

**Methods:** HEI-OC1 and KELLY neuroblastoma cells were treated with CDDP (100µM), capsaicin(5µM) and capsaicin (5µM)-CDDP (100µM) at 24 h. Cell viability and apoptotic cell death evaluated by WST-1 and annexin-V/PI flow cytometric analysis. DNA-damage related gene expressions were evaluated by Real-time PCR array (Bio-Rad) in cochlear cells.

**Results:** Capsaicin did not alter cell viability of HEI-OC1 and KELLY. CDDP reduced the viability of HEI-OC1 (46%) and KELLY cells (74%). Combined treatment of capsaicin (5µM)-CDDP (100µM) resulted in a marked decrease in KELLY (16%) cells. Moreover cell viability in HEI-OC1 (80%) cells were increased. Capsaicin alone induced apoptotic cell death of KELLY cells while it did not induce apoptosis in HEI-OC1 cells. CDDP alone and capsaicin-CDDP combinations increased the apoptotic cell death at same ratios in HEI-OC1 cells. In KELLY cells, capsaicin-CDDP combinations induced apoptotic cell death more than CDDP alone. Capsaicin-CDDP induced Fancg, Mif, Mlh3 DNA repair related gene expressions in cochlear cells when compared to CDDP. Bax, Parp2, Pms2, Rad51, Sumo1 and Trp53 (apoptotic and DNA repair) gene expressions were decreased with capsaicin-CDDP combinations while increased in CDDP alone. Expression of Cdc25c was increased with capsaicin-CDDP while decreased with CDDP alone.

**Conclusion:** This study showed that capsaicin increased CDDP induced neuroblastoma cell death while cochlear cells viability was increased. Capsaicin might be non-tumor interfering protective agent and the effects must be shown by further studies.

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##### Surgical approach of mesotympanic congenital cholesteatoma

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**Learning Objectives:** Congenital cholesteatoma surgical technique preserving intact tympanic structures.

**Introduction:** Congenital cholesteatoma is often presented as an asymptomatic disease. It is usually discovered during the otoscope examination, seen as a white mass behind a normal intact tympanic membrane. The mean age of presentation is in children between 5 and 10 years old. The early diagnosis and treatment is essential in order to avoid future complications. In children the minimally invasive approach is essential preserving the anatomic ear structures.

**Clinical case:** We present a minimally invasive approach for congenital mesotympanic cholesteatoma. We perform an endoaural approach, with two incisions, upper and lower one, and a conchomeatal flap is made. This allows a direct approach to the middle ear. The posterior and anterior

annulus are detached extending the anterior annulus 90 degrees anterior to the short process of the malleus, maintaining the stability of the tympanic membrane in the umbus. The ossicular chain remains intact. The cholesteatoma is removed and it is checked by endoscopic vision the full excision of the matrix.

**Conclusions:** We present a minimally invasive endoaural approach to reach full control and elimination of a disease that left to its natural evolution can develop intracranial and extracranial complications.

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##### Tacking troublesome tinnitus in Lothian children

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**Learning Objectives:** We aim to evaluate the incidence, associated factors, management and outcome of paediatric tinnitus in our cohort of patients.

**Introduction:** Around a third of children experience tinnitus at some point in childhood. Troublesome tinnitus can affect 5% of children.

**Methods:** A retrospective cohort study of children referred to a paediatric tinnitus clinic over a 5 year period (March 2010-June 2015).

**Results:** 30 children were referred for assessment to the paediatric tinnitus clinic. The median age of affected children was 10 years (range 5–16). 83% were boys. 83% had bilateral tinnitus. In 5 children with unilateral tinnitus an MRI scan was normal. Only 17% were found to have abnormal hearing results; 2 with bilateral sensorineural hearing loss (SNHL) and 3 with unilateral conductive hearing loss (CHL). In those with unilateral CHL, 2 had chronic suppurative otitis media (CSOM) and 1 was found to have congenital cholesteatoma. There was no correlation between the type/laterality of hearing loss and the laterality of the tinnitus. 57% had no associated past medical history. History of autistic spectrum disorder (ASD) and anxiety disorder contributed to 30% of cases. Two thirds of children underwent behavioural therapy and were provided with a masker. The remaining children had a combination of behavioural therapy and a sound-ball (Puretone relaxation therapy ball). All patients had a minimum of 6 months follow-up (range 6 months-4 years). 43% were discharged after 1 year of follow-up, with equal numbers of those receiving a masker and a sound-ball (6 and 7 respectively). A further 37% required more than 2 years of regular review. No re-referrals were received during the study period.

**Conclusions:** Paediatric tinnitus is more common in boys. History of ASD and anxiety disorder are important factors to consider. Behavioural therapy with a sound masker or a