

Antibiotic Prescribing Adherence in Treatment of Uncomplicated Cellulitis

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INTRODUCTION:

Cellulitis is very common infective disease especially in the older age group. It is estimated that the incidence of cellulitis is about 200 cases per 100,000 patients per year and, in non-tropical regions, has a seasonal predilection for warmer months. The outlook for most cellulitis is excellent. The infections are usually mild and in general, usually resolve within five to seven days. Antibiotics help to speed up the recovery time and to avoid complications. The community antimicrobial stewardship subcommittee of the SARI (Strategies for control of anti-microbial resistance in Ireland) national committee developed the standard guidelines. Since 2011, the guidelines have been overseen by the RCPI/ HSE clinical advisory group on healthcare-associated infection and antimicrobial resistance (HCAI/AMR). Flucloxacillin has been introduced as a first line choice for treatment of uncomplicated cellulitis. This guideline does not apply to pregnant patients, critically ill patients, where renal function is changing rapidly or those with acute kidney injury. Caution should be used when prescribing in dehydrated or oedematous patients. Local Louth/Meath antimicrobial guidelines also adhere to the above mentioned guidelines.

AIMS AND OBJECTIVES:

- 1) To encourage adherence to antibiotic prescribing in view of the current guidelines.
- 2) To promote safe and effective use of antibiotics.

Criteria:

All patients [unless pregnant, with renal impairment, critically ill or any other comorbidity] should be offered flucloxacillin as first line antibiotic for Cellulitis.

Standard:

70% of our patients presenting with Cellulitis should receive flucloxacillin as first line antibiotic unless contraindicated.

METHODS AND SAMPLE:

Hospital software IPMS was used to identify the suitable candidates that met the inclusion criterion. Patients irrespective of gender, race and ethnicity were included. We wanted to exclude pregnant patients, critically ill patients and those with renal impairment but there were no such patients in our sample. Patients who were penicillin or Flucloxacillin allergic were excluded from the study. Most patients included in the study were of uncomplicated Cellulitis i.e., no abscess, gangrene, necrotizing fasciitis or fever.

Audit was conducted in two cycles. Retrospective data for the month of November 2022 was collected for first cycle whereas retrospective data for the month of February 2023 was collected for second cycle post intervention. The search was carried out by using words like cellulitis and antibiotics like flucloxacillin, Co-amoxiclav, doxycycline, cefazolin, ceftriaxone, vancomycin, cefaclor, clindamycin. Then each file was reviewed for prescription notes.

RESULTS:

In the first cycle, around 69% of the doctors were adherent to the guidelines and prescribed flucloxacillin as first choice for cellulitis. In our opinion, Doctors were fully motivated, however they needed regular encouragement to change their prescribing practice. We tried to give frequent reminders through group discussions, by arranging frequent meetings with all NCHDs and by distribution of leaflets of current guidelines. Weekly hospital meetings were arranged and doctors/nurses were informed of above guidelines and were asked to incorporate them in their routine day-to-day practice. Each doctor in the hospital was shown website with specific subsection twice during audit i.e., at end of first cycle & again midway during second cycle.

We conducted the 2nd cycle in February 2023 post interventions to see the change. The change was quite satisfactory as the percentage of doctors adhering to the standard guidelines of antibiotic prescription increased from 69% to 86% which was a significant improvement in just a few months. Even though the

result was not 100% but there was still a significant improvement and we are hopeful that this percentage will further improve.

Cycle	1st Cycle November 2022	2nd Cycle February 2023
Total Number of Patients	26	30
Final Number in the cycle	25 [1 excluded as penicillin allergic]	30[no one excluded]
Flucloxacillin	18 [69.2 %]	26[86.6%]
Augmentin	3 [11.5 %]	2 [6.6%]
Doxycycline	3 [11.5%]	1 [3.33%]
Clindamycin	2 [7.8%]	1 [3.33%]

Table 1. Summary of Results of 1st and 2nd Round of Audit.

