

A randomized controlled trial on Intratympanic steroid treatment for sudden onset sensorineural hearing loss

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Abstract

Objective

To assess the effectiveness of intratympanic steroid as a primary treatment for patients with sudden onset sensorineural hearing loss.

Study Design and Setting

It is a randomized controlled study. Patient with sudden deterioration of sensorineural hearing and presented to us within 2 weeks are recruited on voluntary basis. They are then randomized into 2 groups, the oral steroid group and the intratympanic steroid group. The oral steroid group will receive oral steroid for 2 weeks; intratympanic steroid group patients will receive once a week intratympanic steroid injection for 3 times. 0.2 – 0.5ml of 4mg/ml dexamethasone will be injected to the middle ear. Serological investigation and MRI are offered. The extent of hearing recovery is assessed by repeated pure tone audiogram. The subjects are then followed up regularly.

Results

From February to September 2005, 19 patients are recruited. Age ranges from 32 to 87 years old. There are 13 men and 6 women. Most of them presented to us on Day 3 and Day 5 after the onset (ranges from 2 to 14 days). The average before treatment hearing threshold of the affected ear is 85.7dB (ranges from 46.25 to 118.75dB). All are unilateral hearing loss, 13 of them occurred over the right side and 6 over the left. 9 patients randomized to oral steroid group, and 10 patients to the intratympanic steroid injection. Both groups of patient achieved significant average improvement of hearing threshold. The oral groups hearing improved from 86.25dB to 51.29dB; while the intratympanic injection group improved from 85.25dB to 58.63dB. The improvement from both groups are significant (paired sample t-test, with $p < 0.05$). For individual patient hearing improvement, the mean improvement in oral steroid group is 34.86dB and that for intratympanic steroid is 26.63dB. There is no statistical significant difference shown between the two group (independent sample t-test, $p = 0.4$). When complete recovery is defined as improvement of hearing threshold within 90% of the original ones, then there are 3 patients in each group recovered (recovery rate of 33% for oral and 30% for intratympanic group).

Conclusion

Intratympanic steroid injection is capable to achieve comparable results to oral steroid for sudden hearing loss. There is no clinical significant complication encountered. More large scale study should be conducted to explore its treatment potential in this aspect.