The use of vaccines to safeguard patients with haematological malignancies

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Haematological malignancies increase the risk of infection, but the pathology of these diseases and their treatments complicate the management of infections. Some of the infections are vaccine preventable, and therefore this is an approach that should be considered. However, it is not straightforward since the approach differs because of the nature of the malignancy, treatment, infection, and vaccine. A particular limitation of vaccination in these patients is the use of live-attenuated vaccines (LAVs) because of the risk of vaccine-induced disease in the context of immunocompromise.

Changes in the treatment of patients with haematological malignancies over recent decades have rendered some of the lessons of past studies obsolete. In *The Lancet Infectious Diseases*, a two-part Series on vaccination and haematological malignancies presents an updated understanding of how vaccination can be applied in this setting. In the first paper of the series, Małgorzata Mikulska and colleagues[1] present guidelines for vaccination of patients who have not received a transplant. In the second paper, Catherine Cordonnier and colleagues[2] present guidelines for patients who have received a transplant.

In the first paper, Mikulska and colleagues outline that most of the recommendations in the Series are based on serological response rather than clinical efficacy, because studies in the setting of haematological malignancy are usually small and the incidence of infection is low. They highlight that timing of vaccination is a crucial factor in the prevention of infection, but in the case of chronic diseases, there can be a substantial gap between diagnosis and treatment and thus there might be ample opportunities for vaccination. But in the case of acute disease, urgent chemotherapy will render vaccination at diagnosis futile.

In the second paper, Cordonnier and colleagues set out the recommendations related to patients who have undergone haemopoietic stem cell transplantation (HSCT). Most HSCT recipients quickly lose immunity to various pathogens even if they have received prior passive or active immunisation. In fact, The Infectious Diseases Society of America recommends that HSCT recipients are considered never vaccinated.[3] To address this diminished immune status inactivated vaccines can be used to reinstate immunity. As noted above, LAVs are generally contraindicated in immunocompromised patients, but where there are no alternatives they should be considered for HSCT recipients after weighing up the risks.

The primary recommendation that cuts across all patients, family, close contacts, and health-care workers is receipt of the inactivated influenza vaccine, thus highlighting the significance of this surprisingly overlooked vaccine. Overall, vaccination is an important approach to safeguarding the wellbeing of patients with haematological malignancies, irrespective of whether they have received HSCT or not. As Cordonnier and colleagues conclude succinctly: "vaccines could save lives and avoid unnecessary hospitalisations".

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I declare no competing interests.

1 Mikulska M, Cesaro S, de Lavallade H, et al. Vaccination of patients with haematological malignancies who did not have transplantations: guidelines from the 2017 European Conference on Infections in Leukaemia (ECIL 7). *Lancet Infect Dis* 2019; published online Feb 7. http://dx.doi.org/10.1016/S1473-3099(18)30601-7.

2 Cordonnier C, Einarsdottir S, Cesaro S, et al. Vaccination of haematopoietic stem cell transplant recipients: guidelines of the 2017 European Conference on Infections in Leukaemia (ECIL 7). *Lancet Infect Dis* 2019; published online Feb 7. http://dx.doi.org/10.1016/S1473-3099(18)30600-5.

3 Rubin LG, Levin MJ, Ljungman P, et al. 2013 IDSA clinical practice guideline for vaccination of the immunocompromised host. *Clin Infect Dis* 2014; **58:** 309–18.