.64) were also similar. The authors found no evidence to support the addition of intravenous benzylpenicillin to intravenous flucloxacillin in the treatment of lower limb cellulitis.

Leman P, Mukherjee D. Flucloxacillin alone or combined with benzylpenicillin to treat lower limb cellulitis: a randomised controlled trial. Emerg Med J 2005;22:342-6
http://emj.bmj.com/content/22/5/342.long

Evidence Level: II

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