Eosinophilia and adverse drug reactions in an outpatient parenteral antibiotic therapy cohort of an Asian tertiary hospital

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Background

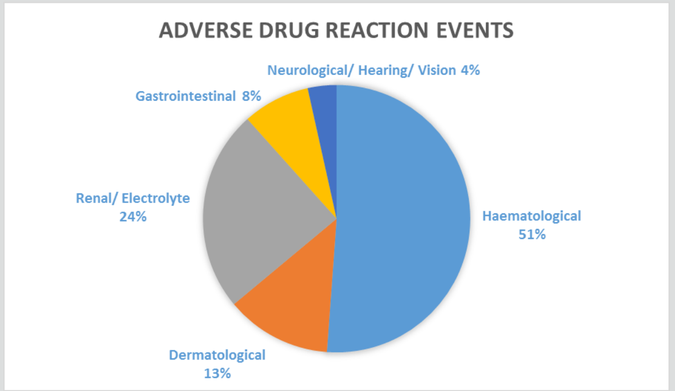
Patients receiving parenteral antibiotics from an outpatient parenteral antibiotics therapy (OPAT) service may develop complications including eosinophilia and adverse drug reactions (ADRs) such as rash and electrolyte derangements. Eosinophilia may occur independently or in association with other ADRs. Certain antibiotics are also more likely to cause eosinophilia. The incidence of antibiotic related eosinophilia along with subsequent ADRs, and their possible association is unclear.

Methods

We examined the incidence of eosinophilia and ADRs in an OPAT cohort of a tertiary Asian institution. A case records review of all patients enrolled into our OPAT program from 4 March 2015 to 11 April 2016 was conducted retrospectively. Demographic and clinical data including age, gender, age-adjusted Charlson co-morbidity index (CCI) score, type and duration of antibiotic treatment and number of drug allergies were recorded. Outcomes such as eosinophilia and ADRs (haematological, dermatological, renal/ electrolyte, gastrointestinal, neurological/ hearing/ vision) were also recorded.

Results

561 patients who received parenteral antibiotics and had at least one complete blood count performed during OPAT therapy were included in the analysis. 360 patients were male. Mean age and age-adjusted CCI score were 55.46 years (SD 15.32) and 3.11 (SD 2.54) respectively. 153 patients had existing drug allergies. 518 (92.3%) patients received one antibiotic and the remaining received two antibiotics. 204 (36.4%) patients received OPAT for 0-2 weeks, 222 (39.6%) received OPAT for 2.1-4 weeks, 114 (20.4%) received OPAT for 4.1-6 weeks, and 21 (3.5%) received OPAT for more than 6 weeks. 154 (27.45%) patients were noted to have eosinophilia during OPAT. Mean duration from start of OPAT to onset of eosinophilia was 9.66 days (SD 7.42). Mean absolute eosinophilia count (AEC) at onset was 0.67 x 10^9/L (SD 0.31), and mean peak AEC was 0.89 10^9/L (SD 0.54). Mean duration from start of OPAT to peak AEC was 14.03 days (SD 9.04). Among patients with eosinophilia, 27 (17.53%) developed ADRs compared to 55 (13.51%) without eosinophilia who developed ADRs (p=0.23). Total numbers of ADR events were as follows: 44 haematological, 11 dermatological, 21 renal/ electrolyte, 7 gastrointestinal, 3 neurological/ hearing/ vision.



Conclusion

Antibiotic-related eosinophilia is common. Patients with eosinophilia are clinically more likely to develop adverse drug reactions than patients who do not have eosinophilia although this did not reach statistical significance in our data. Common ADRs include haematological and renal/ electrolyte ADRs. The presence of eosinophilia should prompt physicians to be vigilant for these ADRs and consider a change in antibiotic treatment if indicated.