

Pharmacists Fighting Fungi-Improving Adherence to Antifungal Guidelines in High Risk Haematology Outpatients



MONASH University

Reslan, Z.^{1,2} Lindsay, J.^{1,2,3}, Gellatly, R.² Kerridge, I.³
 1 Royal North Shore Hospital (RNSH), Pharmacy Department, St Leonards, NSW
 2 Faculty of Pharmacy and Pharmaceutical Science, Monash University, VIC
 3 Hematology and Bone Marrow Transplant Unit, RNSH, NSW
 Contact: zainab.reslan@health.nsw.gov.au



Royal North Shore Hospital

Background

Patients with haematological malignancies are at high risk of invasive fungal infections. Fungal prophylaxis is recommended by international and Australian guidelines.¹ However, there is a lack of information regarding adherence to fungal prophylaxis guidelines in haematology outpatients.

Aim of the Study

To assess the impact of a weekly pharmacist review of high risk haematology outpatients on adherence to fungal prophylaxis according to the Australian and New Zealand Consensus Guidelines.

Method

A 3 month pre- and post-interventional study was carried out.

- A retrospective audit was conducted to obtain baseline adherence rates to antifungal guidelines
- A prospective weekly pharmacist review of all eligible patients (AML, ALL, and MDS on chemotherapy) was then completed
- Assessment of presence or absence of antifungal therapy, agent selected, dose, use of therapeutic drug monitoring (TDM), presence of drug interactions and contraindications
- Recommendations/ interventions by the pharmacist were communicated to physicians and followed up

Results

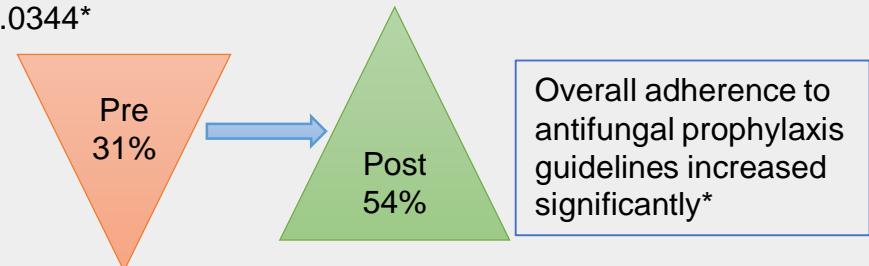
Table 1: Baseline characteristics of patients in each cohort

	Retrospective cohort (n= 40)	Prospective cohort (n= 42)	p-value
Median age (years)	69.5	71	0.463
Interquartile range	11.25	15.75	
Malignancy (%)			0.640
AML	22 (55)	22 (52)	
MDS	12 (30)	15 (36)	
ALL	6 (15)	4 (10)	
Other (AMML)	0 (0)	1 (2)	
Females (%)	16 (41)	18 (43)	0.845
# of episodes (weekly review)	348	269	

Table 2: Appropriate Antifungal Prophylaxis rates by patient age (episodes)

Appropriate Fungal Prophylaxis	Patients episodes (<60 years) (%)	Patients episodes (>60 years) (%)	p-value
Retrospective Group	29 (54.7)	78 (26.4)	0.0001
Prospective Group	30 (65.2)	116 (52)	0.107

Odds Ratio= 2.44, 95% confidence interval: 1.07-5.58, p-value = 0.0344



The most common reason for nonadherence in both the pre and post intervention cohorts was lack of TDM and absence of antifungal therapy.

The percentage of appropriate fungal prophylaxis in patients with AML increased from 13% to 46% (p-value <0.01) after intervention.

Moderate to severe drug interactions were identified in 19 episodes from 10 patients in the prospective cohort. One major azole antifungal-chemotherapy interaction was avoided. n=40 patients in retrospective group, 348 episodes, n=42 in prospective group, 269 episodes

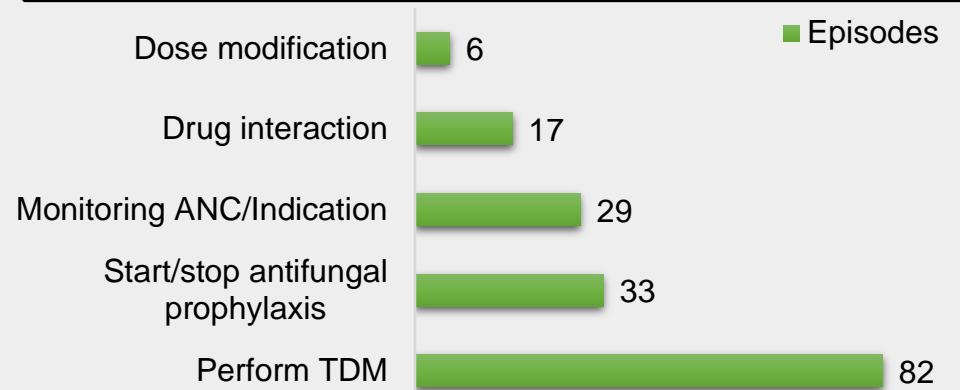


Figure 1: Types of recommendations made of pharmacist during prospective intervention period (total number of episodes = 153)

Discussion

- Highest rate of non-adherence to antifungal prophylaxis guidelines was seen in AML patients in both groups
- Weekly TDM was required for all patients with AML, MDS, ALL on treatment to be deemed adherent to the guidelines. This is likely not feasible in the outpatient setting (45% episodes weekly TDM). This substantially lowered overall adherence rates
- Although included in this study, there is no strong data on fungal prophylaxis in elderly AML patients on low intensity chemotherapy

Conclusion

Adherence to antifungal guidelines in haematology outpatients is low. Adherence can be improved through a regular pharmacist review. Future studies should identify whether improving adherence leads to a change in patient outcomes including invasive fungal infection rates, morbidity and mortality.

References: 1) Fleming S. *et al.* 2014. Intern Med J. 2014;44(12b):1283-97.