Fundamental studies to assess and restore vestibular function in patients with severe bilateral vestibular loss

Propositions belonging to the thesis

FUNDAMENTAL STUDIES TO ASSESS AND RESTORE VESTIBULAR FUNCTION IN PATIENTS WITH SEVERE BILATERAL VESTIBULAR LOSS

1. Not every patient diagnosed with bilateral vestibulopathy is eligible for vestibular implantation since it requires examination of all five vestibular end organs to ensure the implantation benefit.
2. Electro-oculography is an accurate alternative to video-oculography in head impulse testing.
3. Testing the motion thresholds in a clinical setting allows to extend the vestibular test battery from reflexes to perception. Nevertheless, each motion perception testing paradigm needs its normative values.
4. The electrical double layer of inner ear tissues, together with medium polarization, plays a significant role in the electrical impedances and should be considered in electrical conductivity models to optimize vestibular implant stimulation.
5. Artificial intelligence and deep learning should assist medical doctors in diagnosing patients.
6. Implants are becoming a reality: cybernetic organs will improve the duration and quality of human lives and extend human possibilities soon.
7. Integrating various disciplines such as information technologies, physics, mathematics, biology, and medicine is an inevitable trend of modern science. This multidisciplinarity will allow scientists and experts to achieve high results in combating global health challenges.
8. The results of this research, developing a low cost diagnostic tool, providing new advanced diagnostics and basic knowledge to optimize VI technology, brings vestibular protheses close to real clinical application in patients.

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