Norfolk and Norwich University Hospitals NHS
NHS Foundation Trust

P 46 Development of a Rationalized Antibiotic Protocol for Inpatient and Outpatient Use in a Tertiary Diabetic Foot Clinic

K Dhatariya[1,3,] L Mtariswa[2], C Gooday[3,] R Murchison[3,] B Bullen[3,]
G Messenger[3,] D Morrow[4,] R Hutchinson[5,] S Schelenz[6,] C Hallam[7]

[1]Elsie Bertram Diabetes Centre, [2]Department of Medicine, [3]Diabetic Foot Clinic, [4]Department of Vascular Surgery, [5]Department of Orthopaedic Surgery, [6] Department of Microbiology, [7]Pharmacy. Norfolk and Norwich University Hospital NHS Foundation Trust, Norwich, UK

Background:

The evidence for the choice of empirical antibiotic regimes used for the treatment of diabetic foot infections is limited, often conflicting and weak. Treatment strategies and choice of empirical antibiotics vary significantly. The principles remain that antibiotic choice must be guided ideally by results obtained from pecimens taken from deep within the wound, and the sensitivities of any organisms grown.

Aims:

To design a rationalized antibiotic protocol guideline for use to achieve high cure rates, accelerated wound healing and reduced amputation rates, whilst lowering the risk of developing multidrug resistant infections. In addition, to reduce the rate of hospital admissions for those individuals with 'borderline' infections.

Methods:

A multi-professional task force comprised of diabetologists, podiatrists, microbiologists, orthopaedic and vascular surgeons and pharmacists reviewed existing local, national and international guidelines for treating diabetic foot infections. We employed the IDSA's Diabetes Infection Classification System to grade infections, in conjunction with studies on prevalent pathogens within diabetic foot infections. *Staphylococci* and *Streptococci* remain the commonest agents in superficial foot infections. Deep foot infections are most often due to a mixture of aerobes and anaerobes with treatment for these being broader spectrum antibiotics.

Local resistance patterns were taken into account as was the risk/benefit ratio of prescribing agents associated with higher risk of developing *Clostridium difficile* infection. Consideration was also given to the ease of administration, limiting combination therapies to encourage patient compliance, outpatient treatment strategies to avoid hospital admission where necessary, and optimizing therapy to shortened hospital stay.

Results:

Treatment outcomes have been encouraging with initial audits demonstrating fewer inpatient referrals and shorter hospital stays. Of those patients treated with IM Ceftriaxone with borderline infections who otherwise required admission, 78% were treated successfully and did not require hospital admissions or surgery. 12% were admitted and underwent debridement surgery/ digital amputation. We report no cases of *Clostridium difficile* following clindamycin and/or ciprofloxacin therapy. Data collection on treatment failures or amputation rates after implementation of these guidelines is ongoing. These guidelines were developed for use in the secondary care foot clinic, however due to their successful implementation they have been adopted by NHS Norfolk for use in the community.

Clinical Description	Degree of infection
No purulence or evidence of inflammation	**Uninfected**
Evidence of inflammation 2cm or less around the ulcer	**Mild**
Cellulitis >2cm around the ulcer	**Moderate**
Cellulitis >2cm around the ulcer associated with; • Lymphangitis • Foot failing to respond to oral antibiotics alone	**Severe – Borderline admission**
Cellulitis as well as evidence of systemic toxicity; • Fever • Hypotension, • Leukocytosis or • Abscess formation • Infection tracking beneath fascia • Foot not responding to antibiotics • Wet gangrene	**Severe – Admission**

	FIRST CHOICE		PENICILLIN ALLERGY		
	PARTIAL OR FULL THICKNESS	*EXTENDING TO UNDERLYING SOFT TISSUE/ BONE*	*PARTIAL OR FULL THICKNESS*	*EXTENDING TO UNDERLYING SOFT TISSUE/ BONE*	DURATION
MILD	Co-amoxiclav 625mg tds PO	Co-amoxiclav 625mg tds PO	Clarithromycin 500mgs bd PO	Clarithromycin 500mgs bd PO Metronidazole 400mgs tds PO	Review after 1-2 weeks. May require an additional 1-2 weeks of treatment.
MODERATE	Co-amoxiclav 625mgs tds PO If co-amoxiclav has previously been used with no success then consider using Clindamycin 150mg-300mg qds PO instead	Co-amoxiclav 625mgs tds PO +/- Ciprofloxacin 500mgs bd PO If co-amoxiclav has previously been used with no success then consider using Clindamycin 150mg-300mg qds PO instead of co-amoxiclav	Clindamycin 150mg - 300mg qds PO	Clindamycin 150mg-300mg qds PO +/- Ciprofloxacin 500mgs bd PO	2-4 weeks
SEVERE BORDERLINE ADMISSION (this regimen will be reviewed regularly as to whether admission is necessary)	Ceftriaxone 1-2g od IM Ciprofloxacin 500mgs bd PO Metronidazole 400mg tds PO If MRSA positive use teicoplanin in place of ceftriaxone		Ceftriaxone 1-2g od IM Ciprofloxacin 500mgs bd PO Metronidazole 400mg tds PO In true penicillin allergy or if MRSA positive use Teicoplanin IM 400mg od Ciprofloxacin 500mg bd PO Metronidazole 400mg tds PO		2-4 weeks
SEVERE NEEDS ADMISSION	Tazocin 4.5g tds IV If polymicrobial infection suspected with MRSA then add in vancomcyin 1g bd IV to the above		Clarithromycin 500mg bd IV Metronidazole 400mg tds IV Ceftazidime 1g tds IV (2g tds IV if very severe). Substitute with Ciprofloxacin 500mg bd PO in true penicillin allergy If polymicrobial infection suspected with MRSA then add in vancomcyin 1g bd IV to the above regimen (omitting clarithromycin)		2-4 weeks

Conclusion:

We have presented a framework for unified treatment strategies for health professionals treating diabetic foot infections within our tertiary centre clinic. Our initial findings are that it has rationalized yet broadened the scope of outpatient treatment options. We have gained community ratification of these guidelines to ensure consistency and streamlined services, and reduced healthcare costs.

Email: ketan.dhatariya@nnuh.nhs.uk

design and layout by Medical Illustration Dept • NNUH