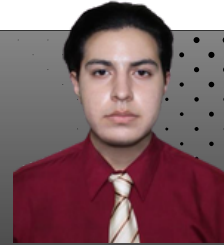


Physician and Machine: a brief view to the near future of AI in medicine

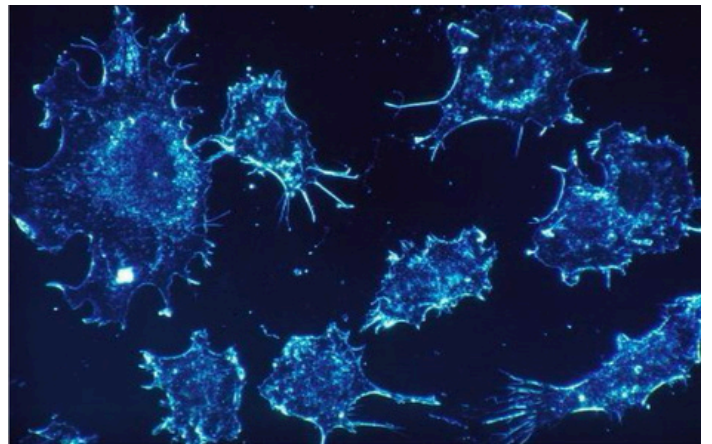


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From the last technological developments, artificial intelligence progress (AI) has surpassed being a futurist concept to become a tangible reality as today, the models based on these technologies and their massive adoption in large corporations have not only enabled an enormous simplification in a great number of tasks but has also contributed to open a recurring discussion. As AI becomes more relevant in our lives, the discussions and speculations on the possible repercussions intensify primarily in the work environment, which leads to the question: can AI replace the job of a human being? The short answer is yes. It is undeniable that this advancement implies changes, as it has occurred before all the tech we use. (1)

However, the AI case seems different because we discuss a complex phenomenon, which with the current scope is difficult to estimate and an intrinsic nature that constantly challenges the boundaries we consider human-exclusive. (3)

In this context, the medical professionals who were considered a “secure environment” against automatization, have neither been exempted from new tendencies since AI-based technologies incorporation is visible in a diversity of areas, such as data analysis, imaging diagnosis, or even clinical research. (2). This is reflected in the vast number of published articles that include terms such as “Artificial intelligence” or “AI” in databases like PubMed or Scopus, which demonstrated the recent popularity of the topic in the medical community.



All of the above raises as future healthcare professionals an unavoidable question: perhaps, are we encountering the next tool for medical press or a potential risk that must be carefully managed? The answer as in many other technology advancements is not simple. AI implementation in medicine offers great opportunities to progress in this discipline like precise diagnosis, optimized time response, and effective personalized treatment according to patient needs. (4) However, simplifying it as a series of benefits would streamline a much more complex reality. Technology dependency in the delicate health field presents challenges beyond operative efficiency. For instance, one of the main risks discussed is dehumanization in medical care. (5,6)

Empathy, intuition and the capacity to interpret emotions are important factors in this interaction, and nowadays any technology could become the same as these human qualities. On the other hand, the presence of a bias is another fundamental aspect to consider. As we should remember, AI works around algorithms that process infinite amounts of information that exists in the world to give us answers, therefore their efficacy depends directly on the quality and diversity of information that can be obtained in the short time it works. The AIs do not possess either conscience and intention; any partiality that could manifest are essentially a reflection of the human prejudices in the developers that programated their design and uses. (7)

In this way, the AI implementation in the medicine field, as we would expect, came with it a couple of ethical and legal aspects, which must be considered before the usage. How would we be sure about the personal data privacy which are used for training these models? Who will be responsible when in the future a decision that will be taken by an AI becomes a medical mistake? These questions must not be ignored and the answers, such as experts suggest, may require a legal framework. (8)

Nevertheless, it is evident we must not reject all the positive aspects of the technology advances only for the fear of the consequences, there is where the main challenge exist: find the balance between taking advantage of the AI and moderate the risks, which requires public policy, professional training and a technological ethic that priorities the human well being.

Ultimately, we need to realize that technological advancements are inevitable, nevertheless, we must remember that the direction and the possible effects depend on the usage, because it is not an autonomous identity; it is a human creation, and should be oriented with principles that reflect our values and aspirations. The AI can process information in the least amount of time, identify patterns that the human eye could let out and optimize clinical hardwork. Nonetheless it lacks empathy, intuition, and the capacity to contextualize, in comparison with the human being. Following that, the AI integration in the medical praxis requires reflection and be critical, in the development and usage, because of that, the future of the medicine is not in deciding if the AI will substitute the medical professionals or not, but in being sure that the physicians use it prudently.

