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REPORT CARD

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ANESTHESIA ON BRAINSTEM AUDITORY EVOKED POTENTIAL

Magdalena Beata Skarzynska
and Milaine Dominici Sanfins

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Assessment of hearing acuity is an important tool in diagnosing hearing problems. Although pure tone audiometry is the gold standard for identifying hearing loss, some patients may not be able to respond appropriately, and so one needs to think of other ways to test their hearing.

The assessment of auditory sensitivity using brainstem auditory evoked potentials can be a good alternative, especially in children.

However, because many children are unable to remain asleep long enough for the procedure, sedation is often required. Thus, collection of brainstem auditory evoked potentials under sedation or anesthesia needs to be performed in a surgical center by an audiologist or specialized otolaryngologist with the participation of an anesthesiologist.

There are several types of anesthetic agents that can be used.

1. Intravenous anesthetics:

Ketamine

(warning: this agent cannot be used in epilepsy, intracranial hypertension, ischemic heart disease, or porphyria)

Propofol

(warning: cannot be used in cases of allergy to egg or soy products or in cases of epilepsy, other seizure disorders, or liver and kidney diseases).

2. Inhaled anesthetics:

Sevoflurane

(indicated for induction and maintenance of general anesthesia in adults as well as children; contraindications: patients with suspected or known sensitivity to this agent or genetic susceptibility to malignant hyperthermia)

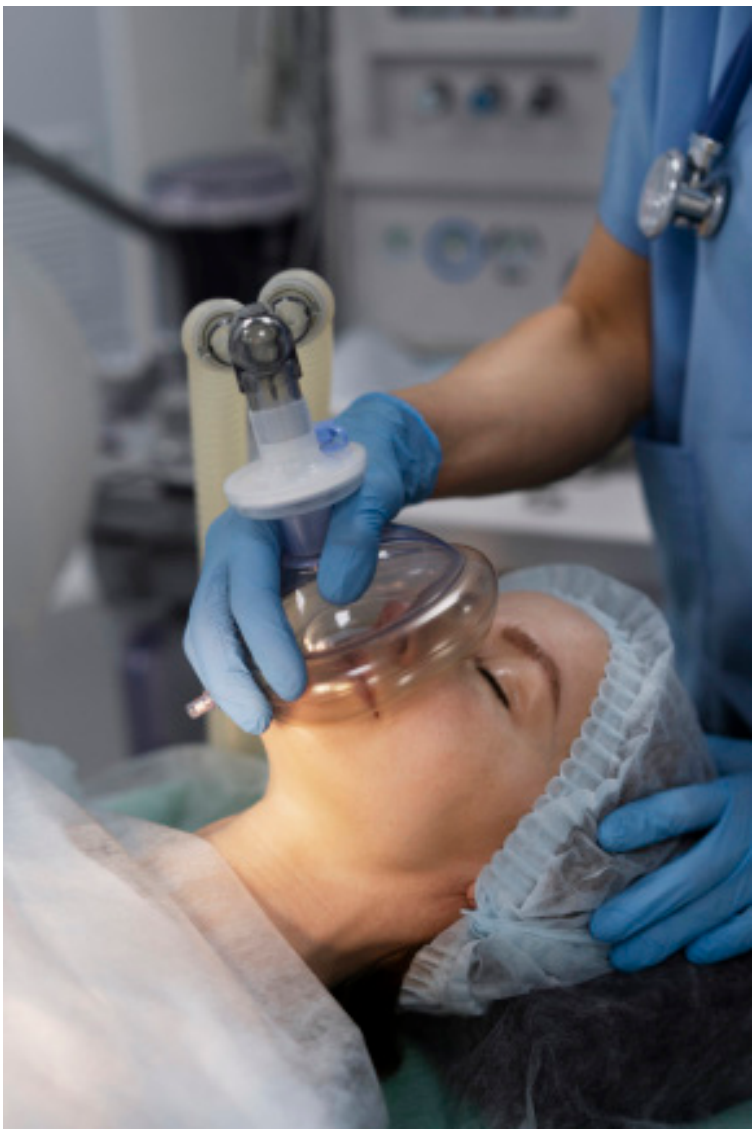
Isoflurane

Do you know the effects of anesthetics on brainstem auditory evoked potential responses?

