A new management strategy for suspected invasive fungal disease in pediatric haemato-oncology patients; a prospective study.

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Background

Increased prevalence of azole resistance in *A. fumigatus*, voriconazole underdosing problems in children and a changing epidemiology of invasive fungal disease (IFD), have led to the development of a New Management Strategy (NMS) to achieve standardized diagnostic work-up and therapeutic intervention for suspected IFD in paediatric haemato-oncology patients in the Netherlands.

Methods

We collected demographic, clinical, diagnostic and outcome data in the PedMyc database from pediatric haemato-oncology patients (<18 yrs) with a clinical suspicion of IFD in four university hospitals in the Netherlands. Management strategy is shown in the flow diagram.

Included patients		104 [%]
Median age children		10 yrs (IQR 4-14)
Median age infants		6 mo (IQR 3-8)
Boys		66 [63.5%]
Haematological malignancies		
ALL		44 [42.3%]
AML		24 [23%]
NHL/HL		12/2 [11.5%]
SAA/MDS		6 [5.8%]
HLH		2 [1.9%]
Other		14 [13.5%]
Allo-HSCT		9 [8.7%]
Auto-HSCT		2 [1.9%]
Antifungal prophylaxis		
Itraconazole		38 (67.8%)
Fluconazole		12 (21.4%)
Voriconazole		3 (5.4%)

Results (I)

The NMS was carried out in 77% (80/104) of which 68 (85%) were started on L-AmB and 12 (15%) on L-AmB + voriconazole. No treatment changes were made in 60% (48/80) of the patients. From those started on L-AmB, 33.8% (23/68) changed to voriconazole, 10.3% (7/68) were changed to combination therapy. Only 2 of the 12 patients started initially on combination therapy, were switched to monotherapy. Complete and partial responses were seen in 77.3%, death was reported in 21.2%.

Results (II)

All patients underwent imaging with abnormalities detected in the vast majority. BAL and/or lung biopsy were performed in all children with abnormal CT-chest findings with a high yield of positive test results.

Conclusion

The NMS proved to be a feasible strategy with a favourable outcome allowing 42% patients to be categorised as proven/probable IFD by employing a standardized diagnostic work-up, allowing targeted antifungal therapy.

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