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Civil Liability For Medical Robot Damages According To Artificial Intelligence Applications

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Abstract

This study dealt with the shortcomings of legislation in covering the legal aspects related to medical robot use and the absence of legal regulation of legal developments related to the artificial intelligence applications used in medical work. The use of artificial intelligence in various fields of life, especially the focus of our discussion with medical work and medical devices specialized in performing complex surgical operations. Despite the benefit achieved from it and the welfare it provides to humans, however, it is not devoid of the harm that it can cause to a person if it goes beyond his control and direction. Therefore, we need to compensate those who were harmed by the actions of these robots, however, this issue of compensation within the framework of legal legislation is not easy for the injured, which will face a specific problem, the content of this issue is to determine the person responsible for the damage caused by the robot and what is the position of the Jordanian legislation on the artificial intelligence applications use in the medical fields.

Keywords: *Artificial intelligence techniques, Medical robot, Contractual responsibility, Tortious liability, Objective responsibility.*

Introduction

The artificial intelligence revolution was truly discovered in 1956 at the Dartmouth Conference, which was organized in the United States of America, which marked the true birth of artificial intelligence. Artificial intelligence is computer systems that have the ability to perform the same tasks required of a human being, b[1]ut faster, it is based on simulating human intelligence in machines programmed to think like humans and imitate their actions, so that these machines have the ability to take the necessary actions on their own without interference from the human element, and the goals of artificial intelligence include learning, reasoning.

In fact, artificial intelligence has produced many applications in practice, the most important of which are robots, drones, and the robot doctor, despite the many benefits of artificial intelligence, it has revealed its other harmful aspects, in particular robots and driverless cars, where it causes damage to others as a result of its work, whether these

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physical damages fall on the soul, money, or moral, including harm to a non-financial interest of a person, such as hurting his feelings.

The doctor robot caused a qualitative shift in treatment and was approved by the US Food and Drug Administration (FDA) for use in several categories of operations and was used in 80% of radical prostatectomy operations in the USA in 2008. In 1979, the American Robotics Institute defined a robot as a multifunctional, reprogrammable manipulator designed to move materials, parts, tools, and other specialized devices through various programmed movements to perform a variety of tasks.

The importance of the research is centered on the statement of the legislation shortcomings to cover the legal aspects related to the doctor robot use and the absence of legal regulation of legal developments related to the artificial intelligence applications used in medical work.

The importance of the research lies in the novelty of the topic, as it talks about the topics of artificial intelligence and its importance in this era. We will try to find a legal basis for using a medical robot to protect the health of patients and users of this robot and to establish sound legal foundations related to civil liability resulting from the use of medical robots, control over them, and protect the privacy of patients and beneficiaries of health care robots.

The research goals are to clarify the legal systems that Jordanian legislation should have, and we will review the current legal system to find out the legislative shortcomings related to the use of artificial intelligence techniques in medical work. From this problem the following questions branch out:

1. Are there legal guarantees that guarantee patient privacy and confidentiality when monitored and supervised through the doctor robot?
2. Is there a special legal system that guarantees the responsibility of the doctor robot for medical errors and is there compensation for this medical error?
3. What is the position of the Jordanian legislation on the use of artificial intelligence applications in the medical field?

Research Methodology

The researcher adopted the descriptive and analytical methods, as well as the comparative method at the time, to indicate the legal problems raised by artificial intelligence applications in the medical field to reach legal results.

Research plan:

The researcher divided into:

First topic: Legal nature of the medical robot. **Second topic**: Basis of civil liability for damages to the medical robot.

First topic: Legal Nature of the Medical Robot

Responsibility for medical error arises when professionals fail to take the care required of them in their profession which the patients hope to receive to the fullest, when they commit a medical error that they should have avoided, with the scientific and technological progress and the emergence of modern devices, technologies and medical robots, one of the factors that have promoted the doctors' occurrence with various medical errors and this leads to their responsibility for this damage, and these obligations differ according to the type of obligation between the doctor and the patient.

