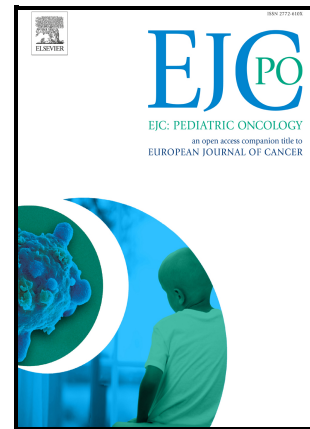


Infections in children and adolescents with  
hematological malignancies

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## **Infections in children and adolescents with hematological malignancies**

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With this special issue “Infections in children and adolescents with hematological malignancies”, the European Journal of Cancer (EJC) Pediatric Oncology (PO) addresses an important topic of supportive care in pediatric hemato-oncology, if not the most relevant one, as infectious complications are not only associated with high morbidity and decrease the quality of life, but can also be life-threatening and eventually fatal. While for example cure rates in childhood acute lymphoblastic leukemia (ALL) are exceeding 90%, it seems of utmost importance to intensify the efforts in a better understanding, prophylaxis, diagnostics and treatment of infectious complications in order to avoid treatment-related fatalities which, at the moment, still are at 3% in pediatric patients with primary ALL. This rate of treatment-related mortality approaches the current rate of relapsed (6-10%) and refractory disease (0.5%), which underlines the importance of this topic.

Children are not small adults - it has been recognized for a long time that pediatric patients differ from adults in many aspects. For example, the most common pediatric malignancies are acute leukemias, whereas in adults, epithelial cancers of the lungs, colon, prostate and breast are mostly diagnosed [1]. As a result, treatment strategies are different, and treatment intensity and treatment density are higher in the pediatric setting as compared to adults, and result in protracted episodes of neutropenia (and lymphopenia) and mucosal damage as the most important risk factors for infections. However, it is important to note that, compared to adults, children less often suffer from significant comorbidities such as type II diabetes, lung or cardiovascular disease, which therefore allows dose- and time-intensified polychemotherapies and allogeneic stem cell transplantations with myeloablative conditioning regimens. Other differences between pediatric and adult patients are related to the different potency of their immune system, including the maturation and regeneration after intensive chemotherapy [2, 3]. Last, a number of therapeutic

compounds, both for chemotherapy and supportive care, are still not approved in the pediatric setting, and for many of them, sufficient data on pharmacokinetics and pharmacodynamics are lacking. These differences between children and adults led to a number of regularly up-dated pediatric-specific guidelines of supportive care in hemato-oncology with a specific emphasis on infectious disease management.

The present special issue of the EJC PO focuses on infectious complications in pediatric hemato-oncological patients, and is therefore important for all pediatric hemato-oncologists and stem cell transplantation experts. This issue will cover the most important aspects of epidemiology, prophylaxis, diagnostics and therapy of infectious complications in the pediatric hemato-oncological setting, but at the same time critically review the implementation of pediatric-specific guidelines. While König *et al.* will report comprehensively on the state-of-the-art diagnostics and therapy of pediatric patients with febrile neutropenia, Spielberger *et al.* will show by a point prevalence study a relevant lack of concordance between national / international guidelines and local guidelines across German and Austrian centers for the management of pediatric hemato-oncological patients with febrile neutropenia [4, 5]. Two other articles will address the relevance of viral infections in patients with hematological malignancies: Rauwolf *et al.* report on prophylactic, pre-emptive and therapeutic strategies of the most important viral infections in the allogeneic stem cell transplantation setting, while Santolaya *et al.* focus on respiratory viral infections as an important differential diagnosis in patients with febrile neutropenia, enabling both the decrease of broad-spectrum antibiotics and the reduction of in-patient days in the hospital and avoidance of antibiotic resistance [6, 7]. Moreover, Carless *et al.* will comprehensively review the risk of bacterial and fungal infections in children and adolescents with haematological malignancies [8] and, last but no least, Yap *et al.* will provide a systematic review on bacterial bone and joint infections of children with

leukemia or undergoing allogeneic stem cell transplantation - a rare but challenging infectious complication with almost no literature available to date [9].

We would like to thank the Editorial Board of the EJC to launch PO, and all the authors of the articles for their valuable contribution to this special issue. We hope that all readers will enjoy reading these five articles which may not only have an educative effect but also arouse their interest in infections in children and adolescents with hematological malignancies.

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**Conflict of Interest:** None

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**Declaration of interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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