Post-exposure prophylaxis against varicella zoster virus to the hospitalized children after inadvertent exposure

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Background: This study was performed to describe the post-exposure prophylaxis (PEP) and secondary varicella infection in the children who were inadvertently exposed to varicella zoster virus (VZV) in the hospital.

Material/methods: We retrospectively analyzed the patients with VZV infection who were not properly isolated and the children who were exposed to VZV at the Seoul National University Children’s Hospital between January 2010 and December 2015. Measures of PEP were determined by the presence of immunity to VZV and immunocompromising conditions. Development of secondary varicella cases and clinical information of index and exposed patients were obtained from review of medical records.

Results: Among the 147 hospitalized children with VZV infection during 2010-2015, a total of 13 inadvertent exposures (varicella in 10 and disseminated zoster in 3) were notified. Five (38.5%) index cases had a history of VZV vaccination. Eighty-six children were exposed in multi-occupancy rooms. Among the exposed, 62.8% (54/86) was defined to be immune to VZV. Measures of PEP given to 27 exposed patients included VZIG in 23 and VZV vaccination in 4. Secondary varicella, which was all linked to a single index patient, occurred in four children; one who did not receive PEP and 3 out of 27 who received PEP. Rate of secondary varicella was 4.7% (4/86) and prophylaxis failure rate was 11.1% (3/27). Secondary varicella rate was 1.9% (1/54) in immunocompetent patients and 9.7% (3/31) in immunocompromised patients.

Conclusions: Delayed diagnosis of VZV infection can lead to unexpected exposure to VZV and put susceptible children and immunocompromised patients at a risk for developing varicella. The current
strategy for PEP based on the VZV immunity in Korea may need to be reevaluated for its appropriateness.