

Uptake of Antimicrobial Stewardship recommendations for Immunology referral to assess antibiotic allergies

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Background

The Antimicrobial Stewardship (AMS) team use post-prescription review (PPR) rounds four times a week to monitor usage of restricted antimicrobials. A proportion of the patients reviewed on these rounds have a documented allergy to an antibiotic, or an 'antibiotic allergy label' (AAL).

AALs have been shown to have negative effects including:

- increased risk of multidrug resistant organisms
- increased adverse events
- increased costs
- increased mortality
- increased hospital length of stay
- patients more likely to receive inappropriate antibiotic therapy
- inferior clinical and microbiological outcomes

The majority of patients with AALs can be safely de-labelled once a comprehensive immunology/allergy assessment is undertaken. Between 5 and 15% of patients in developed countries report a history of penicillin allergy, but after complete evaluation up to 95% of these individuals are able to tolerate penicillins.

Removing AALs has been shown to result in:

- cost savings
- increased antimicrobial appropriateness
- increased use of narrow spectrum penicillins

Aim

To review AMS recommendations of referral to Immunology for patients with AALs, and to assess the uptake of this intervention.

Methods

The AMS team prospectively collected data on patients reviewed during PPR rounds, and the associated recommendations.

Patients were considered suitable for referral to Immunology if they had developed a reaction to an antibiotic during the admission and/or had a documented AAL, with patients who were likely to require antibiotic therapy in the future prioritised.

The AMS team could recommend referral and document this in the medical record, however they could not directly refer to Immunology.

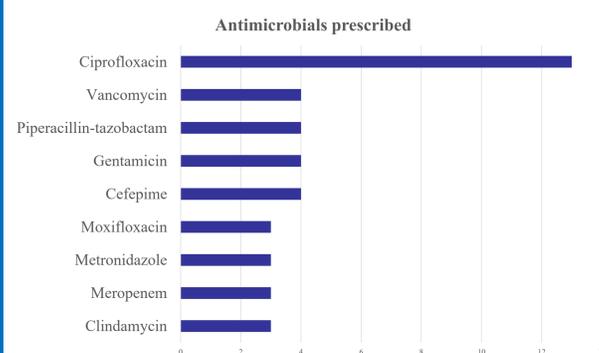
Uptake of this recommendation by the treating unit was retrospectively reviewed.

Results

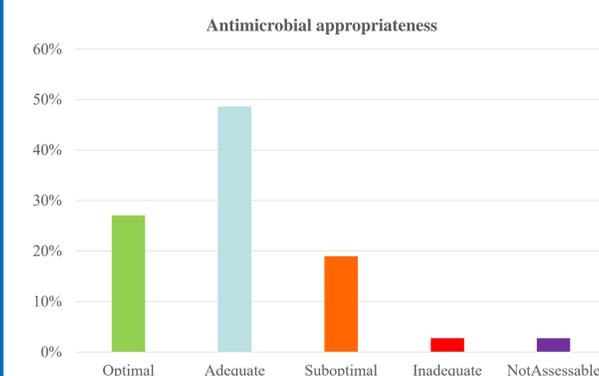
In the previous year, a referral to Immunology was recommended by the AMS team during PPR rounds for 31 patients.

Of these patients, the majority had a penicillin allergy documented, although in many cases the history of the allergies was unclear.

At the time of AMS review, most patients were prescribed restricted broad spectrum antimicrobials, with ciprofloxacin being the most common (Graph 1). Only 27% of antimicrobial prescriptions were assessed as optimal, which is fully compliant with guidelines (Graph 2).



Graph 1: Antimicrobials prescribed at the time of AMS review



Graph 2: Therapy appropriateness of prescribed antimicrobial therapy as assessed by AMS team

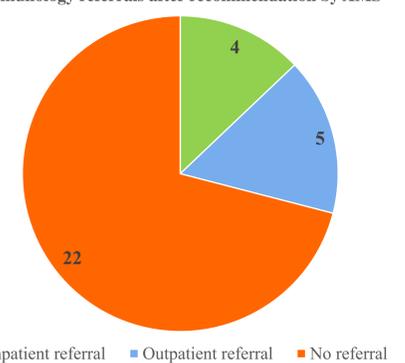
Reasons for AMS recommendation for referral to Immunology included:

- Unclear history of penicillin allergy, possible history of anaphylaxis
- Uncertainty from home unit about details of previous 'de-labelling' vs. 'desensitisation' to penicillin
- History of multiple antibiotic allergies
- Developed rash whilst on an antibiotic during current admission
- Received a dose of a penicillin or cephalosporin, despite documentation of allergy; these patients did not react upon exposure

In most cases, the intention of the suggested referral was for a comprehensive allergy assessment to be undertaken which may include skin prick testing and possible subsequent de-labelling.

Review of the medical records revealed that a referral to Immunology was received for only nine of these 31 patients (29%). This is a much lower uptake in comparison with other recommendations made by the AMS team.

Immunology referrals after recommendation by AMS



Graph 3: Uptake of AMS recommendations for referral to Immunology

Patients who had developed a reaction during the current admission, and those with an unclear history of multiple or serious allergies appeared more likely to be referred for an Immunology assessment.

Discussion

There was a low uptake of the AMS team recommendation for referral to Immunology. Possible reasons for this include:

- may not be a priority for treating teams
- poor understanding of risks associated with use of alternative restricted antibiotics
- forgotten about it by the time patient is discharged if non-urgent
- preference for the AMS team to refer directly

PPR rounds provide an opportunity for AMS teams to identify patients with AAL. The possibility of direct referral to Immunology will be explored to increase the number of patients being assessed for possible de-labelling.

Conclusion

There is opportunity for the AMS team to facilitate antibiotic allergy de-labelling through identification of patients for Immunology review. This can be achieved during routine PPR rounds; however, the lack of referrals made suggests that management of AALs may not be a priority for the treating units.

Collaboration between the AMS and Immunology teams is now occurring, and has the potential to make an impact on reducing future use of restricted antimicrobials.

References:

1. Trubiano et al. Clin Infect Dis 2017; 65(1):166-174
2. eTG complete [Internet]. Melbourne (Vic): Therapeutic Guidelines Limited; 2019