

Pelvic Intraoperative Neuromonitoring Offers Better Outcomes for Rectal Cancer Patients

NEUROS trial shows significant improvements in TME surgery with pIONM

Pelvic intraoperative neuromonitoring (pIONM) offers electrophysiologic monitoring for surgical interventions in the small pelvis. In this area, the structures of the autonomous nervous system are complex and sometimes difficult to identify in the situs. pIONM enables the intraoperative control of nerve functions and has so far been used primarily during the removal of rectal carcinoma via total mesorectal excision (TME). The technology can reduce the occurrence of consequential functional damages and makes a significant contribution to maintaining the quality of life of patients.

First randomized multicenter comparative evaluation of rectal cancer patients

The effects of pIONM have now been investigated in a two-arm, randomized, controlled, multicenter trial called NEUROS, conducted by teams from the University Medical Center of the Johannes Gutenberg University Mainz, the University Medical Center Göttingen, the Schwarzwald-Baar Klinikum Villingen-Schwenningen, the Klinikum Region Hannover (KRH) Klinikum Siloah, the Hospital Martha-Maria Nürnberg, the University Medical Center Schleswig-Holstein, the University Hospital of Leipzig and the University Hospital Neuruppin. This study was funded by grants from the German Research Foundation (KN 930/1-1; 1-2) and the results were published in the journal "Annals of Surgery" this September [Kneist et al. 2022]*.

Study results reveal numerous advantages of pIONM technology

The study included 189 patients and the intention-to-treat analysis included 171 patients with rectal cancer undergoing TME, among them 82 patients treated with and 89 patients treated without pIONM. To monitor the pelvic autonomic nerves during open, laparoscopic or robotic TME, the surgeons used hardware and software from inomed Medizintechnik GmbH.

The results of the study show that urinary function deterioration occurred significantly less frequently in the pIONM group at one year post-surgery compared with the control group (8% vs. 19%). In addition, fewer patients undergoing TME with pIONM experienced fragmented defecation than patients undergoing it without pIONM (56% vs. 75%). Overall, the findings reveal that the use of pIONM was associated with better sexual and ano-(neo-)rectal function and improved postoperative quality of life in both men and women. At the same time, pIONM did not show any adverse effects; in particular, it did not compromise TME quality or significantly extend the duration of surgery. The authors that conducted the NEUROS study concluded that pIONM is a safe technology with the potential to improve functional outcomes in rectal cancer patients undergoing TME.

The medical technology used in the study was developed by inomed Medizintechnik GmbH in the scope of the research projects IKONA (FKZ: 01EZ0723) and autoPIN (FKZ: 13GW0022A). Both projects were funded by the German Federal Ministry of Education and Research (BMBF) and show the successful transfer from research to application by inomed and clinical innovators.

Further information on pIONM: <https://www.en.inomed.com/application-fields/general-visceral-surgery/pelvic-neuromonitoring/>

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inomed develops, manufactures and distributes medical technology products in the fields of intraoperative neuromonitoring, functional neurosurgery, pain treatment and neurological diagnostics. For over 30 years, inomed devices have been helping to improve treatments and increase patient safety. More than 300 employees, nine subsidiaries and a large network of trained distributors in over 100 countries form part of the inomed group.

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[*Pelvic Intraoperative Neuromonitoring Prevents Dysfunction in Patients with Rectal Cancer: Results from a Multicenter, Randomized, Controlled Clinical Trial of a NEUROmonitoring System \(NEUROS\)](#)

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