

The author reported these results previously^{1,2)} but with a small number of cases. In this report, a sufficient number of follow-up cases were investigated and the cause of MD is discussed, narrowing the focus into the effectiveness of ACV on clinical symptoms.

2 Materials and Methods

2.1 Patients

The cases studied include 301 patients who visited Shichinohe clinic, of which the author is the director, between the period of October 1990 and October 1997, with symptoms of vertigo, ear tingling (tinnitus aurium) and impaired hearing. Out of those 301 cases, 10 were diagnosed in Shichinohe clinic. 291 cases were diagnosed mainly by specialists of otolaryngology. Among them 135 cases were diagnosed as MD, 99 as Meniere's syndrome, 52 as vestibular dysfunction and 15 as others (Table 1). Ninety-six were male ranging from 13 to 81 yrs of age and 205 were female ranging from 19 to 84 yrs of age. Duration of the disease (the period between the first attack and the administration of ACV) varied from 1-20 days for the patients with first attack to 1-30 years for the chronic patients who had repeated attacks, exacerbation, recurrences and partial remissions.

2.2 Evaluation of effectiveness of treatment

The process of the disease was recorded in detail in the records of the patients. The subjective symptoms were told and described by the patients themselves and family members and also recorded. Special attention was paid to frequency and severity of spells of vertigo, intensity of tinnitus described by patients referring to AAO-HNS criteria. Evaluation of hearing was made mainly by subjective description of patients. Some of them were sent to otolaryngologists and received audiogram tests. Most of the patients were also observed and evaluated clinical effectiveness of the treatment by other doctors.

Effectiveness of the treatment was evaluated comparing improvement of symptoms (frequency and severity of spells of vertigo, intensity of tinnitus and hearing disorder) by the previous treatments with that by ACV treatment. The results were described as follows. Marked effect: vertigo and tinnitus completely disappeared, Effective: vertigo disappeared, tinnitus and hearing improved, Unclear effect: vertigo and tinnitus improved, hearing not improved, No effect: vertigo, tinnitus and hearing not improved, Not evaluable: follow-up study could not be carried out, because the patients did not contact doctors after treatment.

In some cases, blood samples were obtained from the patients in spells of illness and convalescence. Antibody titers to herpes simplex virus (HSV) and varicella zoster (VZV) were examined by indirect immunofluorescence. Peripheral blood mononuclear cells (PBMCs) were tested for presence of genomic DNA of HSV, VZV, and cytomegalovirus (CMV) by nested polymerase chain reaction (PCR)³⁾.

3 Results

3.1 Results of ACV treatment

Out of 301 cases treated with ACV, 250 cases (83.1%) were evaluable having contact with doctors after the treatment. Follow-up study

Table 1 *Clinical Diagnosis of Cases Studies*

Diagnosis	Male	Female	Total
Meniere's Disease* ¹	38	97	135
Meniere's Syndrome* ²	35	64	99
Vestibular Dysfunction* ³	19	33	52
others* ⁴	4	11	15
Total	96	205	301

*¹ as diagnosed by otolaryngologists from clinical criteria

*² as diagnosed by otolaryngologists, including cases which showed symptoms of Meniere's disease but could not completely exclude other basic diseases

*³ as diagnosed by otolaryngologists

*⁴ others include dysfunction of autonomous nervous system, side effect of gentamycin, cerebrovascular disorder and diseases of unknown causes