To explain the responsibility arising from the damages of the medical robot, we must research the legal nature of civil liability for medical error in Jordanian civil law, and then

drop it on the medical robot to determine the nature of this responsibility, and therefore we will talk in this topic about the legal nature of medical liability arising from the damage caused by medical robots:

First requirement: Contractual medical liability of the medical robot

Second requirement: is the tort medical liability of the medical robot

F**irst requirement:** Contractual Medical Responsibility: In the beginning, the doctor-patient relationship is a human relationship first, and the doctor is bound to the patient by a contract based on a prior agreement between them. The French judiciary has decided that the nature of the doctor-patient relationship is a contractual relationship, and the patient's obligation to pay the fee to the doctor is a contractual obligation (Saad, 1983).

Contractual responsibility is the penalty for breach of an obligation arising from the contract, and this requires the existence of a contract between the two parties and that this contract be valid and fulfill all of its elements of consent, subject, and reason. If one of the contracting parties breaches what he is obligated to do under the contract and the breach of this contractual obligation results in harm to the other party, this breach is called a contractual error (Al-Sarhan and Khater, 1997).

The French Court of Cassation established this approach in its decision issued on May 20, 1936, in which it considered the doctor's responsibility for the damages caused to the patient a contractual responsibility. The facts of the case were related to a woman suffering from a nasal disease, so she visited a doctor for treatment. The doctor treated her using X-rays, which led to her suffering from a facial muscle disease, she filed a lawsuit against the doctor demanding compensation on the basis that the illness that befell her resulted from the doctor's direct use of X-rays. The court decided that the relationship between the doctor and the patient is a contractual relationship that results in the doctor's obligation-not to heal his patient- but to provide the care imposed on him by the medical profession (The ruling of the French Court of Cassation (Civil Circuit) on 5/20/1936).

Also the decisions of the French Court of Cassation, a decision that the relationship between the patient and the doctor is considered a contractual relationship, therefore, the doctor's obligation to the patient is a contractual obligation, and therefore his mistake is contractual, and this is by not fulfilling his obligation to the contract, and this is confirmed by the court by saying, " a real contract arises between the doctor and his client ..., "the violation, even if unintentionally, of this contractual obligation results in responsibility of the same nature, which is contractual responsibility." (Abbas Kareem, Iman (2022).

The presence of the doctor's information on his website or the signboard at his office in terms of his name, specialty, and certificates, here he is in the case of an invitation to contract, and the doctor's approval of a treatment for the patient is considered his acceptance of approving the contract, accordingly, any breach or error in the contract caused by the doctor results in contractual responsibility on him (Al-Hayari Ahmed). The focus of our discussion here is if the doctor is a medical robot and caused the damage. What is the contractual responsibility on him in this case?

To begin with, such a thing in European countries, if the robot does not comply with the terms and conditions agreed upon in the medical contract, then contractual responsibility is based because the robot's performance was not as agreed in the contract.

I believe that such a matter is subject to consideration because applying contractual responsibility to a medical robot is insufficient to confront the damage caused by such robots, and the contractual responsibility is directed to the doctor, who can evade his responsibility on the grounds that the damage is due to a reason for which he is not responsible, and that robot may have acted for a reason outside the programming, and thus this makes It difficult for the patient to obtain compensation.

It must also be noted that one of the doctor's duties is to inform the patient of the nature of his illness, how to treat him, what are the means of treatment, and the potential risks if the treatment requires surgical operations. Otherwise, the doctor will be responsible even if he did not commit an error while performing his work, the patient must also be informed of the existence of a medical robot to perform surgical operations, and the patient's consent must be given to this. The patient's lack of knowledge of how the robot works constitutes a breach of the contractual obligation between them (Zainab, 2021). The Jordanian legislator did not allocate special provisions to regulate responsibility arising from artificial intelligence damages, as the legal regulation of contractual responsibility can be determined by the relationship between the manufacturer or programmer on the one hand and the user on the other.

We also find that the nature of contractual responsibility arising from artificial intelligence technologies may be based on the Jordanian Consumer Protection Law No. (7) of 2017, which in turn guarantees the consumer the hidden defects that appear in artificial intelligence technology.