Many researchers have endeavored to unravel the effects of these anesthetic agents, and the results show that anesthesia suppresses the neuronal activity in the brainstem that is responsible for generating auditory evoked potentials.

The suppression depends on the type of anesthetic used. Professionals who use auditory evoked potentials must be sure that the responses found under sedation are in accordance with the expected characteristics. An important point to be highlighted in this bulletin is about the use of chloral hydrate.

This anesthetic agent was widely used years ago in the assessment of brainstem auditory evoked potential, however, the mechanism of action is unknown and, in addition, it should be noted that serious problems in the safety profile have been identified. To get a real idea of this problem, the United States stopped the manufacture of Chloral Hydrate in 2003. And all other countries should be aware of the safety profile problems of this type of anesthetic agent. In the past chloral hydrate was considered as an effective and safe pediatric sedation. **The side effects may occur quite frequently in children and the final sedative effect may be hard to predict.** Adverse



reactions may include prolonged sedation, coma, delirium and it is renal- and hepatotoxic. It is not recommended for anaesthesia. According to the Summary of Product Characteristics (smpc), chloral hydrate may be only indicate for short-term treatment (maximum 2 weeks) for severe insomnia and when all other types of pharmacological treatment have failed.

For children only is indicated for short-term treatment of severe insomnia with suspected

or defined neurodevelopment disorders. **In children and adolescents chloral hydrate is not generally recommended** or if there is not other pharmacological solution should only be used under the supervision of the medical specialists, but not for anaesthesia.

Currently, the most used anesthetic agents in the assessment of brainstem auditory evoked potentials are sevoflurane, propofol, and melatonin. However, it is important to understand about clinical trials, the half-life and efficacy of these drugs on auditory evoked potentials.

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Authors

MAGDALENA BEATA SKARZYNSKA

-MSc in pharmacy at Faculty of Pharmacy, Medical University of Warsaw, Poland
-PhD in pharmacy at the World Hearing Center of the Institute of Physiology and Pathology of Hearing and National Institute of Medicines in Poland
-Specialist of hospital and retail pharmacy
-Deputy Head of Clinical Trials Department at the Institute of Sensory Organs, Kajetany, Poland
-Pharmacist of the Hospital Pharmacy Department at the Center of Hearing and Speech 'Medincus', Kajetany, Poland
-Head of specializations in the Retail Pharmacy and the Hospital Pharmacy
-Vice-president and secretary of the Bioethics Committee of the Institute of Physiology and Pathology of Hearing
-Member of numerous international and national scientific societies, including the Society for Clinical Trials, European Association of Hospital Pharmacists, Polish Association of Hospital and Clinical Pharmacists, Polish Society of Clinical Pharmacy, Society of Polish Otorhinolaryngologists, Phoniatrists and Audiologists, Polish Pharmaceutical Society and Polish Association for Good Clinical Practice
-Author and co-author of numerous scientific papers and conference lectures in Poland and abroad
-Member of Scientific and Organizing Committees of many conferences and workshops, chairperson of scientific sessions
-Member of the Editorial Boards and Review Boards of scientific journals, reviewer of the scientific papers in the field of pharmacology in the ENT diseases.

DR. MILAINE DOMINICI SANFINS

- Postdoctoral Fellowship by World Hearing Center.
- Doctorate by School of Medical Sciences, State University of Campinas (FCM-UNICAMP) and Università degli Studi di Ferrara/ Italy
- Audiology Specialist by the Federal Board of Speech Pathology.
- Master by School of Medical, University of São Paulo (FMUSP)
- Speech Pathology and Audiologist by School of Medical, University of São Paulo (FMUSP)
- Member of the Editorial Boards and Review Boards of scientific journals, reviewer of the scientific papers in the field of Audiology, Neuroaudiology and ENT diseases
- Founding Partner of Centro de Eletrofisiologia e Neuroaudiologia Avançada (CENA)
- Professor of the Postgraduate Course in Clinical Audiology at the Instituto Israelita de Ensino e Pesquisa Albert Einstein
- She actively works in the area of research development and clinical care in the area of Neuroaudiology, Neuroscience, Electroacoustic and Electrophysiological Assessment of Hearing (emissions, short, medium and long latency evoked potentials)