The effects of cochleostomy of hearing threshold in animal experiment

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SUMMARY

Introduction: To assess an effect of cochleostomy on hearing threshold in guinea pigs.

Material and methods: The authors performed animal experiments using five 3-month-old guinea pigs. Before experiment hearing threshold were evaluated. Surgery involved access to the temporal bone by a post-auricular incision. After a wide opening of the bulla cochleostomy it was created (10 000 turn/min, diamond bur of 0.8 mm diameter). Hearing threshold was identifying on the basis of presence of wave V in auditory brainstem responses (ABR) for click and frequency-specific stimulation. Also morphology and latency changes for wave V for this stimulation were assessed. Hearing status was evaluated before, just after and 1-, 2-, and 4-weeks after surgery. For surgical procedure and ABR examination all animals were anesthetized with an intramuscular injection of ketamine (50 mg/kg) mixed with xylazine (9 mg/kg) in the supplemental doses. After surgery the animal was treated by antibioticotherapy for 3 days – Enrofloksacyna 0.3 ml subcutaneously and analgesic – Tolfedine 0.05 mg in second day.

Results: Four week observation of ABR morphology and hearing thresholds for click and frequency-specific stimulation of 100 dB SPL intensity showed only temporary changes confirming that cochleostomy did not affect cochlear function.

Conclusions: The correctly performed cochleostomy in guinea pigs did not affect persistently the cochlear function indicating that such an option of CI electrode insertion in patients is safe.

Hasła indeksowe: świnka morska, kochleostomia, próg słuchowy

Key words: guinea pig, cochleostomy, hearing threshold