Second requirement: Tortious Liability for Medical Robot: The medical error within the framework of civil liability arose negligently, based on the negligence of the doctor, this is what the old French judiciary went for, which established the doctor's responsibility on Articles 1382 and 1383 of the French Civil Law and ruled that they apply to any error of any person who causes harm to others, regardless of the status or profession of the perpetrator, and there is no exception in this regard for the benefit of doctors (Ruling of the French Court of Cassation, November 29, 1920, Daluz Magazine), and based on this approach, according to what was prevailing in the French judiciary, if the patient suffers harm during treatment or as a result of the doctor's error in the diagnosis, then the patient must prove the doctor's error and the causal relationship between this error and the harm suffered. (Sara Al arasi, Ali Al jabrah ,(2023) Legal problems of the Intervention of Artificial Inteeligence in the Medical Filed: Obligations and Challenges).

Article 256 of Jordanian Civil Law No. 43 of 1976 stipulates that: "any damage to others obliges the perpetrator to compensate, even if it is not distinguished." The application of the theory of damages in Jordanian Civil Law requires a guarantee as soon as the damage is verified, also article 163/1 of the Egyptian civil Law stipulates that: "every error caused harm to others, which obliges those who committed it to compensate," and thus identified the element of error as the basis for tortious liability.

Therefore, the doctor's tortious liability is defined as the penalty incurred by the doctor as a result of his breach of a legal obligation, which is an obligation that imposes no harm to others and is expressed by illegal error and the criterion of deviation in one's behavior and actions from the side of prudence and caution and from taking the necessary care of the patient (Shaqfa, 1979).

It is agreed upon in jurisprudence that the medical principles in the science of medicine are those principles that are established and known among the family of doctors, theoretically and scientifically, and which the doctor must be familiar with at the time of carrying out medical work, given that medicine is constantly developing and jurisprudence has clarified the necessity of taking into account personal, temporal and spatial circumstances at the time of performing medical work, due to the psychological, economic and social conditions, there is a need to use the latest technical means and methods in medical science, as it is difficult, for example, to compare a doctor in a developing country with another in a developed country (Abdullah Muhammad,1987).

For the injured person to obtain compensation according to tortious liability, it is necessary to prove the fault, the damage, and the causal relationship between them, this can be applied to the person responsible for damages resulting from the use of medical robots, for example, if the doctor relied on the Clinical Decision Support Program supported by artificial

intelligence to prescribe medication, and the program issued an erroneous recommendation that could have been noticed and ignored by a specialist, here it is possible to hold the doctor accountable for the resulting damage and injuries expected to occur to the patient (Muhammad Abdul Razzaq, 2020).

According to the general rules, a person is not only responsible for his actions, but also for the things that are under his guard and these things require special care, if these objects cause damage, the person who guards them is responsible for compensating for the damage caused by it, and in the case of medical robots, it is sometimes difficult to determine who is the person responsible for them, is it the doctor, the supervisor, the hospital, the manufacturer or the programmer. Jurisprudence agrees that responsibility is limited to the person who has actual custody of the thing, this is not achieved in the field of autonomous robots based on artificial intelligence, because that conflicts with the guardian's authority to control them (AlDwekat nasri , 2022)

In addition, the Jordanian legislator has regulated the rules of responsibility for things in articles (289-291) of the Jordanian civil law, article (291) stipulates that: "Anyone who has at his disposal things that require special care to prevent damage or mechanical machines, shall be liable for the damage caused by these things, except for what cannot be avoided, without prejudice to the special provisions contained therein."

In application of this, the Jordanian Court of Cassation ruled that: "Responsibility under the provisions of article (291) is a presumed, but it can be proved to the contrary, and Responsibility can be eliminated if it is proved that the damage could not have been prevented.

An example of this is the case of a person named (Thomas) against the company that manufactured the Da Vinci robot in 2011. During surgery using the robot, the plaintiff suffered damage to the colon and filed a lawsuit against the manufacturer on the grounds of negligence and recklessness in the design, manufacturing, planning and maintenance of the Da Vinci robot, however, the court rejected the lawsuit due to a lack of evidence and the failure to prove the company's fault.

