



Can Robots Replace a Living Person in Medicine?

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ABSTRACT

Various types of medical robots are already performing a wide range of tasks, but even in the future, when machines become more sophisticated, they can hardly be completely trusted to make important decisions. It seems that complex manipulations independently carried out by robotic devices will also be controlled by humans. Consider how robotic assistants affect the level of development of medicine [1].

Keywords:

Equipment, Facilities, Opportunity, Experience, Arguments, Assistants, Responsible.

Relevance:

Medicine has been hugely developed owing to the technological breakthrough. The operations that presumed to be impossible become a routine. Such progress in medicine is determined by many factors. First of all, modern operation rooms have better facilities and equipment, allowing to perform precise and fragile manipulation over human's body with the lowest risk range. Secondly, technologies have modified educational methods, internet gave opportunity for instance contact, and informational exchange, so doctors can find any necessary information and can share their

experience between each other, which naturally leads to the skill improvement.

But the fear of technology is there, in issues from artificial intelligence taking the place of radiologists, robots surpassing surgeons' skills to taking jobs in pharma [2].

Materials and methods:

To find materials for this article in the databases of sites like: Robo-Sapiens.ru, RB.RU, medicalfuturist.com a keyword search was performed and scientific papers published over the past 10 years were taken.



Results:

Nowadays there is a talk that soon robots will replace doctors in some areas, but I do not believe and do not consider it as reason to talk about some really perspectives. The facts and arguments for my opinion will be described below.

However, as a future doctor I believe that in the current situation a robot cannot replace a specialist. Machines cannot work independently, the loose of conscious make them indifferent to the living organism while a doctor have a strong mental connection with patient and sometimes cares about his health more than own. Another problem of digitalization of medicine is quality of treatment, for example, when a person have two diseases, then the symptoms can overlap and in such cases, it will be very difficult for a simple robot algorithm to make a diagnosis so intuition and experience of alive doctor will overwhelm all advantages of machine. Moreover it is noteworthy to mention that price of digital doctors can be a heavy burden for budget. Another aspect is a people's fear and superstitions; it will take decades before society will get to be tolerant to inanimate creatures. Especially in such sensitive field as medicine. According to the doctors' experience, patients with great difficulty and shyness describe their general condition and complains, that is why the experience of a specialist as a psychologist is needed, which is what all medical students taught. Tested by the research that patients often really need the support of a doctors' authority, to recover or endure their illness. Standard methods of treatment often require changes, and sometimes very significant ones, and a simple enumeration of options is not enough, in other words, robots are not able to improvise. Finally, implementation of such improvement requires reliable digital basement, whereas the poor or developing countries still relies on bureaucracy, and the involvement of computers are minimal.

Meanwhile, technologies can be good assistants for making diagnosis, and completing repetitive actions like filling the blanks, or checking medical cards. In many countries, they

have been found useful in this area. An example of it is experience of Russian doctors in Yamal and Muravlenko districts. Artificial intelligence analyzed more than 30,000 medical cards and helped doctors to determine the category of mostly vulnerable patients with probable infarct and apoplexy. Moreover, when the doctors on duty had to sleep, the AI started monitoring patients. Computers were very successful in analyzing of x-ray and tomography. Peoples' cognitive resources are limited and they can lose concentration after some time, while machines always on the top of their productivity. Modern digital gadgets is another representation of technologies involved in healthcare. Smartphones, watches and many other devices can check our pulse, count calories, analyze them and provide statistically useful data for doctors, and such information is priceless in making right decisions. Some people go farther and use devices as "Oura" ring, to track their sleep. This ring can check the phase of sleep the user currently in, and provide analytical data. It helps people to maintain this important activity in stable way. The web-applications can store the data about medical history and provide visual representation of illness cases. It is not only decreases the load on hospital servers, but also makes people to be more responsible with their health, since they can always watch every case of illness.

The good example of robots assistance is a case discovered in research of Shinas College of Technology. The robot helped doctors to perform operation on open heart. It consisted of surgical instruments, three-dimensional camera and modern sensor system, under the control of special AI. This features allowed doctor to see in real time everything in smallest detail, and to protect small vessels and nerves. Of course, robots could not do anything on its own, everything was controlled by the surgeon. The operation finished well, nonetheless surgeon complained about flexibility and speed of robot, but appreciated its accuracy and ability to show tiny details, which could be impossible with human's vision. In addition, smaller size of instruments allow to make less wound on patient's body that means smaller scar and

faster recover, and make less pain and risk of infection. But this is not an extreme view, of course. While I do say that AI won't replace doctors, I do not mean there will no presence of AI in the healthcare industry. There will be 100% presence of AI and not just in healthcare but everywhere. AI will be used in preliminary diagnosis and consultation while the final call will be of the human expert, it will be used in

data crunching and report analysis, it will be employed to do surgeries where the task is straightforward, but extremely intricate like pulling out a bullet. AI will be like a PA to the doctor so that she can cut through the mundane, repetitive work and dedicate her time to complex problem solving. So while AI will change 100% jobs of the doctors, it will not replace doctors [3].



Overall, from above information we can see following facts:

1. Robots are controlled by humans.
2. Robotic surgery means smaller and fewer scars.
3. Robots make operation less painful and enhances recovery.
4. Robotic surgery results in a much faster recovery period.
5. Robots is expensive device
6. Robots never tire.
7. Robots scare people.

Conclusion:

To summarize all above mentioned, none kind of technologies can replace human doctors in upcoming future, since the occupation requires intuition, ability for adaptation, and

feeling of responsibility, nonetheless they can be irreplaceable assistants which helps to make more accurate decision. This features allowed doctor to see in real time everything in smallest detail, and to protect small vessels and nerves.

Literature:

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