Use of artificial intelligence and deep learning in the detection of lung cancer

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Lung cancer is one of the deadliest cancers in the world as about 75% of the patients diagnosed with lung cancer die within five years of its diagnosis. The major reason for being the deadliest cancer is that the tumour can be detected only at a later stage, thereby making treatment very difficult. Therefore, screening and detection at an early stage are very important. With the increasing cases and workload, the doctors usually find it very difficult to examine every scan to find the malignant tumour. To overcome this issue, an Artificial Intelligence (AI) system was developed, wherein extremely small tumour cells are detected, which are otherwise not spotted with naked eyes. Initially, the system detected both benign as well as malignant tumours from the scan, based on the predefined features fed into the system. This method was ineffective as the radiologists only needed to identify malignant tumours since they are of high concern. However, recent systems use deep learning where the systems analyse real-world data. The system has a better understanding and can differentiate benign and malignant tumours. This improves the accuracy of the results. Therefore, the more the data and images, the better the outcome. Even the smallest cancer nodule can be easily detected. It also has the ability to provide information about blood vessels that are not a part of the tumour. Further, it highlights the 3D volume of the tumour, thereby detecting the tumour well in advance. Another feature developed in the system is the detection of reduced immunity cells in the tumour region. This might cause the tumour to return after chemotherapy or surgical removal. The early prediction hence keeps the doctors prepared. Therefore, there is a requirement for further advancements in this field using AI and deep learning so as to aid in better and early detection of various types of cancers.

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