

Letter to the Editor



Letter to the Editor: Commentary on Using Artificial Intelligence in the Comprehensive Management of Spinal Cord Injury (*Korean J Neurotrauma* 2024;20:215-224)

Jung Hwan Lee

Department of Neurosurgery, Yeouido St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea



► See the article “Using Artificial Intelligence in the Comprehensive Management of Spinal Cord Injury” in volume 20 on page 215.

Received: Jan 26, 2025
Accepted: Feb 11, 2025
Published online: Apr 8, 2025

Address for correspondence:

Jung Hwan Lee
Department of Neurosurgery, Yeouido St. Mary's Hospital, College of Medicine, The Catholic University of Korea, 10, 63-ro, Yeongdeungpo-gu, Seoul 07345, Korea.
Email: medi98@hanmail.net

Copyright © 2025 Korean Neurotraumatology Society

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ORCID iDs

Jung Hwan Lee
<https://orcid.org/0000-0002-1393-7105>

Funding

No funding was obtained for this study.

Conflict of Interest

The author has no financial conflicts of interest.

I read with great interest the review article recently published in *Korean Journal of Neurotrauma* by Kim et al.,²⁾ titled “Using Artificial Intelligence in the Comprehensive Management of Spinal Cord Injury.” This paper provides a narrative review of studies on the application of artificial intelligence (AI) to patients with spinal cord injury (SCI). AI has already been implemented in numerous clinical fields and is currently incorporated into the healthcare systems of many countries, including South Korea. AI-driven services are being used in real-world clinical environments and are even included in health insurance reimbursement policies, generating revenue.^{1,3,4)} Examples include products such as DEEPCARS by VUNO®, LumineticsCore by Digital Diagnostics®, and JBS-01K by JLK®. Despite these developments, the application of AI to perform diagnostic and therapeutic processes for patients with SCI poses significant challenges. SCI symptoms vary widely, ranging from mild pain to complete paralysis. Although objective assessments such as imaging studies can be performed, neurological evaluations conducted directly by medical professionals remain critical for diagnosis and prognostication. Although various uses of AI for SCI have been reported, its practical applications are limited.

Tao et al.⁵⁾ analyzed research trends studying AI application to SCI. According to their findings, most studies in this area have focused on rehabilitation-related applications, specifically (1) intelligent robots and limb exoskeletons to assist in rehabilitation training, (2) brain-computer interfaces (BCIs), (3) neuromodulation, and (4) non-invasive electrical stimulation. In clinical practice, the application of AI seems to be more common for rehabilitation following the acute stage of SCI, rather than in acute diagnosis or treatment. These areas of research are not exclusive to patients with SCI, and are often applicable to individuals with sequelae of other central nervous system disorders. While the paper by Tao et al.⁵⁾ provides detailed insights into BCIs, it offers relatively limited coverage of rehabilitation-assistive robots, such as exoskeletons. Additionally, the sections on neuromodulation and neurostimulation, which are crucial for SCI rehabilitation and chronic-phase treatment, could be expanded. Enhancing these aspects will make this study a more comprehensive and valuable resource for researchers and clinicians in the field.

REFERENCES

1. Cho KJ, Kim KH, Choi J, Yoo D, Kim J. External validation of deep learning-based cardiac arrest risk management system for predicting in-hospital cardiac arrest in patients admitted to general wards based on rapid response system operating and nonoperating periods: a single-center study. *Crit Care Med* 52:e110-e120, 2024 [PUBMED](#) | [CROSSREF](#)
2. Kim KH, Jeong JH, Ko MJ, Lee S, Kwon WK, Lee BJ. Using artificial intelligence in the comprehensive management of spinal cord injury. *Korean J Neurotrauma* 20:215-224, 2024 [PUBMED](#) | [CROSSREF](#)
3. Rajalakshmi R, PramodKumar TA, Naziyagulnaaz AS, Anjana RM, Raman R, Manikandan S, et al. Leveraging artificial intelligence for diabetic retinopathy screening and management: history and current advances. *Semin Ophthalmol* 1-8, 2024 [PUBMED](#) | [CROSSREF](#)
4. Ryu WS, Kang YR, Noh YG, Park JH, Kim D, Kim BC, et al. Acute infarct segmentation on diffusion-weighted image using deep learning algorithm and RAPID DWI: a comprehensive stroke center clinical validation study. *medRxiv*, Forthcoming 2023 [CROSSREF](#)
5. Tao G, Yang S, Xu J, Wang L, Yang B. Global research trends and hotspots of artificial intelligence research in spinal cord neural injury and restoration-a bibliometrics and visualization analysis. *Front Neurol* 15:1361235, 2024 [PUBMED](#) | [CROSSREF](#)