Letter

Artificial Intelligence in the Operating Room: A Review of Applications

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Dear Editor,

Artificial intelligence (AI) is a term that describes the use of computers to simulate intelligent behavior similar to that of humans, with minimal human intervention (1). In recent years, the use of AI has increased in all fields. The medical field is no exception; it has rapidly adopted AI in various applications. AI has a wide range of applications in medicine, including drug discovery and development, disease diagnosis using image processing, intelligent patient monitoring, personalized treatment through large-scale data analysis, patient data management, radiology image interpretation, patient consultation via chatbots, disease and mortality prediction, and patient treatment (2,3). AI applications in medicine can be broadly categorized into physical and virtual groups (1). Physical AI applications in medicine include intelligent robots and tools utilized in surgeries and patient monitoring. Virtual AI applications, on the other hand, involve the utilization of AI algorithms for disease diagnosis and related tasks. AI has been employed in various fields, one of which is in the operating room. This study investigates the applications of this technology in this domain.

AI-powered robotic surgery is a cornerstone of AI applications in the operating room. It has found utility in surgical training, providing guidance during procedures, and facilitating remote surgical interventions (4). Remote surgery has made it possible to perform surgeries in remote areas. Among other applications of AI in the operating room are patient monitoring and vital signs surveillance. AI algorithms can continuously monitor a patient's vital signs and alert the surgeon in cases of abnormal readings. Realistic surgical simulations powered by AI offer a valuable tool for training surgeons, allowing them to practice and refine their skills in a safe and controlled environment. Another application of AI in the operating room is the development of a touchless system for controlling an image viewer. This method utilizes image processing techniques (5) and can significantly contribute to controlling and reducing infection in the operating room. Detecting the presence or absence of masks is another application of image processing in the operating rooms. This system can trigger alerts for individuals not wearing masks (6). In the operating room, AI can be used to implement real-time decision support systems for predicting and preventing adverse events (7). This technology can also be employed for efficient resource allocation. Figure 1 illustrates the core applications of AI within the operating room.

Competing Interests

The author declares that she has no conflict of interests in the research.

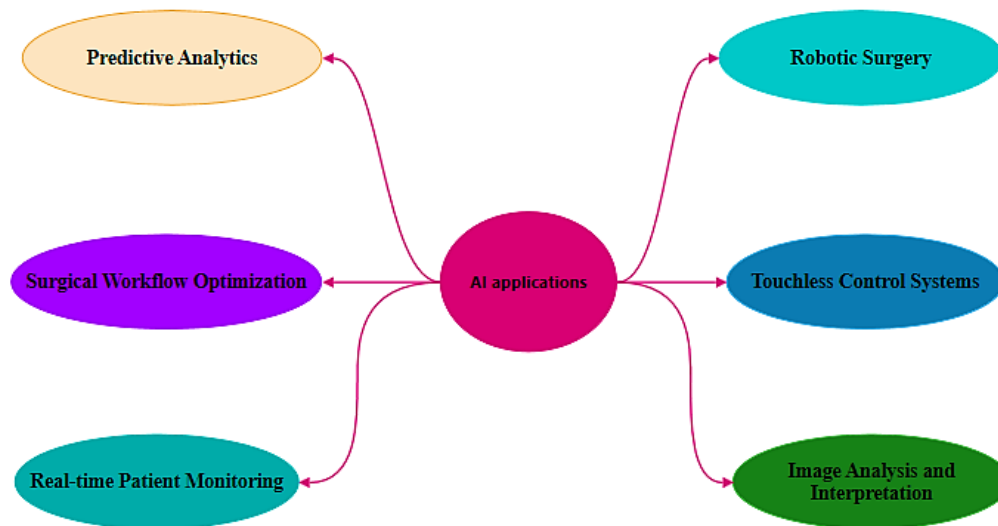## Ethical Approval

Not applicable.

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Figure 1. Applications of Artificial Intelligence in the Operating Room

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