

Sustainable Neurosurgery

Japanese neurosurgery faces challenges such as a declining number of [neurosurgeons](#) and their concentration in urban areas. Particularly in [rural](#) areas, access to neurosurgical [care](#) for patients with conditions, such as [stroke](#), is limited, raising concerns about the collapse of regional healthcare. [Robot assistance](#) has advanced in recent years, contributing to the improved precision and safety of deep [brain surgery](#).

Morita et al in a study propose the “[Artificial Intelligence](#) (AI) and Robot-Assisted Surgery Moonshot Plan” for Japan, comprising five pillars: 1) establishment of regional medical [centers](#), 2) development of remote surgery systems, 3) enhancement of robotic-assisted surgery training programs, 4) integration of [artificial intelligence](#) technologies, and 5) promotion of industry-academia-government collaboration. In addition, strengthening the approach to [spinal surgery](#) is expected to revitalize regional medical centers, optimize the number of neurosurgeons, improve surgical [skills](#), and promote minimally invasive surgery. This study analyzed the current status and challenges of Japanese neurosurgery through a literature review and statistical analysis. AI is used in various aspects of neurosurgery, including diagnostic support, surgical planning and navigation, treatment outcome prediction, intraoperative monitoring, robot-assisted surgery, and rehabilitation. However, challenges, such as data bias, ethical issues, costs, and regulations, remain. In Japan, issues such as the uneven distribution and decline of neurosurgeons, the collapse of regional healthcare, and the increase in the number of patients with spinal disorders due to aging have been highlighted. The “AI and Robot-Assisted Surgery Moonshot Plan” serves as a guide to overcome the challenges of neurosurgery in Japan and establish a sustainable medical system ¹⁾

¹⁾

Morita S, Asamoto S, Sawada H, Kojima K, Arai T, Momozaki N, Muto J, Kawamata T. The Future of Sustainable Neurosurgery: Is a Moonshot Plan for Artificial Intelligence and Robot-Assisted Surgery Possible in Japan? World Neurosurg. 2024 Aug 29:S1878-8750(24)01494-3. doi: 10.1016/j.wneu.2024.08.126. Epub ahead of print. PMID: 39216720.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=sustainable_neurosurgery

Last update: **2024/09/17 21:17**

