



Letter to the Editor

Neural monitoring represent central safety asset for new technologies in thyroid surgery in translational protocols

Hui Sun,

Jilin Provincial Key Laboratory of Surgical Translational Medicine, China Japan Union Hospital of Jilin University, Division of Thyroid Surgery, Changchun City, Jilin Province, China

Che-Wei Wu,

Faculty of Medicine, College of Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
Department of Otolaryngology-Head and Neck Surgery, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

Hoon Yub Kim,

Department of Surgery, KUMC Thyroid Center Korea University, Anam Hospital, Seoul, South Korea

Gianlorenzo Dionigi*

Division for Endocrine and Minimally Invasive Surgery, Department of Human Pathology in Adulthood and Childhood "G. Barresi", University Hospital G. Martino, University of Messina, Via C. Valeria 1, 98125, Messina, Italy

ARTICLE INFO

Article history:
Available online xxx

Keywords:
Translational study
Recurrent laryngeal nerve
Safety
Neural monitoring
Pathology

ABSTRACT

Commentary on the published paper by Chávez KV, Barajas EM, Soroa F, Gamboa-Dominguez A, Ordóñez S, Pantoja JP, Sierra M, Velázquez-Fernández D, Herrera MF. Safety assessment of the use of ultrasonic energy in the proximity of the recurrent laryngeal nerve in a porcine model. *Am J Surg.* 2018 Jan;215(1):186–190. doi: 10.1016/j.amjsurg.2017.04.013. Epub 2017 Jun 7. PubMed PMID: 28622836.

© 2017.

We read with interest the paper by Chávez KV et al. "*Safety assessment of the use of ultrasonic energy in the proximity of the recurrent laryngeal nerve in a porcine model*", published on the January 2018 issue of *Am J Surg*.¹

Thyroid surgeons have started introducing new accessories, energy devices, novel image-guided minimally invasive therapies such as percutaneous radiofrequency ablation, laser ablation, microwave ablation, high-integrity focus ultrasound ablation and performing increasingly complex procedures as endoscopic, robotic, transoral surgery.²

Such advanced technologies and modern techniques entail the risk of recurrent laryngeal nerve (RLN) injury.

In order to inspect adverse RLN outcomes, intraoperative neural monitoring (IONM) has been applied to assess, in real-time, the function of the RLN roots by continuous vagal nerve stimulation in most experimental translational studies.^{1,3–5}

In recent years, IONM has assumed an central role for the evaluation of the safety of surgical instruments around the RLN in translational studies.^{1,3–5}

The manuscript is greatly knowledgeable, and rise significant additions for safety during thyroidectomy and confirms IONM interest in research.¹

Latest technologies require IONM assessment, direct laryngoscopy, pathological evidence of the RLN to verify their net benefit and safety in experimental studies, before their clinical application (Fig. 1).¹

Funding

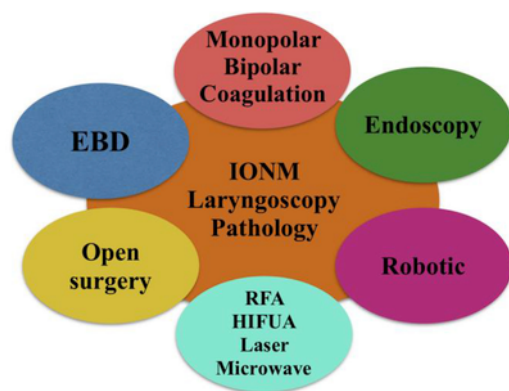
No funding was received.

Ethical approval

Not required.

* Corresponding author.

Email address: gdionigi@unime.it (G. Dionigi)



IONM: intraoperative neural monitoring

EBD: Energy based devices

RFA: Radiofrequency ablation

HIFUA: high-integrity focus ultrasound ablation

Fig. 1. IONM technology, laryngoscopy and pathology represent the central asset of safety evaluation of novel technology around the RLN in thyroid surgery.

Informed consent

Informed consent not required for this report.

Disclosure statement

The Authors have nothing to disclose.

References

1. K.V. Chávez, E.M. Barajas, F. Soroa, et al., Safety assessment of the use of ultrasonic energy in the proximity of the recurrent laryngeal nerve in a porcine model, *Am J Surg* 215 (1) (2018 Jan) 186–190, <https://doi.org/10.1016/j.amjsurg.2017.04.013>, Epub 2017 Jun 7. PubMed PMID: 28622836.
2. G. Dionigi, Y.J. Chai, R.P. Tufano, A. Anuwong, H.Y. Kim, Transoral endoscopic thyroidectomy via a vestibular approach: why and how?, *Endocrine* (2017 Oct 16) <https://doi.org/10.1007/s12020-017-1451-x>, [Epub ahead of print] PubMed PMID: 29039144.
3. Y.C. Lin, G. Dionigi, G.W. Randolph, et al., Electrophysiologic monitoring correlates of recurrent laryngeal nerve heat thermal injury in a porcine model, *The Laryngoscope* 125 (8) (2015).
4. H.Y. Lee, Y.G. Cho, J.Y. You, et al., Traction injury of the recurrent laryngeal nerve: results of continuous intraoperative neuromonitoring in a swine model, *Head Neck* 38 (2016) 582–588.
5. C.W. Wu, Y.J. Chai, G. Dionigi, et al., Recurrent laryngeal nerve safety parameters of the Harmonic Focus during thyroid surgery: porcine model using continuous monitoring, *The Laryngoscope* 125 (2015) 2838–2845.