

the viral infection in vestibulocochlear nerve. Judging from the pharmacological effect of ACV, herpes simplex viruses (HSV) and varicella zoster virus (VZV) are suggested to be causative agents. Furuta, *et al.*⁶⁾ detected HSV-1 in 6 out of 10 cases by PCR of vestibular ganglia of autopsy materials. Kumagami⁵⁾ showed that HSV antigen and DNA were observed in 9 out of 14 cases in the endolymphatic sac of autopsy materials. In their studies, the relationships between HSV-1 and MD were not shown, however, they indicated the possibility of the existence of latent infection of HSV-1 in the vestibular nerve and lymphatic sacs.

4.6 Pathogenesis of MD

Among investigation of causative agents of MD, William, *et al.*⁶⁾ described a significant elevation of both humoral and cellular immune responses against viral antigens of HSV-1 and VZV, rubella and cytomegalovirus in 25 patients with chronic MD. Welling, *et al.*⁷⁾ detected HSV DNA in 2 of 22 extracts from endolymphatic sacs of MD patients. Whereas Arnold *et al.*⁸⁾ reported the presence of a higher level of specific anti-HSV IgG in the perilymph of patients with MD. The author and co-workers³⁾ detected herpes virus DNA in peripheral blood mononuclear cells of some MD patients and are still continuing the investigation to demonstrate with virus infection in MD cases and the correlation of the infection to clinical symptoms. These studies strongly suggest that the considerable number of MD cases are caused by the infection of HSV and/or VZV in vestibulocochlear area of the MD patients and give the ground to use anti-viral drugs such as ACV for the treatment of MD.

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References

1. Shichinohe M. Effectiveness of ACV for Meniere's disease. *Igaku no Ayumi (J Clin Exp Med)* 1994, 169: 796-797 (In Japanese).
2. Shichinohe M. Effectiveness of ACV for Meniere's disease II. Report of 10 cases. *Shindan to Chiryō (Diagnosis and Treatment)* 1994, 82: 1860-1864 (In Japanese).
3. Takahashi K, Aono T, Shichinohe M, Tamura M, Shigeta S. Herpes virus DNA in peripheral blood mononuclear cells of some patients with Meniere's disease (personal communication).
4. Furuta Y, Takasu T, Fukuda S, Inuyama Y, Sato KC, Nagashima K. Latent Herpes simplex virus type I in human vestibular ganglia. *Acta Otolaryngol (Stockh)* 1993, Suppl 503: 85-89.
5. Kumagami H. Detection of viral antigen in the endolymphatic sac. *Eur Arch Otolaryngol* 1996, 253: 264-267.
6. William LL, Lowery HW, Shannon BT. Evidence of persistent viral infection in Meniere's disease. *Arch Otolaryngol Head Neck Surg* 1987, 113: 397-400.
7. Welling DE, Daniels RL, Brainard J, Western LM, Prior TW. Detection of viral DNA in endolymphatic sac tissue from Meniere's disease patients. *Am J Otolaryngol* 1994, 15: 639-643.
8. Arnold W, Niedermeyer HP. Herpes simplex virus antibodies in the perilymph of patients with Meniere's disease. *Arch Otolaryngol Head Neck Surg* 1997, 123: 53-56.
9. Committee on Hearing and Equilibrium. Guidelines for reporting treatment results in Meniere's disease. *Otolaryngol Head Neck Surg* 1985, 93: 579-581.

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