ChatGPT in Nuclear Medicine: Expanding Possibilities and Navigating Challenges

I am writing to discuss the potential applications and challenges of utilizing ChatGPT (https://chat.openai.com), a state-of-the-art language model developed by OpenAI, in the field of nuclear medicine. ChatGPT holds promise for enhancing patient education, providing query resolution, offering decision support, supporting research, and facilitating training and education. However, it also presents certain challenges that need to be addressed.

One of the significant potentials of ChatGPT lies in patient education.[1] By delivering accurate and personalized information, ChatGPT can help patients better understand nuclear medicine procedures, thereby reducing anxiety and improving the overall patient experience. Patients can engage in conversational exchanges with ChatGPT, allowing them to obtain relevant information about various nuclear medicine techniques and preparations. Furthermore, ChatGPT can address frequently asked questions, educate patients about potential risks and benefits, and explain the purpose of imaging studies or therapies, contributing to informed decision-making.

In addition, ChatGPT can serve as a valuable tool for query resolution in nuclear medicine. Health-care professionals can leverage ChatGPT to efficiently address common questions and provide timely responses to patients and colleagues. The model's ability to understand natural language queries allows it to assist with interpreting nuclear medicine reports, explaining specific radiopharmaceuticals, or clarifying imaging findings.[2] This can save time for health-care providers and improve communication between professionals and patients.

ChatGPT also offers the potential for decision support in nuclear medicine. By analyzing complex imaging findings and patient data, ChatGPT can suggest appropriate follow-up procedures, aid in treatment planning, and even generate differential diagnoses.[3] This can assist nuclear medicine practitioners in making more accurate and informed clinical decisions. However, it is important to note that the final decisions should always be made by qualified health-care professionals, and ChatGPT should be considered a supportive tool rather than a substitute for medical expertise.[2,4]

Furthermore, ChatGPT can support research efforts in nuclear medicine. The model can generate insights, summarize scientific literature, and help researchers explore new avenues for investigation. It can assist in literature review processes, accelerate data analysis, and potentially contribute to the development of new imaging techniques or treatment modalities.[2,5]

In terms of training and education, ChatGPT can simulate a valuable platform for students and residents to practice their diagnostic skills, interpret imaging studies, and deepen their understanding of nuclear medicine principles.[5] This approach allows learners to engage in realistic conversations, receive feedback, and develop their expertise in a safe and controlled environment.

However, along with these potentials, there are several challenges that need to be considered. Ensuring the accuracy and reliability of ChatGPT's responses is crucial.[2,4,5] The model needs to be trained on high-quality, up-to-date data specific to nuclear medicine to minimize misinformation or outdated information being provided. Continual training and validation are necessary to keep the model updated with the latest advancements in the field. Moreover, privacy, ethical, and security concerns must be addressed when using ChatGPT in nuclear medicine. Patient data privacy should be ensured, and compliance with regulatory standards is essential. Safeguards should be implemented to protect sensitive patient information during interactions with ChatGPT.

In conclusion, ChatGPT holds significant potential in various applications within nuclear medicine, including patient education, query resolution, decision support, research support, and training and education. While challenges related to accuracy, data quality, privacy, ethics, and security must be addressed, the integration of ChatGPT in nuclear medicine has the potential to enhance patient care, advance research, and improve education in the field.

Thank you for considering this letter for publication.

Sincerely,

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

This entire letter including the title was written by ChatGPT in response to the following prompts. 1. Write a letter to the editor in 450 to 500 words on the potential applications and challenges of ChatGPT in Nuclear Medicine. 2. Suggest a title. 3. Give citations in parentheses for every information claimed. Give 5 appropriate references in Vancouver style. It may be noted that the references initially suggested by ChatGPT were fictitious, a term called AI hallucination. Hence, the appropriate references were cited manually.

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How to cite this article: Khangembam BC. ChatGPT in nuclear medicine: Expanding possibilities and navigating challenges. Indian J Nucl Med 2024;39:69-70.