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Treatment of 522 patients with sudden deafness performed oxygenation at high pressure

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INTRODUCTION: Oxygenation at high pressure (OHP) is thought to be useful, even though regional blood flow is decreased, because increasing dissolved oxygen prevents the death of nerve tissue. In this report, we retrospectively investigated the effect of OHP on sudden deafness. **OBJECT AND METHOD:** We reviewed 522 patients treated with OHP at Kagawa Rosai Hospital over a ten-year period (January 1989 to December 1998). We discussed some prognostic factors: comparison between cases which had been treated with OHP previously and those which had not, number of days between onset and beginning of the treatment which included OHP, age, initial averaged five-frequency hearing level, vertigo, tinnitus, complications of OHP, cases of relapse and the time of the onset, which is about season, month and week. OHP was administered at a pressure of 2.5 atmospheres for 80 minutes a day from 10 to 15 times. All patients also received a course of intravenous administration of steroid, vitamin B12, Prostaglandin E1, ATP, and low-molecular dextran. **RESULTS:** Overall, complete recovery occurred in 19.7% of the patients, definite improvement in 34.9% (complete recovery included), and slight improvement in 58.1% (definite improvement included). Most of the patients (78.0%) were referred by other hospitals, because our hospital was the only one in the Sikoku area which had a big equipment of OHP. All 161 patients had already been treated in other hospitals over 8 days, but they had shown little improvement after the initial therapy. Of this group, complete recovery after the second course of treatment occurred in 13.0% of the patients, definite improvement in 19.3%, and slight improvement in 39.1%. OHP was thus effective for about 40% of patients who had been unresponsive to the initial therapy. Delay in treatment usually produces poor hearing recovery. There was a significant difference between those patients treated within 14 days and those treated 15 days or more after onset. The improvement rate also decreased with age. The prognosis of patients with vertigo was worse than those without vertigo. Tinnitus had no influence on the prognosis. There were no severe complications during the course of OHP, but otitis media with effusion occurred in 90 patients, and paracentesis was performed for 53 patients. **CONCLUSION:** The treatment of sudden deafness with OHP has been

discussed in this report. Important prognostic factors were time between onset and beginning of the treatment which included OHP, age, vertigo, and the initial averaged five-frequency hearing level. We conclude that OHP should be performed within 14 days from onset, and that OHP was able to achieve hearing improvement in many cases unresponsive to the initial therapy if it was performed very early.
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