



## Editorial

# Artificial Intelligence in Oncology

Abhishek Pathak<sup>1</sup>

<sup>1</sup>Department of Medical Oncology, Command Hospital, Kolkata, West Bengal, India.



### \*Corresponding author:

Abhishek Pathak,  
Department of Medical  
Oncology, Command Hospital,  
Kolkata, West Bengal, India.  
[drabhipat@gmail.com](mailto:drabhipat@gmail.com)

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Cancer is one of the most common causes of death and the number of cancer cases is increasing every day. Management of cancer patient is a very difficult and complex. It requires detailed history, clinical examination and plethora of investigations. Earlier patients' details were written in books or sheets of paper which were prone to get damaged or lost over the long course of treatment/follow-up. Moreover, treating malignancies involve various streams such as surgery, radiation and chemotherapy. To manage this complex process seamlessly with minimum chances of error and to analyse the huge data, there is a definitive requirement of technology.

With increasing number of cancer patients and comparatively fewer numbers of qualified oncologists, there is a huge burden on every oncologist. Moreover, the numbers keep exponentially rising as most of the patients have to be on lifelong follow-ups. Management of each cancer patient entails visiting lot of different types of doctors, different sets of treatment protocols, keeping their records, timely follow-ups, etc. All these complex processes require good software support for maintaining records, reminders for follow-ups and even assisting in patient treatment.<sup>[1]</sup>

This is where there is a requirement for technology for better management of patients who are of utmost importance. Once we have a robust data generated, we can use the concepts of artificial intelligence (AI), machine learning (ML) and in the future deep learning for analysing these data and helping us in creating predictive models and better error-free management protocols.<sup>[2]</sup> Having access to patient-reported outcomes helps us get an insight into the real-world picture of patients' journeys.

AI is a branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. Moreover, ML is a form of AI that enables a system to learn from data rather than through explicit programming. It all started with 'shallow' learning programmes which have now involved in to programmes as a part of 'Deep learning'.<sup>[3]</sup>

The major areas where AI is being used in oncology are cancer screening, prevention and early detection, risk stratification and prognosis, precision medicine, follow-up and clinical trials. There are numerous software available on internet such as **Oncofix**, Cliniopts and Clinishot which are taking care of various aspects of oncology care. Screening aspect in **Oncofix** website is a questionnaire-based tool that guides an individual as to what screening

protocols are required for individuals. Once this software is made popular and known to people in remote areas, it would be a great support to the prevailing healthcare system.

At present, oncology is poised for transformative change and AI can help us analyse the multidimensional data and help in more personalised care for our patients. Increasing the use of AI will lead to more accurate and rapid diagnoses, improved clinical decision-making, and, ultimately, better health outcomes for patients with cancer and those at risk. Development of AI applications for cancer care should focus on clinical validity, utility and usability. Moreover, the day is not far when AI would become a part of every cancer management algorithm.

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