

SEPTINTOJI TARPTAUTINĖ KONFERENCIJA

THE 7th INTERNATIONAL CONFERENCE

2026 m. liepos mėn. 7-10 d., Vilniaus universitetas, LIETUVA

7th-10th of July, 2026, Vilnius University, LITHUANIA

**EVOLIUCINĖ MEDICINA:
ŽMOGAUS RAIDOS PERSPEKTYVOS IR SVEIKATA
BESIKEIČIANČIOJE APLINKOJE**

**EVOLUTIONARY MEDICINE:
PERSPECTIVES ON HUMAN DEVELOPMENT AND HEALTH
CONSEQUENCES IN A CHANGING ENVIRONMENT**

Rengėjas:

Vilniaus universiteto Medicinos ir sveikatos mokslų
Doktorantūros mokykla, VU Medicinos fakultetas

Organized by

the Doctoral School of Medicine and Health sciences
at Vilnius University, VU Faculty of Medicine

INTERNATIONAL SCIENTIFIC COMMITTEE

Karolis AŽUKAITIS (Vilnius University, Lithuania)
Noël CAMERON (Loughborough University, UK)
Janet CARTON (University College Dublin, Ireland)
Dalius JATUŽIS (Vilnius University, Lithuania)
Maria KACZMAREK (Adam Mickiewicz University, Poland)
Sylvia KIRCHENGAST (University of Vienna, Austria)
Lawrence M. SCHELL (University at Albany, S.U.N.Y, USA)
Wojciech ŚLUSARCZYK (Nicolaus Copernicus University in Torun, Poland)
Janina TUTKUVIENĖ (Vilnius University, Lithuania)
Aistis ŽALNORA (Vilnius University, Lithuania)

LOCAL ORGANIZING COMMITTEE

(Faculty of Medicine, Vilnius University)

Chair:

Janina TUTKUVIENĖ

Conference booklet coordinator:

Rūta MORKŪNIENĖ

Conference Secretary:

Eglė Marija JAKIMAVIČIENĖ

Members:

Justina ALČAUSKAITĖ
Arūnas BARKUS
Elvin Francišek BOGDZEVIČ
Ramunė ČEPULIENĖ
Airida DOSINAITĖ
Rasa JANULIONIENĖ
Kristupas KURMINAS
Rūta MORKŪNIENĖ
Laura NEDZINSKIENĖ
Juozapas RYLIŠKIS
Evita ŠEIKOVAITĖ
Mindaugas SMETANINAS
Eglė STUKAITĖ-RUIBIENĖ
Sofija ŠESTAK
Renata ŠIMKŪNAITĖ-RIZGELIENĖ
Rūta VOSYLIŪTĖ
Violeta ŽALGEVIČIENĖ

UTILITY OF THE ANALGESIA–NOCICEPTION INDEX (ANI) IN ANESTHESIA

Vaiva CESNAUSKYTE¹, Diana GASIUNAITE²

¹Faculty of Medicine, Vilnius University, Vilnius, Lithuania

²Clinic of Anaesthesiology and Intensive Care, Institute of Clinical Medicine, Faculty of Medicine, Vilnius University Vilnius, Lithuania

Contact e-mail: vaiva.cesnauskyte@mf.stud.vu.lt

Background and Aim: Under general anaesthesia, nociception is commonly assessed using indirect clinical signs such as tachycardia, hypertension, sweating, lacrimation, and pupillary dilation. However, these indicators are often nonspecific and may result in inappropriate analgesic dosing, potentially affecting perioperative outcomes. The Analgesia–Nociception Index (ANI) is a non-invasive monitoring tool that evaluates the balance between nociception and antinociception by analysing high-frequency components of heart rate variability. ANI values range from 0 to 100, with higher scores indicating adequate analgesia and lower scores suggesting insufficient analgesia. This review aimed to evaluate whether ANI-guided anesthesia improves opioid administration, hemodynamic stability, and perioperative pain management compared with conventional monitoring.

Materials and Methods: This literature review was conducted using the PubMed database. The following keywords and their combinations were used: "*analgesia nociception index*", "*ANI*", "*nociception*", "*pain monitoring*" and "*opioid anesthesia*." Non–full text and non-English publications were excluded.

Results: ANI has been shown to detect nociceptive events more accurately than traditional parameters such as heart rate and systolic blood pressure. Several studies suggest that ANI-guided opioid titration may reduce intraoperative and postoperative opioid consumption. ANI monitoring has also demonstrated value in predicting hemodynamic responses to noxious stimuli and identifying vagal stimulation during neuroendocrine tumour resection. Furthermore, it may help distinguish pain-induced hypertension from tourniquet-related blood pressure increases. Despite encouraging findings, the evidence regarding ANI's ability to improve clinical outcomes remains mixed.

Conclusions: ANI monitoring is an objective and non-invasive method for assessing nociception during anaesthesia. Although it shows promise for optimising opioid administration and improving perioperative pain management, current evidence remains insufficient to confirm a clear clinical benefit. Further high-quality studies are needed to establish its role in improving perioperative outcomes.

Keywords. Analgesia–nociception index, ANI, nociception, opioid anaesthesia, pain