DISCUSSION:

Factors Contributing to Non-Adherence:

Resistance to Change Practice:

One of the prominent factors affecting adherence to guidelines is the resistance among healthcare providers to change their established practices. This resistance can stem from concerns about disrupting patient-provider relationships, as deviation from previous treatment approaches might lead to patient dissatisfaction or confusion.

Patient Satisfaction Concerns:

Healthcare providers may also hesitate to prescribe flucloxacillin due to concerns about patient satisfaction. Deviating from patients' expectations or previous treatment regimens may lead to dissatisfaction, impacting patient trust and compliance.

Cost Considerations:

The cost of medications can be a significant factor influencing prescription choices. While flucloxacillin is recommended as the first-line treatment, its cost compared to alternative antibiotics like Augmentin or Doxycycline might affect prescribing decisions, particularly in resource-constrained healthcare settings.

Interventions and Strategies:

To address these challenges and improve adherence to guideline-based antibiotic prescribing, several interventions and strategies were implemented:

Regular Reminders:

Healthcare providers were given frequent reminders through various channels, including group discussions, meetings, and distribution of guidelines. These reminders were intended to keep the importance of guideline adherence at the forefront of their practice.

Education and Training:

Educational initiatives, such as website resources and specific subsections for doctors, were introduced to enhance understanding and familiarity with

antimicrobial prescribing guidelines. Continuous education was a key component of the strategy.

Policy Development:

The audit underscores the need for a hospital-wide antibiotic prescribing policy. Such a policy can provide a standardized approach to antibiotic use, reducing variation in prescription practices and promoting adherence to established guidelines.

IMPACT OF INTERVENTIONS:

The second cycle of the audit, conducted in February 2023 after the implementation of interventions, demonstrated a significant improvement in adherence. The percentage of doctors adhering to the standard guidelines for antibiotic prescription increased from 69% to 86%. While not reaching 100%, this improvement within a short timeframe is encouraging. Despite established guidelines, there is a reluctance to prescribe flucloxacillin due to various factors. Resistance to change practice, patient dissatisfaction concerns, and cost of the medication play a role. Regular reminders and interventions, including group discussions, meetings, and distribution of guidelines, were implemented to address this reluctance. While the improvement from 69% to 86% in adherence post-intervention is significant, further efforts are needed.

RE-AUDIT:

We have planned to continue our efforts of reminding doctors of the current standard guidelines of antibiotic prescribing. We will re-audit after 3 months, based on same parameters, to evaluate the compliance of medical staff to the proposed recommendations.

CONCLUSION:

Flucloxacillin should be preferred first line antibiotic for uncomplicated cellulitis regardless of the affected age group. Regular reminders and continuous efforts to educate and engage the medical staff are essential. The need of the hour is to develop a hospital-wide antibiotic prescribing policy to reduce the antibiotic resistance and improve patient care.

FUTURE STEPS:

To sustain and further improve adherence to cellulitis treatment guidelines, the following steps are recommended:

Continued Education and Reminders:

Maintain the practice of frequent reminders through meetings, discussions, and accessible resources to ensure that healthcare providers remain informed and motivated to adhere to guidelines.

Policy Development:

Develop, implement, and enforce a comprehensive hospital-wide antibiotic prescribing policy that aligns with national guidelines. This policy should serve as a reference for all healthcare providers.

Ongoing Monitoring:

Continue to monitor adherence to guidelines at regular intervals to assess the long-term impact of interventions and identify areas for further improvement.

In conclusion, the discussion highlights the complexity of factors affecting antibiotic prescription practices in cellulitis treatment. It emphasizes the importance of addressing resistance to change, patient satisfaction concerns, and cost considerations through a multi-faceted approach that includes education, reminders, and policy development. The significant improvement observed after interventions demonstrates the potential for enhancing guideline adherence and improving patient care. Ongoing efforts and vigilance will be essential to maintain and build upon these positive results.

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