

Audit of Foot Clinic Antibiotic Protocol: Rationalised Prescribing, Appropriate Antimicrobial Cover, and No Additional Cost.

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Background: In 2008 we recognised that our specialist tertiary diabetic foot service did not have a rational antibiotic prescribing policy; clinicians were prescribing different antimicrobial regimens for the same clinical scenario. This was clearly unsustainable. Therefore the multidisciplinary team of diabetologists, surgeons, podiatrists, pharmacists and microbiologists reviewed the International Consensus Guidelines on the Management of the Infected Diabetic Foot. We then investigated our local microbial trends and antibiotic sensitivities in order to develop a rationalised antibiotic protocol (fig.1).

Fig. 1: Trust Guideline for the Antibiotic Management of Diabetes Related Foot Infections in Adults.

| | FIRST CHOICE | | PENICILLIN ALLERGY | | DURATION |
|-------------------------------|--|--|---|--|-----------|
| | PARTIAL OR FULL THICKNESS | EXTENDING TO UNDERLYING SOFT TISSUE/ BONE | PARTIAL OR FULL THICKNESS | EXTENDING TO UNDERLYING SOFT TISSUE/ BONE | |
| MILD | Co-amoxiclav 625mg TDS | Co-amoxiclav 625mg TDS | Clarithromycin 500mgs BD | Clarithromycin 500mgs BD Metronidazole 400mgs TDS | 1-2 weeks |
| MODERATE | Co-amoxiclav 625mgs TDS | Co-amoxiclav 625mgs TDS +/- Ciprofloxacin 500mgs BD | Clindamycin 150mg-300mg QDS | Clindamycin 150mg-300mg QDS +/- Ciprofloxacin 500mgs BD | 2-4 weeks |
| SEVERE - BORDERLINE ADMISSION | Ceftriaxone 1-2g OD IM Ciprofloxacin 500mgs BD Metronidazole 400mg TDS | | Ceftriaxone 1-2g OD IM Ciprofloxacin 500mgs BD Metronidazole 400mg TDS | | 2-4 weeks |
| SEVERE - NEEDS ADMISSION | Piperacillin/tazobactam 4.5g TDS IV | | Clarithromycin 500mg BD IV Metronidazole 400mg TDS IV Ceftazidime 1-2g TDS IV | | 2-4 weeks |

Aim: To evaluate the clinical impact of our protocol by observing the effect on: clinician adherence rates; range of regimens prescribed; microbial coverage; and prescribing costs.

Methods:

- This was a retrospective audit of patients who presented to our clinic, between March 1997 and October 2010, with a new clinically diagnosed foot infection, treated empirically with oral antibiotics.
- We recorded the date of presentation, the degree of infection, the empirical antimicrobials prescribed, and the results of subsequent microbiological cultures and sensitivities.
- We then compared the range and cost of antibiotics prescribed (assuming BNF 2010 pricing for a three week course of treatment), and the sensitivities to these antibiotics, before and after our guideline was introduced.

Results:

- 144 patients' notes were available for analysis.
- 64 of these patients presented with a new infection prior to the protocol's introduction, and were prescribed one of 19 different antibiotic regimens (fig. 2), at an average cost of £17.12 per patient. We had access to 34 of the respective microbiological cultures; only two of which grew resistant micro-organisms. One was a new case of Methicillin-resistant *Staphylococcus aureus* (MRSA), and the other was not covered due to patient

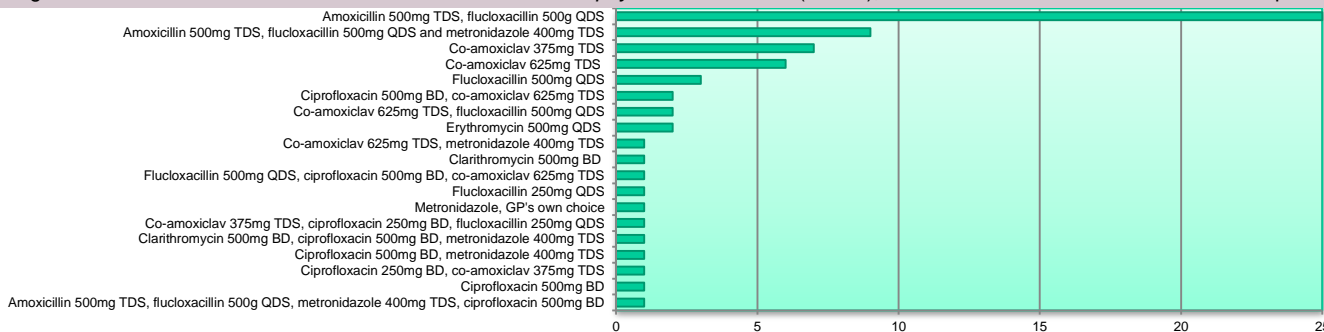


Fig. 2: Type and Frequency of Antimicrobial Regimens prior to Introduction of Protocol

- The remaining 80 patients were treated after January 2009 with one of only eight different antibiotic combinations (fig. 3), at an average cost of £16.47 per patient. 74 microbiological cultures were available and only 5 grew resistant micro-organisms; three of these were MRSA and one was not covered due to patient allergy.

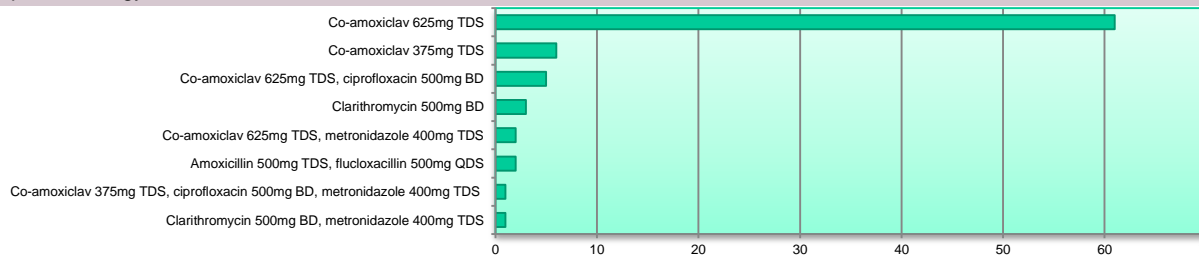


Fig. 3: Type and Frequency of Antimicrobial Regimens after Introduction of Protocol

- The rate of adherence by clinicians to our protocol was 94%.

Discussion:

With input from all members of the multidisciplinary team, a local antibiotic formulary can be developed to improve the treatment of diabetes related foot infections. Prescribing can be rationalised, improving clinician and patient adherence, and adequate microbial cover maintained, without additional costs.

Our protocol has subsequently been ratified by NHS Norfolk, and is therefore referred to by local primary care physicians. We have also had the opportunity to present our work at an international level!