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**Interest of measuring the resonance frequency of the ear using TEFLAG test in Menière patients exposed to changes in atmospheric pressure**

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**Purpose:** Menière patients often report an improvement of symptoms when they are submitted to rapid change in height and atmospheric pressure. The Meniett device is somehow based on the principle that pressure changes are applied to the patients' stapes, yet no thorough validation of this concept has been brought forward so far. This test (Teflag II) consists in producing a negative pressure (-400 daPa) in the sealed external auditory canal (corresponding to a change in height of about 1200 ft), maintained for 20 min with the help of a multi-frequency impedancemetric device Grason-Stadler GSI 33 V2.

**Methods:** A preliminary study has been performed on 43 ears, 30 normally-hearing ones, 9 with Menière's disease and 15 with a variety of non-Menièrè, sensorineural deficits. The resonance frequency of the ear (RF) and the shape of susceptance (B) at 2 kHz have been measured before and just after the -400 daPa depression was applied.

**Results:** In normal ears, the mean RF was 940 Hz before, 887 Hz after the depression (-53 Hz), and B morphology was unchanged in more than 80% cases. In Menière ears, RF decreased from 1154 Hz before, to 928 Hz after depression (-226 Hz). In other types of deafness (e.g., of occupational origin, n = 19), RF decreased from 852 to 692 Hz (-160 Hz). **Conclusion** RF tended to be larger in Menière ears. More characteristically, the change observed in Menière ears was 4 times larger than the one in normal ears. Although it lasted only a few hours, it lined up with a clinical improvement in relation to pressure applied to the stapes through the tympanic membrane and ossicular chain. A rather similar, although quite smaller effect was observed in other types of sensorineural deafness. These results will be discussed in relation to a possible diagnostic interest.