The scientific basis for the administration of corticosteroids classified as glucocorticoids in certain cochlear disorders, such as immune-mediated progressive and idiopathic acute sensorineural hearing loss (SNHL), Ménière’s disease and noise-induced hearing loss (NIHL), was discussed. The current knowledge on the physiological functions of endogenous glucocorticoids and the pharmacological effects of their synthetic analogs was summarized. Emphasis was placed on experimental studies on corticosteroids in the cochleovestibular system and on the therapeutic effects of glucocorticoids on SNHL, Ménière’s disease, NIHL and chronic tinnitus obtained from clinical trials. Glucocorticoids exert numerous profound effects on almost every organ system, including mechanisms involved in anti-inflammatory action and immunosuppression. However, inflammatory tissue alterations are not only elicited by bacterial, viral or other immunopathological processes but also by physically and chemically induced cellular damage, tissue ischemia and hypoxia. Regardless of whether one or more of these insults underlie SNHL, Ménière’s disease and NIHL, glucocorticoids effectively counteract subsequent inflammatory tissue damage in the auditory and vestibular system. This was confirmed in experimental studies on immune-mediated progressive SNHL, and thrombosis-induced and noise-induced cochlear ischemia, hypoxia and hearing loss. Glucocorticoid treatment results of immune-mediated progressive and
Acute idiopathic SNHL are promising, although placebo-controlled trials on the effect in acute idiopathic SNHL have revealed conflicting data (probably due to the small number of patients). Clinical studies on the effect of systemic glucocorticoid monotherapy on Ménière’s disease and NIHL have not yet been performed. After intratympanic application, relief of vertigo, tinnitus and preservation of hearing in Ménière’s disease was observed in previous studies; however, recently none of these effects have been confirmed in a placebo-controlled trial. Similarly, in contrast to previous reports, chronic tinnitus of various origins did not improve after repetitive glucocorticoid application onto the round window membrane using a micropump connected to an implanted microcatheter.

Stichworte: Cochlea; Sudden deafness; Sensorineural hearing loss; Noise-induced hearing loss; Ménière; re&egrave;rsquos; disease; Tinnitus; Corticosteroids; Glucocorticoids; Mineralocorticoids; Auditory-evoked potentials; Cochlear blood flow; Perilymph pO<sub>2</sub>; Cochlear hypoxia