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Prospects and limitations of Artificial Intelligence in Healthcare

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Innovative technology like Artificial Intelligence (AI) is inevitable as well as indispensable for every sector including healthcare, to keep up with the contemporary world in respect of productivity and services. Innovation and transformation are very core characteristics of human race[1] but always needs customization for the country or the society. A detailed legal, ethical and social frame of authorization of usage of AI in our healthcare is beyond the scope of this brief editorial. Rather, it will aim to focus on emergent need for preset rules to incorporate AI with authorization and earmarking of proper personnel for its usage.

AI could not have a single consensus definition mostly because of its rapidly evolving nature. Most simplified, AI refers to machines or computer systems that simulate human intelligence. The users of AI see the "input layer" i.e. the question or data they put, and the "output layer", the response being made. In between input and output layers, the intelligent algorithm forms the hidden layer(s) of AI capable of analyzing and making humanlike response.[2]

Medical professionals of any discipline can utilize AI to prepare teaching notes, research proposals, articles, prediction of epidemics with preventive plans and to improve diagnostic accuracy and management plans. They can simply approach online AI chat bots to put problems using voice, texts and images or can utilize institutional AI software programs.

AI applications have now been increasingly incorporated in all aspects of healthcare including education, preventive and curative services throughout the globe. AI assisted robotic surgery, though costly and takes longer time, is growing parallel to laparoscopic surgery and often perform with superiority in difficult narrow access locations.[3] A study compared recommendations for management of breast cancer cases using Watson for Oncology (WFO) with those of a multidisciplinary tumor board obtained separately, showed fair concordance.[4]A multicentre European study showed AI assistance improving diagnostic yields of prostate cancers on MR images.[5] More significant improvement was noted among non-expert image readers compared with expert readers.

In our healthcare perspective, set rules are urgently needed for optimum utilization of AI to scale up services with preservation of social, legal and ethical impacts. Laboratory specimens like radiological images, blood film, histological slides and even those for molecular studies can be reported using AI systems, without involving the specialists, with comparable or lessened errors. Clinicians deal with the patients with clinical proficiencies following Evidence Based Medicine (EBM). They must follow ethical principles viz.

beneficence, non-malfeasance, autonomy and justice or equitability.

Applying AI in healthcare implies problems to solve are - who takes the responsibility for the errors that appear using AI? and how to meet shortcomings of other social, legal and ethical principles?[6]

In conclusion, efficient implementation of AI in healthcare requires individualized set rules for who have to use it for the extent of its use. For the purpose of teaching-learning and research, extent of use of AI should be discussed by the team leaders so that the learning objectives can be achieved. Diagnostic and therapeutic use of AI should adopt physician-led collaborative approach, so that the clinical and para-clinical experts hold responsibilities of case management with preservation social, legal and ethical values.

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