

Cellulitis: when to say its treatment failure

Sadaf Sheikh*^{}

Emergency Medicine Department, Fujairah Hospital, Fujairah, United Arab Emirates



Dear Editor,

Cellulitis is treated with antibiotics as routine management and based on the literature the cellulitis hospitalization can be avoided by 11% if appropriate antibiotics are used.¹ Randomized clinical trials and Cochrane reviews have suggested that oral antibiotics are non-inferior to intravenous administration (1). We would like to highlight here the unrequired use of intravenous antibiotics in cellulitis. Intravenous antibiotics are recommended in patients with sepsis. This is supported by a study done on 1800 patients with cellulitis diagnosis, where one third of patients were hospitalized (2). However, the term 'treatment failure' in the cellulitis literature is defined based on inappropriate antibiotics use which certainly require further studies to inquire the root cause. If half of the course of antibiotics was utilized by the patient and stopped, then there is an issue with non-adherence that requires patient counselling. This problem may not be solved by changing the route of medications. Variables such as inflammatory markers and size of erythema are not supported by high level evidence (1-2). Risk factors for treatment failure with oral antibiotics include cellulitis within the past year, chronic ulcers (3), methicillin-resistant *Streptococcus aureus* (MRSA) colonization and shortness of breath at the initial presentation. These are the determining factors in real time for intravenous antibiotics considerations (4). Such variables may be considered for the treatment failure and the selection of patients for intravenous antibiotics. DERM rule is used for antibiotics failure according to the retrospective study. Diabetes (25%) and chronic kidney disease are not independently associated with oral antibiotics failure. DERM rule is defined as D (diagnosis of cellulitis in the past year), E (Erosion/ulcer), R (Respiratory rate fast) and M (MRSA colonization or infection history) (3-5).

Empiric antibiotic treatments are based on the expert opinion. Literature highlights the predictors associated with the treatment failure which allow the practitioners

to better select the patient population for the route of administration of antibiotics in the absence of high quality evidence (1-3). Due to a non-validated definition of treatment failure, the Food and Drug administration suggested no clinical response for 48-72 hours from the start of antibiotics use as treatment failure. One study suggested the definition based on the outcomes such as no clinical response after a minimum use of 48 hours of oral antibiotics and no later than 14 days from hospital admission or change in the class of oral antibiotics due to infection spread (4,5). The literature regarding Cellulitis needs to be consistent in terms of its methodology. Cellulitis is multifactorial in origin and we need to get a better understanding of the natural course of the disease for practice change. It requires high quality data in order to better understand the improved outcomes with our treatment plans. Therefore, there is a need of robust explanation of the treatment failure.

Ethical issues

Not applicable.

References

1. Pallin DJ, Camargo CA Jr, Schuur JD. Skin infections and antibiotic stewardship: analysis of emergency department prescribing practices, 2007-2010. *West J Emerg Med* 2014; 15(3): 282-9. doi: 10.5811/westjem.2013.8.18040.
2. Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJ, Gorbach SL, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2014; 59(2): e10-52. doi: 10.1093/cid/ciu444.
3. Li HK, Agwey A, English M, Bejon P. An unsupported preference for intravenous antibiotics. *PLoS Med* 2015; 12(5): e1001825. doi: 10.1371/journal.pmed.1001825.
4. Kaji AH, Schriger D, Green S. Looking through the retrospectroscope: reducing bias in emergency medicine chart review studies. *Ann Emerg Med* 2014; 64(3): 292-8. doi: 10.1016/j.annemergmed.2014.03.025.
5. Yadav K, Gatien M, Corrales-Medina V, Stiell I. Antimicrobial treatment decision for non-purulent skin and soft tissue infections in the emergency department. *CJEM* 2017; 19(3): 175-80. doi: 10.1017/cem.2016.347.

Received: 14 February 2022 Accepted: 19 April 2022 Published online: 27 April 2022

*Corresponding author: Sadaf Sheikh, Emergency Medicine Department, Fujairah Hospital, Fujairah, United Arab Emirates. Email: sheikh.sadaf@gmail.com

Competing interests: None.

Funding information: None.

Citation: Sheikh S. Cellulitis: when to say its treatment failure. *Journal of Emergency Practice and Trauma* 2022; 8(x): x-x. doi: 10.34172/jept.2022.06.

