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Artificial intelligence: Revolutionizing the future of healthcare and medical research

As the healthcare industry has been changing in recent years Artificial Intelligence (AI) technology has emerged as an innovative force that could revolutionize it. AI offers many possibilities in medical research that are driving significant advances in multiple areas including faster and more accurate diagnosis of diseases, personalized treatments, or discovering new drugs. The ability to analyze large datasets with high performance leads to faster and more reliable results than ever before. This opportunity is likely a once-in-a-lifetime chance to significantly improve patients' health and well-being (1).

AI-driven medical imaging may enhance the quality of healthcare. AI algorithms can help identify conditions at their early stages using techniques such as computed tomography (CT), magnetic resonance imaging (MRI), ultrasound etc. Detecting life-threatening diseases like cancer sooner may improve chances of survival and reduce pressure on doctors ensuring patients start therapy promptly. Compared to human analysis of medical images, AI can provide faster and often more accurate results. These technologies reduce radiologists' workload and speed up diagnostic procedures, thereby improving efficiency in the diagnostic process. In addition, AI's ability to continuously learn could enable it to make even more accurate and reliable diagnoses over time (2).

The drug development process is increasingly influenced by AI. The fastened analysis and modeling techniques allowed by AI can considerably reduce the time for discovering drugs which traditionally take years to develop. AI simplifies the discovery of accurate and affordable biomarkers, the clinical trial process, and the identification of drug candidates. Additionally, AI helps in repurposing existing drugs, uncovering previously unknown treatment potentials. In personalized medicine, AI may recommend treatments according to genetic profiles and medical history so that treatment efficiency increases and side effects are minimized. Personalized health care ensures a greater response from patients to treatments. To effectively employ AI in medical research interdisciplinary collaboration is vital. Such cooperation also guarantees the observance of ethical guidelines as well as safety precautions in the use of AI. It is therefore important for scientists, computer engineers, and data analysts to collaborate, ensuring that AI-based solutions are effectively implemented and developed through synergy across these fields. Integrating technology safely requires prioritizing ethical values and patient safety at every stage of the research process. For

example, respecting patient privacy in AI data collection and analysis processes is important because it guarantees that ethical standards are met. Moreover, these partnerships encourage AI to develop creative and innovative solutions in medical research (3).

The potential of AI in healthcare reaches beyond the improvement of existing treatments and diagnostics; instead, it is shaping the future of healthcare. For instance, AI-assisted robotic surgical systems may make it possible for surgeons to perform delicate and complex operations more safely and efficiently. Telemedicine is another field where AI plays a significant role in patient monitoring and management. This means that mobile applications or devices based on AI can continuously monitor patients' health data as well as give instant feedback to health care providers. This is very helpful especially for chronic disease cases. However, even though the integration of AI into medical research offers many opportunities, the problems encountered during such integration should not be underestimated since they are immense risks here involved in this venture as well. Carefulness and responsibility must guide the process of dealing with technical and ethical

challenges associated with development as well as application of AI models. Another example is the direct influence of quality and variety of datasources used for training AI algorithms on accuracy and credibility of results. Transparency, accountability and explanation are also significant in the process of decision-making by AI machines. Therefore, researchers and healthcare givers need to know that they can believe in what AI presents. This acceptance and adoption can be a decisive factor in healthcare (4).

While there are several potential benefits to merging medical research with AI, it raises important matters concerning academic ethics and standards of research. Academic ethics necessitate that research should follow the principles of precision and verifiability. The COPE (Committee on Publication Ethics) guidelines have been established to make sure this process happens openly with integrity. Researchers must comply with these if their work is to be accepted by the scientific community. Conversely, unscrupulous activities such as two journals publishing same paper simultaneously must be avoided at all costs. Unfortunately, we have witnessed an unfortunate tendency towards this practice being quite popular. We have seen articles

being accepted in other journals during our peer review process. Such actions can disrupt scientific processes and undermine the trust of the academic community. Adhering to ethical principles and maintaining high standards is therefore more important than ever as we shape the future of artificial intelligence and medical research.

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