

# **FUTURISTIC TRENDS IN MEDICINE**

As a result of the constant evolution that the healthcare system is undergoing, it is essential to have a solid understanding of the tendencies that are developing in the medical field for the foreseeable future. It contributes to expanding our medical knowledge and capabilities, which in turn enables us to contribute to the improvement of mankind effectively. Over the course of the past few years, the discipline of medical sciences has been the site of a significant number of important discoveries and advancements all over the board. One example that can be pointed out is the development of the vaccine for covid 19. It had been instrumental in preventing the loss of millions of lives worldwide and had significantly contributed to the alleviation of the widespread panic that had been occurring at the time. In this chapter, few of the emerging tendencies that we see in the future of modern medicine will be discussed.

## **TELECONSULTATIONS**

Due to the COVID-19 pandemic, the use of teleconsultation has tremendously increased, which serves as an excellent example of this point. The use of teleconsultation has increased worldwide as a measure to ensure safe distancing between individuals and, as a result, control the infectiousness of the disease. Teleconsultation is a measure to ensure safe distancing between individuals. It had helped in gaining access to health care by the common man in an easy manner, bypassing the requirement of waiting for long hours in the hospital for a visit to the doctor. It was helpful in providing health care evaluations in the comfort of one's own home. Its use might be restricted due to modern technology and a lack of access to adequate internet services, both of which might not be available in all regions. More research needs to be done to determine how the use of teleconsultation might disrupt the normal working relationship that exists between a physician and a patient.

## **AT-HOME LABS**

Another factor contributing to the overall upward trend is the proliferation of at-home labs. It makes it possible for people, particularly those who are unable to move around easily or who are elderly, to have their home lab work done in the convenience of their own homes. Not only does it make the patient feel more at ease, but it also helps lower their risk of contracting nosocomial infections, which are infections that can be acquired as a result of being exposed to hospitals. Even if there is an increase in expenses due to the use of at-home labs, the benefits to the medical industry are substantial.

## **3D PRESCRIPTION OF MEDICATION**

In addition, 3D-printed medicines have been developed over the past six years. It has various uses, one of which is to improve bioavailability. However, only a limited number of 3D prescriptions for various medications have been developed so far.

## **IMAGING GUIDED BY ARTIFICIAL INTELLIGENCE**

The current state of technology has progressed to the point where it contributes to effective diagnostic and confirmatory imaging with minimal reliance on professional acuity. This is possible by the use of artificial intelligence. It assists professionals in the medical field who

have limited knowledge and skills in providing accurate diagnostics, contributing to the improvement of health care.

### **ROBOTIC ASSISTED SURGERY**

It makes it possible for multiple surgeons located in different locations to perform procedures using telesurgery. It is appropriately referred to as robotic-assisted surgery, and it involves the attachment of surgical instruments to the robotic arms, which are then controlled by the operating surgeon and not by the robot itself. It paves the start of a completely new era in the field of surgery. In today's world, an increasing number of surgeons are gaining expertise in this field. It is without a doubt that additional development and accessibility to this area will be a landmark achievement in the field of surgery and, consequently, health care.

### **INJURIES TO THE SPINAL CORD**

These days, surgical implanters are utilized to treat spinal cord injuries. These implanters stimulate the limbs by going around the damaged portion of the spinal cord. Not only does it contribute to the development of medicine, but it also helps patients maintain their independence, which is an essential component of patient autonomy. The inability to walk is the primary source of discomfort for patients who have suffered spinal cord injuries. Whether the injuries were caused by a traumatic fall from a height, a severe motor vehicle accident or one of several different types of neurological or immunological diseases that adversely affect the spinal cord, the inability to walk is the primary source of discomfort for these patients. It has a profound impact on the patient's capacity for self-reliance and independence. As a result, the recent developments in this area have resulted in a remarkable innovation that has caused a significant change in the life for patients. Not only does this aid in preserving the patient's autonomy, but it also assists in minimizing the risk of additional complications brought on by the inability to walk. These include the development of pressure ulcers, chronic wounds that do not heal, and complications resulting from secondary infections caused by them, among others. Not only does it contribute to the patient's distress and contribute to more difficulty in their lives, but it also worsens the patients' disease course and their prognosis. For instance, sepsis brought on by a secondary infection of the wounds can even bring about the patient's death if left untreated. As a result, the development of these surgical implanters constitutes a significant advancement in the field of research due to the influence it has on the everyday lives of participants in studies. However, there will always be questions raised, particularly concerning the cost, because it may be out of reach for many people who are unable to afford it.