From this example, I see that the issue of proving the error of the manufacturer or hospital that uses the medical robot and proving the causal relationship between the error and the harm that befalls the patient constitutes a fundamental obstacle facing patients, the matter becomes more complicated the more independence the robot has, and therefore it will lead to the reluctance of patients to accept surgical procedures by robot. This will negatively reflect on the development of the industry in the medical field.

Based on the above, if the conditions mentioned in Guardian of things and Machines are met, tortious liability arises for the application of artificial intelligence techniques, for example, if a robot used to perform surgeries causes some harm to a patient, the person who bears responsibility is the person who has actual authority over him, thus, the person responsible may be the doctor(user) or the owner of the hospital, the manufacturer, the programmer or it may be any person who has actual authority over the robot unless he can pay for himself responsibility by proving one of the means of defense.

Second topic: Basis of Civil Liability for Damage to a Medical Robot

The responsibility arising from the intervention of artificial intelligence in the medical field takes on a new dimension that differs from the traditional responsibility resulting from human activity, it should be noted that medical robots and other artificial intelligence technologies used in the medical field raise many legal issues, which concerns the ethical and social aspects and the responsibility resulting from the use of this technology in the medical field. The question arises here whether the currently applied civil liability rules are sufficient to compensate for the damage caused by the use of artificial intelligence

technologies. Or does it need to develop new rules that are suitable for artificial intelligence systems in particular? Therefore, I will divide this topic into two requirements.

First requirement: Traditional theories of the basis of medical robot responsibility

Second requirement: Modern theories of the basis of medical robot responsibility

First requirement: Traditional theories of the basis of medical robot responsibility: So far, there are no autonomous medical robots that are absolutely self-controlling, and this Indicates the lack of awareness and awareness of these technologies, therefore, there is no room to talk about his own legal responsibility, and therefore artificial intelligence technologies in the medical field are still subject to the rule of things, and this is the viewpoint of the majority of jurisprudence, the Egyptian legislator and the French legislator, therefore, it is currently subject to the civil liability rules applied to compensate for damages resulting from the use of artificial intelligence technologies.

However, it may be a responsibility for defective products or personal responsibility within the scope of errors issued by doctors and it may be a responsibility for doing things, and we will divide this requirement into three branches:

Section I: Responsibility for Defective Products, Section II: Responsibility for doing things, and Section III: Personal responsibility for doctors' errors

Section I: Responsibility for Defective Products: Some jurists see the possibility of basing responsibility for damage caused by robots on the responsibility for defective products theory, the European legislator introduced this theory under Directive No. 374/85 in 1985 regarding responsibility for defective products, it means that responsibility is determined by law and is based on insufficient safety and security standards in the products (Risso G. 2019), that is, the manufacturer is responsible for the damage caused by the defect in the product.

But the application of product responsibility to artificial intelligence robots faces many challenges because it cannot be controlled due to its evolving characteristics, due to autonomy and self-learning (Bertsia C., 2019). However, it is difficult for the plaintiff to prove the existence of a defect in the robot, and it is not easy to determine who the manufacturer is due to the multiplicity of parties involved in the development of robots, therefore, cases will arise that cannot be compensated by responsibility for defective products (Čerka P. et al., 2015).

In my opinion, applying objective responsibility to robots in their current state is very difficult, because the defect of the product cannot be determined in situations where the damage occurs as a result of behavior learned by the robot, this requires a reconsideration of the product responsibility rules to suit the specificity of artificial intelligence and medical robotics, considering that medical robots are dangerous devices.

Section II: Responsibility for doing things: Some jurists confirm that responsibility for doing the things stipulated in Article 1242 of the French Civil Law is proportional to civil liability for damages resulting from the work of artificial Intelligence techniques, therefore, the smart robot guard is legally responsible for the damage it causes to others, this article corresponds to article 291 of the Jordanian civil Law, which states: "anyone who has at his disposal things that require special care to prevent their damage or mechanical machines – shall be a guarantor of the damage caused by these things except what cannot be avoided, this is without prejudice to the special provisions contained therein", to apply this responsibility, it is necessary that the thing does a positive act to cause the damage , and the causal relationship between the act and the damage must be proved, and the burden of proof is on the injured person.

