



Correspondence

In response to Korreman s. et al. Radiation oncologists are, above all, medical doctors

Introduction

We have read with great interest the work of Korreman S. et al. regarding the use of Artificial Intelligence (AI) in the field of radiation oncology [1]. In our opinion, the main task of a radiation oncologist is to clinically evaluate patients for the best course of radiation and to carry out the treatment regimen with high precision. The radiation oncologist aims to offer treatment with the very latest technology and scientific excellence, but that also needs to be personalized and humane, the combination of technology and human attention is the ideal. Radiation oncologists are medical doctors with clinical and technical knowledge, as well as having a holistic vision. They sit on multidisciplinary health care committees and actively participate in all the decision-making necessary for cancer care, in diagnosis, treatment, follow-up, and prevention.

It is beyond doubt that AI has come to the radiation oncology field to stay. Radiation oncologists have the human touch as well as the technical know-how, but we feel that Korreman S. et al. has only addressed the technical aspects but has forgotten the human side. We agree that technical aspects of radiotherapy can be suitably automated due to improved mathematical algorithms along with the increased calculation capacity in computers that allow AI to be deployed in real time. We have no doubt that a large number of the routine activities involving the most common cancers in radiation treatments will be carried out autonomously in the coming years with the help of AI. One of the immediate consequences of that will be a reduction in manpower requirements, although radiation oncologists, radiographers and radiation therapists will still need to supervise treatments in many of the common procedures, in part due to legal requirements. As an example, we can see the concerns in the regulation of the autonomous vehicles [2] or in the use of computer-aided diagnostic systems [3] which are used for the diagnosis of breast cancer in particular [4]. But with this approach we attend only to the mechanical and technical dimensions of the radiation process but we completely forget the medical side.

The point we are discussing here is not about the “capacity of machines to replace humans”, nor if they can reduce costs [5], rather how far it can go. According to McKinsey & Company [6], about 36% of all healthcare activities can potentially be automated. Automation technologies are currently able to replace or enhance jobs that have a physical component, especially for predictable tasks, or jobs that involve data collection and processing, but they are less effective for activities that involve managing or interacting with people or applying expertise. For instance, helping nurses to deliver medication [7], or in the radiotherapy field such as segmen-

tation or patient position verification tools that involve data manipulation. There has also been a high level of automation in radiation planning with tools widely available that reduce costs [5] but that also need “human tuning” in some complex treatments [8,9]. The limitations of AI have been described in many other medical fields [10].

In spite of the low potential for automation for activities that require expertise, experience and direct contact with patients [6], attempts to introduce AI in the “medical office” [11] have been made not without ethical doubts [12]. These applications have mainly been used as a complement in the form of an electronic health record (EHR) but have also been used to deliver cognitive therapy through the use of chatbots [13,14], which are software applications that conduct natural language conversations. For example, the information provided to cancer patients by chatbots is widely considered as good as direct interaction between patients and doctors via text messaging [15], but obviously no AI is set up to cope with the patient’s acute anxiety at the time of receiving bad news.

AI, then, offers great potential for the automation of routine work but, so far, is of limited value when coping with patient interaction, which is an important aspect of the radiation oncologists’ work.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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Sebastià Sabater^a
Àngels Roviroso^b
Meritxell Arenas^{c,*}

^a Radiation Oncology Department, Complejo Hospitalario Universitario de Albacete, Spain

^b Radiation Oncology Department, Hospital Clinic Universitari, Barcelona, Spain

^c Radiation Oncology Department, Facultat de Medicina i Ciències de la Salut, Universitat Rovira i Virgili, Hospital Universitari Sant Joan de Reus, Institut d'Investigacions Sanitàries Pere Virgili, Reus, Spain

* Corresponding author.

E-mail address: marenas@grupsagessa.com (M. Arenas)

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