antibiotics

MDPI

-Additional material-

Review

Diabetic foot ulcers: current advances in antimicrobial therapies and emerging treatments

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Additional Table S1. Conventional antibiotic therapies according to the DFU infection degree.

Infection severity (IDSA)	Recommended antibiotic/ therapy regimen	Bacteria coverture	Monitoring	Reference
Uninfected	N/A	N/A	N/A	N/A
Mild	Topical antiseptics + oral antibiotics - Povidone iodine 10% solution - Chlorhexidine - Acetic acid 5% - Silver compounds	Broad-spectrum activity, antifungal and antiviral properties.	Thyroid dysfunction (povidone iodine 10%) Ear toxicity (chlorhexidine)	[1]
Moderate	Topical antiseptics + oral antibiotics - B-lactams (Amoxicillin-clavulanate, Ampicillin) - Dicloxacilline - Cephalosporin's (Cephalexin, Cefoxitin, Ceftriaxone, Ceftazidime). - Quinolones (Ciprofloxacin, Levofloxacin). - Metronidazole - Clindamycin	Activity against Gram +, Gram -, *S. aureus* MSSA, anaerobes.	Allergic reactions QT prolonging (Quinolones, clindamycin) Nephrotoxicity (Vancomycin)	[2–4]
Severe	Combination of Intravenous	Broad	Allergic	[2–7]

	antibiotics - Piperacillin/tazobactam + Clindamycin - Carbapenems (meropenem, imipenem, ertapenem) - Ampicillin/Sulbactam MRSA - Vancomycin - Linezolid - Daptomycin *P. aeruginosa* - Cefepime - Ceftazidime - Meropenem - Piperacillin/tazobactam Anaerobes - Metronidazole - Clindamycin Osteomyelitis - Quinolones - Linezolid	spectrum (Gram +, Gram -), MRSA, *P. aeruginosa*, anaerobes.	reactions QT prolonging (Quinolones, clindamycin) Nephrotoxicity (Vancomycin)	
Term of treatment (IDSA)	*Mild infections*: 1–2 weeks' treatment. *Moderate-Severe infections:* 2–3 weeks' treatment.			[8]
Assessment of wound treatment	Every 2 weeks and at every dressing change.			[2]

References

1. Alavi, A., et al., *Diabetic foot ulcers: Part II. Management.* Journal of the American Academy of Dermatology, 2014. **70**(1): p. 21.e1-21.e24.
2. Tayeb, K.A., et al., *Managing infection: a holistic approach.* J Wound Care, 2015. **24**(Sup5b): p. 20-30.
3. Smith, K., et al., *One step closer to understanding the role of bacteria in diabetic foot ulcers: characterising the microbiome of ulcers.* BMC Microbiology, 2016. **16**: p. 54.
4. Aumiller, W.D. and H.A. Dollahite, *Pathogenesis and management of diabetic foot ulcers.* Journal of the American Academy of PAs, 2015. **28**(5): p. 28-34.
5. Saseedharan, S., et al., *Epidemiology of diabetic foot infections in a reference tertiary hospital in India.* Brazilian Journal of Microbiology, 2018. **49**(2): p. 401-406.
6. Roberts, A.D. and G.L. Simon, *Diabetic foot infections: the role of microbiology and antibiotic treatment.* Semin Vasc Surg, 2012. **25**(2): p. 75-81.
7. Karri, V.V.S.R., et al., *Current and emerging therapies in the management of diabetic foot ulcers.* Current Medical Research and Opinion, 2016. **32**(3): p. 519-542.
8. Everett, E. and N. Mathioudakis, *Update on management of diabetic foot ulcers.* Annals of the New York Academy of Sciences, 2018. **1411**(1): p. 153-165.