Patients were eligible for enrollment if they had received a clinical diagnosis of unilateral and bilateral definite Meniere’s disease with non-intractable MD in the non-affected ear in the non-OP group. All the patients were followed up regularly until March, 2013 for at least 5 years.

The present study was to determine if endolymphatic sac decompression surgery (ESDS) has the potential to prevent unilateral MD from becoming bilateral.

METHODOLOGIES AND MATERIALS

The Ethics Committee of Osaka University Hospital approved the present study (approval number 1441). It is a retrospective review of Clinical and Drugs Administration (Certificate number NCT05054754). All the patients included in the present study received informed consents and signed permission to join in this study.

Between April, 1996 and March, 2008, 318 successive patients with MD-like symptoms aged at least 20 years were examined as candidates for surgery and preoperatively considered potential candidates for bilateral endolymphatic sac surgery. Patients with bilaterally developed cases were divided into two groups, OP (n=193) and non-OP (n=125), both with the best available medicines (non-OP group). All the patients were followed up regularly until March, 2013 for at least 5 years.

The data were shown as the ratio of the total number of cases and those treated.

CONCLUSIONS

Among our patients, 22.4% with clinically diagnosed unilateral intractable MD had silent endolymphatic hydrops in the contralateral ear, whereas 6 patients with unilateral MD had no endolymphatic hydrops in the contralateral ear. Our 5-year findings suggest that ESDS can prevent the onset of MD in patients with silent endolymphatic hydrops in the contralateral ear. It did not prevent it, however, in patients who did not have endolymphatic hydrops in the contralateral ear.

The mechanisms by which bilateralization of MD was prevented by ESDS in the present study deserve discussion. Although it has not been established that Reissner’s membrane rupture through slice (ESDS) significantly suppressed progression of endolymphatic hydrops to the onset of Meniere’s symptoms in patients with silent endolymphatic hydrops in the contralateral ear. Previous clinical studies19,20 and basic studies18,21 demonstrated that a high level of plasma osmotic test could be a possible cause of endolymphatic hydrops in MD patients. ESDS was shown to decrease the plasma osmotic level in MD patients in advance of good surgical result23. These findings led to the possibility that ESDS—in addition to its decompression effects in the ipsilateral ear—could lessen the severity of endolymphatic hydrops in the contralateral ear by reducing the systemic plasma osmotic level. In another recent study, we showed that abundant water intake, hyperventilation tubes, and sleeping in darkness could manage vasopressin secretion in Meniere’s patients with good results (Kitahara T et al., unpublished data). Therefore, regardless of the treatment strategy, reducing the plasma osmotic level might ameliorate the severity of endolymphatic hydrops and suppress bilateralization of MD.

On the other hand, ESDS did not significantly suppress hydrops generation or the onset of bilateralization in that did have becoming bilateral24. There were a few problems in that report, however. First, the surgeries included both conservative and ablative operations. Second, the patients excluded from the surgical arm of study were subjected to stricter criteria than those in the nonsurgical group. In the present study, ESDS was the only surgical treatment. Also, endolymphatic hydrops in the contralateral ear was detected by means of the G-test and ECoG in both the OP and non-OP groups. The absence of endolymphatic hydrops in the contralateral ear at that time may indicate that the ear would be free of endolymphatic hydrops in future regardless of the treatment applied24.

It was previously reported that, compared with nonsurgical treatment, surgery prevented clinically diagnosed unilateral MD from becoming bilateral24. There were a few problems in that report, however. First, the surgeries included both conservative and ablative operations. Second, the patients excluded from the surgical arm of study were subjected to stricter criteria than those in the nonsurgical group. In the present study, ESDS was the only surgical treatment. Also, endolymphatic hydrops in the contralateral ear was detected by means of the G-test and ECoG in both the OP and non-OP groups. The absence of endolymphatic hydrops in the contralateral ear at that time may indicate that the ear would be free of endolymphatic hydrops in future regardless of the treatment applied24.

Among our patients, 22.4% with clinically diagnosed unilateral intractable MD had silent endolymphatic hydrops in the contralateral ear. ESDS prevented MD onset in these patients but did not prevent it in those without endolymphatic hydrops in the contralateral ear rising G-test and ECoG within the first five postoperative years.

REFERENCES

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Does Endolymphatic Sac Decompression Surgery With Local Steroids Prevent Bilateral Development of Meniere’s Disease?

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ABSTRACT

OBJECTIVES: The aim in the study was to elucidate whether endolymphatic sac decompression surgery (ESDS) has the potential to prevent unilateral Meniere’s disease (MD) from becoming bilateral. METHODS: Between 1996 and 2008, we performed a glycerol test (G-test) and electrocochleography (ECoG) on 237 patients with intractable unilateral MD. We performed ESDS on 179 patients (144 with no endolymphatic hydrops and 35 with silent endolymphatic hydrops in the contralateral ear). The other 58 patients (40 without endolymphatic hydrops and 18 with silent endolymphatic hydrops in the contralateral ear) were given medical treatments. All underwent regular follow-up for at least 5 years.

RESULTS: Altogether, 22.4% (53/237) of patients with clinically diagnosed unilateral intractable MD had silent endolymphatic hydrops in the contralateral ear using G-test and ECoG. In the nonsurgical group, 6 of 40 patients with unilateral MD with no endolymphatic hydrops in the contralateral ear developed bilateral disease, whereas in the surgical group 12 of 144 patients did so (p=0.023, Fisher’s test). In the nonsurgical group, 9 of 18 patients with unilateral MD and silent endolymphatic hydrops developed the disease in the contralateral ear, whereas in the surgical group 6 of 35 patients developed bilateral disease (p=0.022, Fisher’s test).

CONCLUSIONS: The present findings suggest that ESDS may decrease the incidence of developing MD in silent endolymphatic hydrops contralateral ears diagnosed with G-test and ECoG within the first five postoperative years.