

Modified Point Prevalence Study of Antifungal use in Paediatrics

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INTRODUCTION

The incidence of invasive fungal infections (IFI) in adult and paediatric patients has increased, particularly in the immunocompromised with mortality ranging from 30-40% for yeast and up to 70% for mold infections¹. As part of CHI's Antimicrobial Stewardship Policy (ASP), selected antifungals are considered "Restricted agents". They are also included in Haematology, Oncology and Cystic Fibrosis protocols. There is no active formal Antifungal Stewardship (AFS) Program. This study aimed to record the prevalence and pattern of antifungal prescribing and document indications for use.

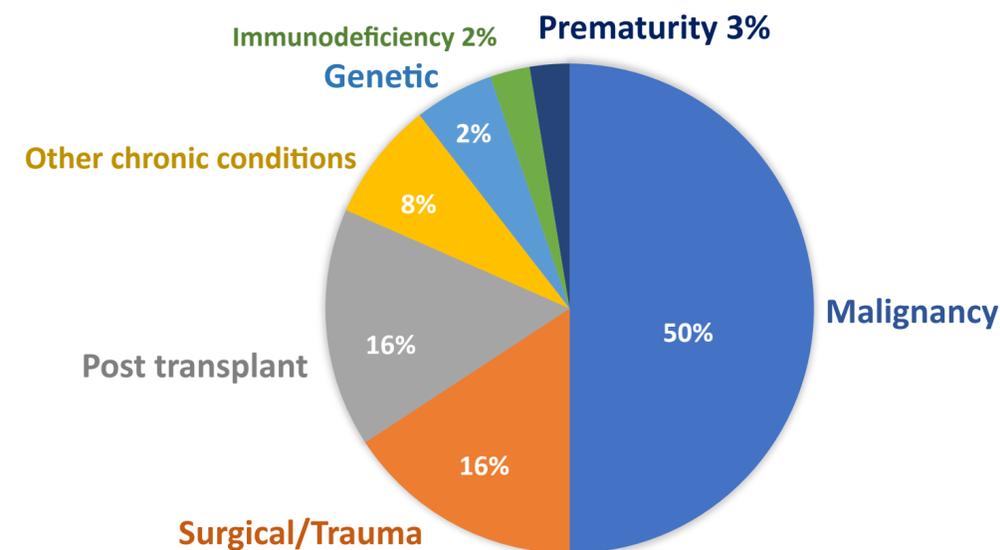


Figure 1: Underlying conditions

METHODS

Prospective, modified, single-day point prevalence study (mPPS) of antifungal use over 12 consecutive weeks (July 2020 - October 2020). Data was collected as part of a European-wide study (CALYPSO) across 23 paediatric/neonatal sites. All inpatients <18 years present at 8 a.m. on the day of survey and receiving systemic antifungal agents were included. Patient data was recorded, anonymised and entered into secure REDCap database. Each patient was followed-up weekly while inpatient. The outcome of each prescribing episode was recorded. Study approval was granted by the research ethics committee of CHI at Crumlin.

RESULTS

- Patient No: 38, 23 M (60%), 15 F (40%)
- 56 episodes in 38 patients
- All patients (38) had an underlying condition (Fig. 1)
- 5-8.8% (mean 6.7%) were receiving systemic antifungals (Fig. 2)
- Indication for use:
 - Prophylaxis: 64% (36 episodes)
 - Treatment: 36% (20 episodes)
- Of those treated:
 - Empiric 48%
 - Diagnostic driven 25%
 - Targeted therapy 27%