To talk about responsibility for things in the field of medical robotics, we find the doctor's responsibility for the use of medical tools, devices, and means of protection, as a special application of responsibility for things, whereas, due to the increase in the use of medical devices and their dangers, legislation and the judiciary tended to expand the interpretation of Responsibility provisions, and this had a clear impact on the scope of medical liability as a result of the machine's clear and tangible interference with medical treatment, so the patient may suffer damage as a result of using such medical devices, including medical robots.

The doctor is committed to using the necessary medical tools and equipment to diagnose and treat the patient with full vigilance and attention in accordance with recognized medical principles. The Western judiciary recognizes the doctor's obligation to ensure that patients are safe from damage that may result from the use of these tools and devices, and the damages arise as a result of a defect or malfunction in medical devices or tools, or as a result of the doctor's misuse of these devices (Assaf Wael, 2008).

Some jurists pointed out the difficulties that arise when applying this responsibility to guard non-material things, artificial intelligence may be represented by a material or non-material embodiment, and the principle of responsibility for things does not distinguish between material and non-material things.

This responsibility also faces difficulty in identifying the guard over artificial intelligence technologies, as the judiciary defines the guard as the person who has the right to use, direct, and monitor.

Also, one of the difficulties facing the application of the responsibility of the things guard to artificial intelligence is that artificial intelligence technologies have a great deal of self-learning and independence, and that its actions are not predetermined through electronic programs, which restricts the user's control over it.

Some authors add that the idea of responsibility for doing something, can be applied to the damage of artificial intelligence technologies, as long as the user can direct or turn off the machine, and this applies to a smart robot that remains under the control of the user, who has the authority to use, direct and control, and thus has the ability to prevent damage from occurring, and has the capacity of guardian of things (Ahmed Al-Maadawi, 2021).

Section III: Personal responsibility for doctors' errors: In the field of personal responsibility, it is necessary to prove the error, damage, and the causal relationship between them, it must be proved that the user made an error in the use, or that the product made an error in programming the robot, regardless of whether it was intentional or unintentional, as the danger lies in the difficulty of proof, as well as whether the error was on the part of the smart robot in making a decision without the existence of a disputed act on the part of the owner, user or producer, therefore, responsibility based on personal error cannot be applied (Mohamed Mohamed).

The error can be searched for by looking for some modern standards, which are the complexity of the system and the degree of its assistance in decision-making, as well as the possibility of intervention allowed to the user.

Concerning establishing responsibility based on unintentional error, negligence or lack of foresight is sufficient, and this error consists in not anticipating the occurrence of damage or bearing its risks if it was expected to occur, and then negligence on the part of the user or owner is sufficient for responsibility to arise. Establishing evidence of negligence and lack of foresight is difficult, given that the use of artificial intelligence techniques or allowing its use, which is incomplete, is rarely considered negligence in itself, it has become certain that all electronic programs include defects that lead to causing damage if faced with any new situations, and it is not easy to assume negligence in programming or censorship just because of the damage to others (Ramadan Muhammad).

However, it seems to be a great difficult in this type of responsibility, because some artificial intelligence technologies are characterized by deep learning and independence in making decisions, they mimic the human mind, and this would restrict the role of people in controlling this type of artificial intelligence technology (Muhammad Muhammad).

Finally, it should be noted that if the doctor does not comply with the diagnosis of artificial intelligence systems, because it seems clear to him that this poses a danger to the patient's health, is it necessary for the doctor to be solely responsible for using the program if it becomes clear to him that it is harmful to the patient's health? Is it possible to access the mechanism of all or part of the medical decision, while determining the responsibility of doctors when they reject the predictions of artificial intelligence techniques?

