



# Risk factors of infection in patients with hematological malignancy

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Dear Editor,

Brioli et al. conducted a retrospective study to identify risk factors of infections in 479 myeloma patients [1]. Infections were strongly associated with high disease burden, relapsed disease, and treatment with high-dose chemotherapy. Among them, varicella zoster (VZ) virus reactivations occurred late during treatment, which should be prevented to reduce lethal complication. I have two concerns about the study with special reference to varicella (herpes) zoster virus infection in patients with hematological malignancy.

First, Goenaga Vazquez et al. conducted a retrospective cohort study to evaluate risk factors of herpes zoster (HZ) incidence in 415 patients with lymphoma [2]. Adjusted relative risk (RR) (95% confidence interval (CI)) was calculated by adopting Poisson regression analysis. During a median follow-up of 8.9 years, 46 patients of HZ were identified and adjusted RR (95% CI) of highly immunosuppressive chemotherapy for HZ was 2.88 (1.47–5.623). Cho et al. also evaluated risk factors for herpes zoster in patients with non-Hodgkin lymphoma [3]. After adjusting for the propensity score matching, odds ratios (95% CI) of the addition of rituximab to conventional chemotherapy for the 1-year and 2-year incidence of HZ were 1.38 (1.05–1.81) and 1.37 (1.08–1.73), respectively. This means that combination chemotherapy with rituximab significantly increased the risk of HZ incidence, and the strong immunosuppression should be paid to HZ/VZ infection.

Second, Liu et al. conducted a population-based matched-controlled prospective study to evaluate the risk of lymphoid malignancy before HZ infection by excluding subjects with duration from herpes zoster to diagnosis of malignancies less than 6 months [4]. By using Cox

proportional hazard regression analysis, adjusted hazard ratio (95% CI) of HZ patients for developing lymphoid malignancies was 1.68 (1.35–2.42). Preceding HZ infection was an independent risk factor for subsequent lymphoid malignancies, and causal relationship between HZ infection and lymphoid malignancies should also be considered for the risk assessment of lymphoma.

## Compliance with ethical standards

**Conflict of interest** The author declares that he has no conflict of interest.

**Ethical approval and informed consent** This article contains no studies with human participants or animals performed by the author. Informed consent is not needed.

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