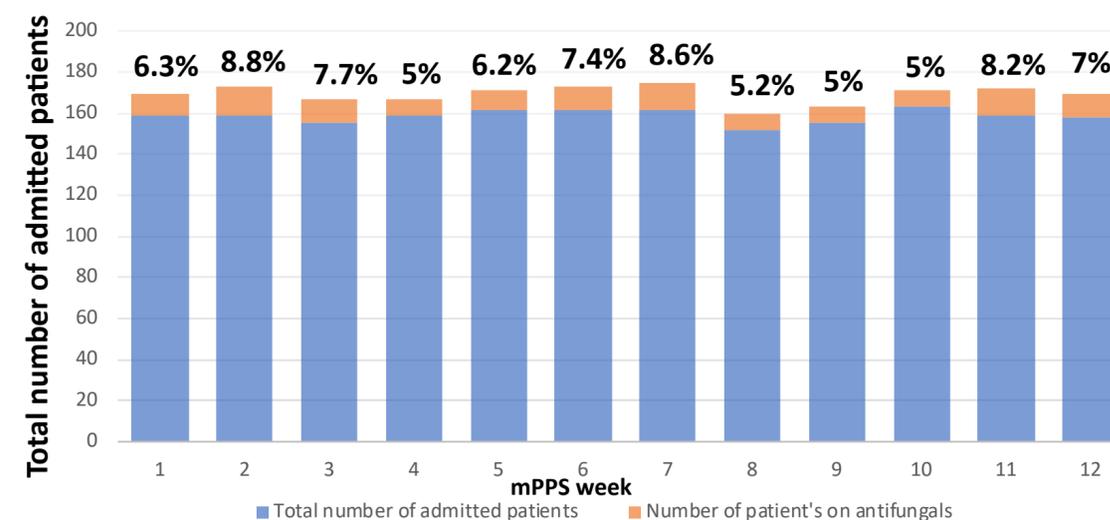


Figure 2: Rate of antifungal use

REFERENCES

- 1 Lestner JM, Versporten A, Doerholt K, Warris A, Roilides E, Sharland M, Bielicki J, Goossens H, ARPEC Project Group. 2015. Systemic antifungal prescribing in neonates and children: outcomes from the Antibiotic Resistance and Prescribing in European Children (ARPEC) study. *Antimicrob Agents Chemother* 59:782-789
- 2 Santiago-García B, Rincón-López EM, Ponce Salas B, et al. Effect of an intervention to improve the prescription of antifungals in pediatric hematology-oncology. *Pediatr Blood Cancer*. 2020;67(4):e27963
- 3 Mendoza-Palomar N, Soques E, Benitez-Carabante MI, et al. Low-dose liposomal amphotericin B for antifungal prophylaxis in paediatric allogeneic haematopoietic stem cell transplantation. *J Antimicrob Chemother*. 2020; 75(8):2264-71

DISCUSSION

- First Irish paediatric study of antifungal prescribing pattern in tertiary care
- Overall rate of antifungal prescribing is consistent with that reported in Europe¹
- The main indication for use was prophylaxis, appropriately targeting immunocompromised patients²
- AmBisome® is the most frequently prescribed antifungal and contributes substantially to the overall antifungal spend
- Potential limitation: single site study during COVID-19 pandemic which may have impacted inpatient numbers

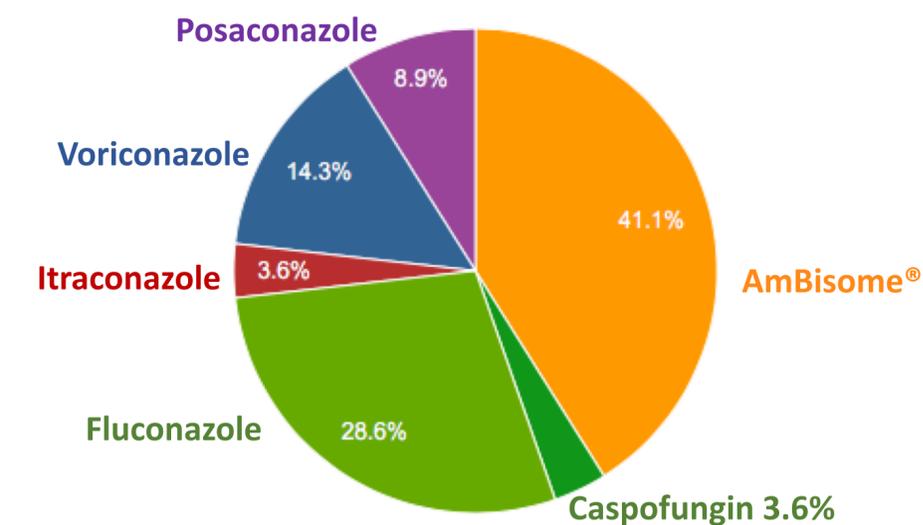


Figure 3: Antifungal agents used during study period

CONCLUSION AND FUTURE WORK

- Systemic antifungal use was consistent with current local guidelines and aligned with European practice
- Consideration should be given to substitution of AmBisome® with more cost-effective antifungals as clinically appropriate, offering significant cost savings
- A formal AFS program offers significant benefit both clinically and financially to the patients and institution, particularly in the empiric use of AmBisome®
- More direct comparison with European centres will be possible on completion of the CALYPSO study