

Nýr doktor í háls-, nef- og eyrnalækningum



Konráð S. Konráðsson, háls-, nef- og eyrnalæknir, varði þann 11. nóvember 1999 doktorsritgerð sína við háls-, nef- og eyrnadeild Háskólasjúkrahússins í Lundi. Ritgerðin ber heitið **Influence of middle ear pressure changes on labyrinthine hydrodynamics and hearing physiology** eða **Áhrif þrýstingsbreytinga í hljóðholi á vökvastreymi um völungarhús og eðliseiginleika heyrnar.**

Andmælandi var prófessor Dan Bagger-Sjöbeck.

Enskt ágríp ritgerðarinnar fer hér á eftir.

Results from experimental as well as clinical studies, are used to elucidate the effects of ambient pressure changes on cochlear hydrodynamics and function.

The perilymph pressure changes and pressure release effects on the cochlear aqueduct and Eustachian tube in cats exposed to hypobaric pressure are elucidated. The focus is on the emergence of pressure gradients between the middle and inner ears, as well as their surroundings - the chamber and the cerebrospinal fluid compartment - and the potentially harmful effect on the labyrinth. The equilibration of labyrinthine pressure through the patent cochlear aqueduct and alternative pathways is demonstrated, as well as the positive effect of the Eustachian tube equilibration of middle ear pressure.

Key words: ear, middle ear, cochlea, labyrinth, hearing, pressure, cats, human.

The design of the clinical studies originates from the experimental studies. The comparison of the electrophysiological and psychoacoustic results demonstrates the effect of hypobaric pressure on cochlear hydrodynamics in patients with Meniere's disease. The decisive effect of tympanic pressure on the labyrinthine pressure shown in the experimental studies is clinically verified.

The efficiency of the pressure release pathways between the intracranial and cochlear fluids for these patients is analysed further with the Tympanic Membrane Displacement technique. A relation is found between the pressure release efficiency and the effect of hypobaric exposure for this group of patients with Meniere's disease.

The combined results from the experimental and clinical studies demonstrate the importance of tympanic overpressure and the effect on labyrinthine hydrodynamics.

The immediate effects of tympanic pressure gradients on the otoacoustic emissions recorded in healthy individuals are elucidated in the last study. The results indicate an effect on cochlear function in addition to changes in tympanic sound conduction. The study shows that otoacoustic emissions provide a useful method to investigate the effect of ambient pressure changes on the labyrinth.