### **IMMUNOTHERAPY FOR CANCER**

The development of immunotherapy has demonstrated a remarkable impact on the field of treatment for so-called incurable cancer. In modern cancer immunotherapy, the use of antibodies directed against cancer cells is becoming an increasingly common practice. However, immunotherapy, in which antibodies are used to target and destroy ever-multiplying cancer cells, has been a significant move against cancer. This perception that cancer is an incurable disease is largely to blame for the anxiety that it causes in patients. This anxiety is especially prevalent in those who have advanced stages of the disease. Different antibodies work in different manners. Although there are antibodies that

can directly target cancer cells and kill or destroy them, or change them in such a way that they become dysfunctional and stop multiplying, there are also a variety of other interesting and distinctive ways that antibodies can exert their effects. For example, some antibodies bind to cancer cells and modify them in such a way that makes it simple for human antibody cells to recognize and target them for destruction. This makes it likely that the cancer cells will be eradicated. The application of immunology, in particular in the field of cancer treatment, has been a remarkable step forward in both the management and treatment of the disease. This is true regardless of the mechanism involved and the way it operates within our bodies.

## **GENETIC THERAPY**

Using genes to detect abnormal cells, diagnose the disease, and even treat the disease has led to a remarkable contribution to many life-threatening and previously incurable diseases. One such disease is cystic fibrosis. In the field of gene therapy, the application of viral vectors, gene editing, and RNA interference have all had an important impact on the field. It has significantly altered the prognosis of diseases that were previously incurable in a variety of aspects, such as neurological (like Huntington's disease, Parkinsonism, Alzheimers disease), musculoskeletal genetic disease (like Pompe disease, Duchenne musculodystrophy, Myotonic musculodystrophy), and dermatological diseases (like pemphigus vulgaris, bullous pemphigoid, dermatitis herpetiformis), to name a few. The primary advantage of gene therapy is that it can modify, on a cellular or molecular level, the pathological mechanisms that are responsible for the disease. Different genetic therapies are applied in such a way that they either directly eliminate or damage the pathological gene that is the root cause of the disease, or they either replace a gene that is absent or makes a gene that is dysfunctional work properly. There has been an enormous amount of research done in this area, and if it is successful, it will have an important impact on the treatment of a great number of illnesses that are now difficult to treat.

## **REGENERATIVE MEDICINE**

Research has now been conducted in the field of regenerative medicine, which is nothing more than the utilization of human cells, tissues, or organs in such a manner as to restore the function of damaged human cells. Cells from cord blood have been used for the regeneration of abnormal cells. However, given that cord blood cells are blood stem cells and cannot be differentiated into other types of tissues, the challenge of using cord blood in its current form, which is restricted to the treatment of blood and immunology disorders, remains. There have been recent developments in research regarding the use of cord blood in the treatment of diabetes. The matrix found in the extracellular space has been the subject of research into its potential application in the replacement of damaged cartilage and surgical procedures in the field of orthopedics, as well as in the repair of damaged heart valves. It is significant in today's world because the implantation of prosthetic heart valves can lead to a variety of complications, including hypercoagulability, the formation of thrombi, and emboli that can travel to different body parts, including the brain, where they can cause a stroke.

## **TECHNOLOGY IN MEDICAL ACCESSIBILITY**

There are now apps not only for teleconsultations and patient conferences, which ensure patient-doctor privacy and appointment scheduling for the patient, but there is also a rising trend in the use of apps that make the records of laboratory investigations, imaging results, and the history of prior doctor scheduling all accessible in the smartphone. In the early days, patients had a very difficult time gaining access to their own medical records as a result of the paperwork required to enter hospitals. Things would have been even more difficult in a busy hospital to retrieve specific patient medical records. However, thanks to developments in technology, the apps that are available on our smartphones now make it possible for patients to access these data with the touch of a fingertip. The apps are designed to such an extent that there are even pictorial and graphical representations of the increasing or decreasing trends in various laboratory markers. It enables the average person to have a better understanding of whether or not their disease is under control, the effectiveness of a new medication that they have just started taking, and the likelihood that the disease will return. For instance, a graphical representation of thyroid hormone levels that have been measured over the course of the previous months helps the average person understand whether the trend is increasing or decreasing, the benefits of a new medication, or the dosage change of the medication that they are already taking. In today's fast-paced world, when people are so preoccupied with their own lives that they forget to take care of themselves, the availability of such visual data assists individuals in gaining a deeper comprehension of their own bodies as well as the conditions that they suffer from. This, in turn, makes it easier for patients to comply with their prescribed treatments.

## **VIRTUAL REALITY TECHNOLOGY- A PATIENTS VIEWPOINT**

The development of technology to the point where it is now possible to treat patients using virtual reality has made patients' lives significantly simpler. For instance, a patient in severe pain, such as labor pain, is shown soothing landscapes and music. Studies have shown that such advancements have played a significant role in reducing the patient's panic and anxiety, and it always comforts her so that she can approach the delivery with ease. Because smartphones and the internet are within everyone's reach, the integration of this new technology into hospitals all over the world will be simpler and, relatively speaking, less expensive. As a result, patients' perspectives on the medical field will undoubtedly shift due to these developments.

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