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

Laura Ferreras-Antolin¹, Loes Kooiman², Rekha Gurung¹, Martin de Witte⁴, Dasja Pajkrt⁵, Gertjan Driessen⁴, Tom Wolfs³, Stefanie Henriet³, Adilia Warris¹,².

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.

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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Contact: a.warris@abdn.ac.uk