The researcher's opinion : In my opinion, all the traditional theories that we have presented do not face the harm that can arise from an autonomous medical robot, Because it does not directly determine who is the person responsible for the damage that may occur from the smart robot independently, mostly from the human side, and if you take into account the nature of these smart robots, which affects the establishment of civil liability for the damages resulting from them, and in which the artificial intelligence element may overlap with the human intelligence element, it should not remain this way, but rather it needs legislative amendments in order to accommodate the damages that may arise from the smart robot and to be a basis for compensation for civil liability for those damages. For example, if we replace the idea of guarding in its traditional sense with the idea of the ability to program or operate the system and modify its data, and what is best and in the interest of the injured is to make the responsibility for the damage of smart robots an objective responsibility without requiring proof of fault, in order to avoid the difficulties that the injured person may face in proving the fault and making the responsibility here fall on the shoulders of a group of people who contributed to the existence of this system and its operation and the damage was achieved as a result, also we should point out that there are other difficulties that lie in the penetration of smart systems and programs by third parties, and here the question arises who is responsible for compensating the damage caused to those affected as a result of this hack, as well as cases in which the robot Itself is stolen. Therefore, legislative amendments must be made to traditional theories so that they become able to absorb modern technological changes and the damage they cause, which in their current state they are unable to cope. Therefore, it is necessary to address modern theories, as part of modern jurisprudence has taken into account them, and they will be discussed in the second topic.

Second requirement: Modern theories of the basis of medical robot responsibility: The European legislator has adopted the theory of the human deputy responsible for compensating for the damage caused by the robot, it also directed the Civil Law Rules Committee on robotics, when conducting a review of this legislation in the future, to study the issue of recognizing the legal personality of a robot when new generations appear capable of thinking, learning and making decisions independently, therefore, we will divide this requirement into two branches, the theory of the human deputy in the first branch, and the robot has a legal personality in the future in the second branch.

The first branch: Theory of the human deputy**:** The European legislator has recently created under the civil law on robotics issued on February 16, 2017, a new theory of the basis of civil liability for damage caused by a robot that is consistent with the increasing autonomy of the robot and its ability to self-learn, make decisions and interact with the environment, and they launched the theory of the human Deputy, through which responsibility is placed on a group of people according to the extent of their error and negligence, whether by manufacturing, exploitation or negligence in avoiding the expected actions that may be issued by the robot (Al Muhairi Nabila, 2020).

The theory of the human deputy is based on the fact that humans represent robots and intelligent systems on a supposed legal behalf. The errors of the robots are borne by the

human deputy with the force of law, and he undertakes to compensate those affected for the errors resulting from the operation or management of the robots. Here we are facing a new legal system according to which traditional theories cannot cope with the development of robots.

The responsibility according to the theory of the human deputy differs from the responsibility for guarding things, as it is not an assumed responsibility, but it must be done to prove the error or negligence of the human deputy. It also differs from the responsibility of the leader for the errors of his subordinate, because the leader has full supervision over a person who has legal capacity, and the leader can have recourse against the subordinate according to the dependency relationship, while the human deputy is responsible because it cannot be carried out on a robot at present (Al-Qusi Hammam, 2018).

In my opinion, for the responsibility of the human deputy to be established for the damages of the smart robot, the injured person must prove the damage, the error, and the causal relationship between them, this is because the responsibility of the deputy is not assumed, and this will lead to wasting the time of the injured, as it is difficult for them to prove the elements of responsibility since it is how an ordinary person can prove the defect and error of a smart robot, therefore responsibility should be assumed, and the independence of the robot is not considered a reason to deny responsibility.

Second branch: Robot has a legal personality in the future: The technological development of robots and artificial intelligence systems has made it difficult to apply traditional civil liability rules, for this reason, some have suggested that smart robots should be granted legal personality, and then they will have an independent financial responsibility through which the injured will be compensated.

To determine a legal basis for responsibility for damages caused by smart robots, it has been suggested that they be granted legal personality. This proposal was not agreed by everyone, including those who opposed and those who agreed. As for those who agreed with this proposal to grant robots legal personality, they agreed with the same considerations in which legal personality is granted to legal persons since legal persons have been granted this legal personality to achieve a certain interest and its will is expressed through its deputies. As well as smart robots, the public interest requires granting it legal personality, it is not like traditional things (Al-Khatib Muhammad, 2019). There is no doubt that the legal personality that will be granted to robots in the future will be within the framework of a set of specific controls for the legal existence of this personality, in the way which it can be argued that there is a legal responsibility that can fall on the robot as a result of Its work, while many legal aspects relating to robots remain questionable, particularly with regard to rights related to fundamental freedoms, Aa the rules of European law did not address them, although it is possible to imagine implicit acknowledgment of some of them, while the rest of the rights are related to the cognitive aspects that are related to the mental sense, we cannot say that a robot can have the right to demand them – at least for now (Al-Khatib Muhammad, 2019).

