### Introduction

Audio-vestibular diagnostics is an important and modern field of the ENT-specialty. Due to the stressful everyday life it could be said that there is an epidemic of patients with audio-vestibular problems — reduced hearing ability, tinnitus, dizziness, vertigo.

The audiovestibular laboratory of the University Medical and Dental Center in the Faculty of Dental Medicine was established in 2020. Its purpose is to diagnose, treat and prevent hearing, balance and sleep disorders in patients of all ages.

### Objectives

To present our experience in the field of providing patients with full diagnostics and treating features in the field of the audio-vestibular disorders in the newly established Audio-vestibular laboratory.

### Material and methods

For the time period September 2020 – May 2021, 120 patients (including hearing screening of 30 children up to the age of 10), aged between 2 and 80 years, had audio-vestibular examinations in the Audio-vestibular laboratory in the Faculty of Dental Medicine, Medical University “Prof. Dr. Paraskev Stoyanov” – Varna, Bulgaria.

Tests implemented according to the different clinical cases were audiometry, tympanometry, OAE, SERA, ASSR, caloric tests, vHIT, videonystagmography, virtual reality. All patients received a thorough ENT-examination and consultation. All signed written consent forms.

### Results and discussion

**Findings from the audiological and vestibular examinations**

- Of the tested 120 patients – 80 were over the age of 18 (adult group), 40 were under the age of 18 (pediatric patients)
- Hearing screening (SERA) was performed on 30 patients up to the age of 10 – in 10 cases of which a pathology was diagnosed and patients were referred for a re-test and possible cochlear implantation. 10 patients (aged 10-17) received audiometry, in 5 – hearing loss was detected. They were referred for hearing aids usage.
- From the 80 adult patients tested, depending on the clinical case – 35 received audiological and 45 received vestibular examinations. The most frequent audiological disorder was tinnitus (25 cases), following different hearing losses (including geriatric cases). From the vestibular disorders 20 cases of vertigo were diagnosed (benign positional, neuritis type, Meniere’s disease, labyrinthitis, medicine caused).
- 10 patients were diagnosed with vestibular disorders (dizziness, vertigo) after a COVID-19 infection.

**OtoAccess® Database** is a computer application for management of patients’ information, evaluation of the examinations performed, maintenance of profiles of each patient with all the diagnostics done so far. The database is an interfacing technology which enables the integration of audiological and vestibular modules from different manufacturers.

SERA module is a multifunctional device which target population are newborns in need of hearing screening. This module performs and records an automatic auditory response of the brainstem. It is used for testing and documentation of hearing and neurological disorders, using auditory potentials from inner ear, auditory nerve and brainstem.

AD629—a Diagnostic Hybrid Air-Bone Audiometer is a device that allows the diagnosis of a hearing loss. Output signals—strength and signals intended for use in the diagnostic assessment of hearing conduction and to assist in the diagnosis of possible otological diseases. It allows the examination of patients of all ages.

Air Fx—a Caloric Irrigator injects cold or warm liquid—distilled water, to perform caloric tests to diagnose the vestibular apparatus. Water flow is directed to the tympanic membrane through the patient’s ear canal, creating a difference in temperature in the ears, which leads to the manifestation of a nystagmus in the patient's eyes. The responses to the irrigation are compared to determine which vestibular sensor—left or right—is affected. This examination is performed on children and adults with normal external auditory canal, anatomy of the middle ear, without the presence of any active infections, open wounds, earwax, perforation of the eardrum.

### References

1. www.interacoustics.com
5. https://www.audiologyandhearing.com/

### Conclusion

Clinicians should work tirelessly so as to present their patients with clear examination and treating protocols. More implementations should be made to enable the examinations affordable to the wide range of patients.