Increased incidence of dementia following herpesvirus infection in the Korean population

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Abstract

Background: Herpesviruses affect the development of dementia. We investigated the association between herpes infection and subsequent diagnoses of dementia.

Method: Data from the National Health Insurance Service of South Korea were used. Patients aged ≥ 50 years with the relevant diagnostic codes in the reference year 2009 were included and prospectively reviewed from January 2010 to December 2018. All study participants were followed from the index date until the onset of dementia, death, or the study endpoint.

Result: The three cohorts comprised 92,095 patients with herpes simplex virus (HSV) infections, 97,323 patients with varicella-zoster virus (VZV) infections, and 183,779 controls. During the follow-up period, 15,831 (17.19%) subjects with HSV infection and 17,082 (17.55%) VZV-infected subjects, compared to 27,028 (14.17%) control subjects, were subsequently diagnosed with dementia (all, \(P < 0.001\)). The adjusted hazard ratio for developing dementia was found to be 1.18 (95% confidence interval [CI]; 1.16-1.20) in HSV and 1.09 (95% CI; 1.07-1.11) in VZV patients (all, \(P < 0.001\)). HSV1 infections such as oral or ocular subtypes, but not HSV2, anogenital subtype, were associated with dementia, including several subtypes such as Alzheimer’s disease (AD), vascular dementia, and dementia with Lewy bodies. VZV infection is also associated with AD.

Conclusion: In this Korean nationwide population-based cohort study, both HSV and VZV infections were associated with a higher risk of dementia, particularly AD. Among the subtypes of HSV infection, HSV1 is associated with a risk of dementia. Further studies including appropriate public health interventions could evaluate the causality of these relationships.