In conclusion, these texts may raise a problem when it comes to the responsibility of the medical robot, Whereas, if the medical robot deviates from the instructions given to it and acts based on its ability to make decisions independently in violation of recognized medical principles, despite the responsible doctor taking the necessary care and caution. The fact that the robot's action represents a force majeure, a external cause, or a sudden accident that the doctor cannot ask about according to the previous texts, the robot’s independence in action lies in the causal relationship between the doctor’s error and the harm caused to the patient, especially since the doctor cannot ask about technological matters related to the robot. If the researcher considers that the action of the autonomous robot represents a external cause, and therefore medical liability is not established based on the previous texts, so the affected patient will remain at risk of not receiving compensation for the damage he suffered based on the rules of medical responsibility, Although it is possible to consult the

manufacturer, the patient loses his right to receive the benefits and facilities provided by the patient's Medical Liability Law.

In my opinion, the solution to this problem is that the doctor's obligation to use a medical robot is an obligation to achieve a result and not to make a careful, then the doctor is obliged to ensure any damage that occurs as a result of the action of the medical robot, even if the doctor takes the necessary care.

Results

1. The robot cannot acquire legal personality – that is, it cannot be considered a natural or even a legal person – nor does it have legal capacity, as a result of which it cannot be considered a subordinate, this means that the owner of the robot can be held accountable for the actions of his subordinates who direct or program it, on the basis that the subordinate is not responsible for damages as a guardian of the thing.
2. Medical robots are one of the latest artificial intelligence applications in the health field, as they provide many advantages and facilities for patients and doctors as well, but it is not devoid of impurities that could threaten the health of patients.
3. It is still difficult to determine the legal basis on which responsibility for medical robots is based, since all traditional and modern theories of establishing responsibility have some flaws when applied to medical robots, and this is the result of the characteristics of development, independence and the ability to make decisions independently by robots.
4. The doctor's responsibility for the medical robot may be contractual or negligence liability, due to the nature of the doctor's responsibility who uses the medical robot.

Conclusion

The success of the general rules of civil liability in absorbing damages caused by errors from a medical robot or in general caused by the actions of artificial intelligence will be achieved only if these causes are traditional causes of damage, or to determine who is the person responsible for this damage resulting from the actions of artificial intelligence and attribute the damage to him, whereas the current system of civil liability for doing something was designed for material acts, and the actions of artificial intelligence are not material acts, even if we consider that these actions are material, the standard of guarding will remain an obstacle to the implementation of this system.

The success of the injured person in proving that the harm occurred as a result of an independent, autonomous act of artificial intelligence depends on its success in proving that there is no direct human intervention in this process, that is, if a human element intervenes, this leads to the absence of objective responsibility, which is direct interference in causing the damage.

Recommendations:

1. Necessity of establishing special guarantee funds to compensate for the damage resulting from artificial intelligence incidents, involving all actors on this sector, from design and manufacturing companies and companies that sell or support such activity, as well as the users of these activities, such as doctors, to ensure that the injured receive compensation, ensure the sustainability of this activity and support their financial suitability.
2. Explicitly stipulate that the doctor's obligation to use medical instruments and devices, including medical robots, in a way that does not cause harm to the patient is an obligation to achieve a result and not to provide care.
3. Jordanian legislators should codify special provisions regulating civil liability arising from the use of artificial intelligence technologies.
4. Holding training courses for doctors and nurses on how to use medical robots and qualifying them as a first step towards the use of medical robots.

5. Amending the rules of liability for a harmful act to become able to accommodate artificial intelligence techniques in accordance with article 291 of the Jordanian civil law.

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