An Evaluation of the Frequency and Prevention of Allergies and Adverse Drug Reactions to Antibiotics in Hospitalised Patients

Pengelly K, Williamson F, Bhally H, Harrison J

Kelly.Pengelly@Waitematadhb.govt.nz
Serious adverse drug reactions (ADRs) and immunologically mediated drug allergies (DAs) are common in hospitalised patients and lead to increased morbidity (1, 2).

**Project Aim**

- To evaluate the frequency and preventability of ADRs and DAs to antibiotics in hospitalised patients from May to June 2012 at Waitemata DHB.

**Method**

- Prospective observational study at NSH over eight weeks from 1st May 2012
- Charts and notes reviewed and patient interviews conducted

**Included:**

- Six wards
  - 2 General Medicine (2 weeks)
  - 2 General Surgery (2 weeks)
  - 2 Orthopaedic Surgery (2 weeks)
- All inpatients prescribed antibiotics for >48 hours
Results

Data was collected from 188 patients with a total of 335 antibiotics.

54 patients (29%) were prescribed AND administered at least one antibiotic with no annotation of prior DAs or ADRs on the medication chart.

Total rates of DAs and ADRs and the percentage considered avoidable (N=188):

**Drug allergies**
- 11 patients (6%) suffered a DA to an antibiotic during admission.
- 6 of these reactions (55%) were considered avoidable.

**Adverse Drug reactions**
- 25 patients (13%) suffered an ADR to an antibiotic during admission.
- 8 of these ADRs (32%) were considered avoidable.
Patients who received an antibiotic that could potentially cause the patient harm while in hospital (N=188)

Drug Allergy: 24 patients (29%) with a prior documented DA to an antibiotic class received that antibiotic class while admitted to hospital

- 71% Documented DA and did not receive the antibiotic while admitted.
- 29% Documented mild DA and received the antibiotic class while admitted.
- 19% Documented moderate DA and received the antibiotic class while admitted.
- 8% Documented severe/anaphylactic DA and received the antibiotic class while admitted.

Adverse Drug Reaction: 26 patients (28%) with a previously documented ADR to an antibiotic class received that antibiotic class while admitted to hospital

- 72% Documented ADR and did not receive that antibiotic class.
- 28% Documented mild ADR and did receive that antibiotic class.
- 15% Documented moderate ADR and did receive that antibiotic class.
- 5% Documented severe ADR and did receive that antibiotic class.
Implications for practice

- A significant number of patients with prior documented ADR or DA received antibiotics potentially causing an allergic or adverse event.

- Many preventable DAs and ADRs to antibiotics are caused by poor documentation of DA and ADR status and failure to acknowledge DA and ADR status in practice.

- These findings suggest that prescribers and administrators need to:
  - take more responsibility for accurate documentation and
  - pay more attention to documented warnings.

- We suggest new prescribers undertake a training module on the risk of prescribing contraindicated antibiotics to patients as this has been effective in altering prescribing practices elsewhere (3).

- Other studies have suggested that electronic prescribing of medications that incorporates patients DAs and ADRs into the prescribing process may also be an effective tool for future use as it has been shown to reduce unnecessary risk to patients (2).

References