EDITORIAL

Generative artificial intelligence in otolaryngology–head and neck surgery editorial: be an actor of the future or follower

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Otolaryngology stands on the precipice of an era of innovation, poised to integrate Artificial Intelligence (AI) and chatbots into its research framework. AI has the potential to use vast datasets to improve precision in diagnosis, early detection of diseases, treatment planning, and patient monitoring. Machine learning algorithms can analyze vocal nuances beyond human perception, allowing for earlier intervention and improved patient outcomes. Moreover, chatbots could revolutionize patient interaction. In postoperative care or during the management of chronic otolaryngological disorders, chatbots, such as ChatGPT (OpenAI, San Francisco, USA), can facilitate real-time symptom tracking and deliver instant advice. This not only enhances patient compliance but also bridges the communication gap outside the clinical environment. Furthermore, AI-powered tools in research can sift through literature, propose hypotheses, and even predict

trends, setting the stage for groundbreaking discoveries in otolaryngology.

As Associate Editor, I am immediately asking to readers: *did you realize that this first paragraph introducing the potential of AI and chatbots in otolaryngology was generated by ChatGPT-4?* Probably not. But this is the case and that is an important example of the current performance of chatbots in generating scientific content. Most papers of this special issue provide innovative findings on original applications of chatbot in generating knowledge and patient information [1, 2], passing exams [3], or as adjunct tool in clinical practice [4, 5], or research [6]. The current evolution of AI will probably change our practice in the next few years in improving practitioner/research skills, and related patient care. The current investigated applications of chatbots in otolaryngology–head and neck surgery include the possibility of providing general knowledge, patient information, the ability to pass medical student or resident exams, the opportunity to provide research ideas, the usefulness in the scientific manuscript editing or referencing, the reliability in analyzing confocal images, and the performance and consistency in the management of theoretical or real clinical vignettes [1–8]. Thus, the number of publications dedicated to chatbot application in otolaryngology–head and neck surgery has increased since the mediatized launch of ChatGPT in November 2022 [9]. Nowadays, we can expect future studies, which has led many scientific journals to open a new section dedicated to AI on the submission website. In otolaryngology-head and neck surgery, the further studies could investigate the performance of chatbots, not only ChatGPT, to analyze clinical images or videos, which is a big deal according to the importance of the macroscopy in the establishment of a diagnosis in otolaryngology-head and neck surgery. Another uninvestigated field is the ability of AI software to analyze patient history at the time of the appointment

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scheduling to select the emergency cases requiring a rapid appointment. This field of research is particularly important in a context of physician shortages in some regions [10].
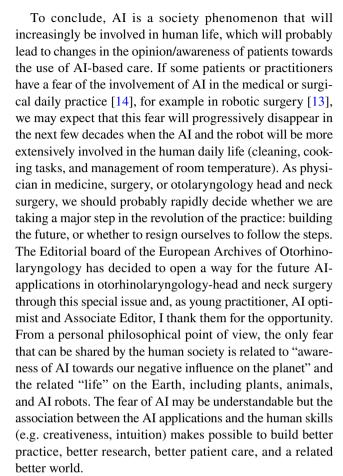
However, the continuation of research in medicine and surgery requires several further clarifications of AI functioning, legal and ethical frameworks.

On the one hand, the functioning of AI and the related hyperparameters must be made available to the researcher and the public because they can help to keep some control over the content generated by AI [11]. For example, if you ask ChatGPT to generate an original introduction for a manuscript dedicated to the history of AI in otolaryngology, you should find some sentences proposed by ChatGPT in other published manuscripts. An important related question is: *what is the origin of these sentences?* ChatGPT (meaning that authors used ChatGPT for generating scientific text) or the paper of authors (meaning that ChatGPT extracted the info from the scientific paper)? The transparency regarding hyperparameters, historic, and functioning is now more important than ever.

On the other hand, the performance of chatbot in generating scientific content associated with existing references must lead to a rapid reflection to provide legal and ethical frameworks on the use of AI in our practice. In that way, the European commission recently proposed recommendations [12]. Nowadays, most journals ask the authors to acknowledge if they use AI in the conduction of the study, or in the writing of the paper. From an Editorial point of view, the power of AI may already allow to control the content of the manuscript content for plagiarism, which is an interesting contribution.

From a human point of view, the development of AI in our practice cannot elude the role of AI in our human daily life. AI is already active in our life when we are writing an email with the autonomic word emergence, or when we are opening YouTube that immediately proposes some selected videos. These elements are related to algorithms that are based on some AI approaches.

Nowadays, some papers reported that patients or practitioners may be fearful of the use of AI in patient care [13, 14]. Some fears are justified by the risk of abuses, particularly if the AI is not used to improve patient health. However, we should keep in mind that fear and rejection are human behaviors that may occur for new practice and changes. In "*The Geological Evidences of the Antiquity of Man*" (1863), Charles Lyell (1797–1875) included credited remark to the scientist Louis Agassiz (1807–1873), that "*whenever a new and startling fact is brought to light in science, people first say, 'it is not true,' then that 'it is contrary to religion,' and lastly, 'that everybody knew it before*" [15]. This thought highlights some current rejections, while the future will answer to the progressive changes of mentalities.

To conclude, AI is a society phenomenon that will increasingly be involved in human life, which will probably lead to changes in the opinion/awareness of patients towards the use of AI-based care. If some patients or practitioners have a fear of the involvement of AI in the medical or surgical daily practice [14], for example in robotic surgery [13], we may expect that this fear will progressively disappear in the next few decades when the AI and the robot will be more extensively involved in the human daily life (cleaning, cooking tasks, and management of room temperature). As physician in medicine, surgery, or otolaryngology head and neck surgery, we should probably rapidly decide whether we are taking a major step in the revolution of the practice: building the future, or whether to resign ourselves to follow the steps. The Editorial board of the European Archives of Otorhinolaryngology has decided to open a way for the future AI-applications in otorhinolaryngology-head and neck surgery through this special issue and, as young practitioner, AI optimist and Associate Editor, I thank them for the opportunity. From a personal philosophical point of view, the only fear that can be shared by the human society is related to "awareness of AI towards our negative influence on the planet" and the related "life" on the Earth, including plants, animals, and AI robots. The fear of AI may be understandable but the association between the AI applications and the human skills (e.g. creativeness, intuition) makes possible to build better practice, better research, better patient care, and a related better world.

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Declarations

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