



Anesthesia and Artificial Intelligence

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Editorial

Artificial Intelligence (AI) is the hottest topic in the field of scientific and technological innovation in the world, and it is also the most imaginative and expansive title. It can be said that AI has quietly infiltrated into everyone's study, work and life, and constantly infiltrated, gradually affecting people's traditional habits; similarly, it also imperceptibly affects the development of anesthesiology. From the perspective of historical development, anesthesia should be the earliest subject to establish artificial intelligence. Based on the development of clinical pharmacology, anesthesiology first established the concept and model of pharmacokinetics-pharmacodynamics of clinical drugs (PK/PD model). In the 1980s, servo anesthesia theory system was formed and clinical trials were carried out. This is also the embryonic form of automated anesthesia and robotic anesthesia. In 1990s, with the development of computer technology and the increase of operation speed, intravenous anesthesia Target-Controlled drug Infusion (TCI) has been applied in clinical practice. With the gradual improvement of anesthesia monitoring, especially anesthesia depth EEG monitoring system, the open-loop and closed-loop automatic anesthesia system established by combining the two methods and through EEG monitoring should be the primary application of artificial intelligence in anesthesiology. In recent years, the automatic drug delivery system of anesthetic robots, the assistant operating system of anesthetic technology robots and the automatic system of anesthesia evaluation and diagnosis robots have developed rapidly. The rapid expansion of anesthesia business has led to an extremely obvious degree of occupational burnout of anesthesiologists, even sudden death during work, which not only greatly affects the discipline itself, but also becomes an important bottleneck in the development of clinical medicine. Therefore, to solve the contradiction between the shortage of anesthesia professionals and the development needs of high-quality anesthesia and other disciplines, we need to rely on scientific and technological innovation, vigorously develop artificial intelligence, and let the anesthesia robot replace part of the work of anesthesiologists on the premise of ensuring clinical safety. This can not only make up for the shortage of clinical anesthesiologists, but also effectively guarantee medical safety, so that anesthesiologists have the energy to solve more difficult problems. In developing the artificial intelligence of anesthesia vigorously, we should pay attention to the following two points: ensuring patient safety and resolving ethical challenges. These two contents are also the subjects that all clinical disciplines must face in the development of artificial intelligence. For the anesthesiology department, it is particularly important to ensure the safety of patients.

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