Will ChatGPT Drive Radiology in the Future?

Rajesh Botchu1, Karthikeyan P. Iyengar2

1 Department of Musculoskeletal Radiology, Royal Orthopaedic Hospital, Birmingham, United Kingdom
2 Department of Orthopaedics, Southport and Ormskirk NHS Trust, Southport, United Kingdom

Indian J Radiol Imaging

Chat Generative Pre-trained Transformer (ChatGPT), a recently launched Artificial Intelligence (AI) tool by OpenAI, has taken the world by storm. Developed on the pre-existing GPT-3 language processing models based on 175 billion parameters, an improved version, ChatGPT-4, based on 100 trillion parameters, has enhanced its ability to undertake literary tasks to prompts, gathering information from various sources, and data analysis to produce reports following multiple AI-based algorithms.1

Technological advancement channeled by Industry 4.0 and 5.0 revolution has led to the integration of Internet and communication technology, AI, Internet of things, cloud computing, cyber-enabled systems, big data, machine learning, and deep-learning algorithms in the field of radiology to enhance its applications in the delivery of efficient, patient-centered healthcare.2,3

Consequently, ChatGPT, “the new kid on the block,” empowered by both supervised and reinforcement learning algorithms, has found increasing applications in the field of medicine. ChatGPT has been reported to have shown impressive performance in answering questions evaluated at the United States Medical Licensing Examination, streamline patient discharge summaries, and generate radiology reports.4,5

ChatGPT, an emerging transformative technology, can be a valuable tool in radiology with natural anxiety among its users about reliability and the benefits of its incorporation in current radiology incorporate practice.6

At the outset, the clinical application of ChatGPT in radiology practice can be huge. The workflow in radiology can be streamlined in an efficient manner with simplification of generation of radiology reports and faster transfer of patient information. This can enable quick turn around and avoid backlog of reporting that can affect management. Timely reporting of images can also enable a prompt decision about the management of the patient. Interpretation of the images and identification of pathologies can be performed with the aid of ChatGPT using an enhanced process of "radiomic" AI programs.

ChatGPT can also play a crucial role in patient education of future radiologist in training. It can be used to develop modules on spectrum of radiology techniques and in addition, interactive simulation and questionnaires can be developed. Personalized teaching modules can be created using this tool that would aid in improving the knowledge of radiologists, allow remote access solutions, and provide objective assessment and feedback after teaching sessions. Patient information tools and modules can be developed in patient friendly way with interactive modules to answer patient’s queries. Patient satisfaction survey can be streamlined and assimilated to allow audit evaluation and further improvement in the technology.

Concerns about validity, mistakes, and errors in the patient decision making process are indeed valid as with any emerging technology. Integration of ChatGPT is likely be no different. However, technology and innovation are constantly evolving. The success of ChatGPT in radiology sub-speciality may depend on its value created by future safeguarding strategies such as enhanced scrutiny, making it affordable and seamless assimilation in current radiology practice. Effective ChatGPT applications in radiology may allow enhanced diagnostic certainty, rapid turnaround of patient radiology information reports, and better work-life for radiologists!

Funding
None.

Conflict of Interest
None declared.

ISSN 0971-3026.

© 2023. Indian Radiological Association. All rights reserved.
This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial-License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (https://creativecommons.org/licenses/by-nc-nd/4.0/)
Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India
References