

THE ROLE OF MODERN COMPUTER TECHNOLOGIES IN THE DIAGNOSIS AND TREATMENT OF NEUROLOGICAL DISORDERS IN ADOLESCENTS

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Abstract

This article discusses the possibilities and prospects of creating facilities for doctors using modern computer technologies for the identification, correct diagnosis and treatment of neurological disorders in adolescents.

Keywords: MRI, autism, EEG, epilepsy, Parkinson's syndrome, computed tomography.

Introduction

at present, more and more modern computer technologies are used for the diagnosis and treatment of neurological disorders in adolescents and children. This is something that brings a lot of convenience to the medical field. The use of modern computer technologies is very convenient for the population and doctors . Today, the medical world uses powerful and precise tools to better diagnose neurological diseases and test the effectiveness of specific treatments .Today, there are a lot of neurological disorders among adolescents and children .Modern computer technologies are used to treat these diseases and improve rehabilitation processes. Almost all hospitals in remote areas are also trying to equip with computer

technology, although not the latest. Because there are a lot of nervous breakdowns among today's teenagers.

Main part:

Examples of technologies currently used by adolescents to treat neurological disorders include:

An MRI (magnetic resonance imaging) device is considered very important. It shows the structure of the brain in great detail and helps doctors accurately diagnose and treat various diseases . With the help of MRI, doctors detect brain tumors in adolescents, vascular diseases , brain inflammation, and various neurological disorders in the cerebral cortex . In addition, MRI can be used to determine the severity of diseases and track the effectiveness of treatment . MRI also plays an important role in choosing a treatment method . For example, if a brain tumor is detected, an MRI can help determine its location and size . This makes it possible to choose treatment options such as surgery or radiation therapy . It is important to note that MRI is a safe and painless method of examination. However , in some cases, for example, in the presence of metal implants, MRI can not be performed . Currently, a large number of tumor diseases are observed among adolescents . On the other hand, an MRI scan can help you accurately diagnose these diseases and make a treatment plan .

EEG (electroencephalography) is used to diagnose neurological disorders in adolescents . EEG is mainly used to measure brain activity . It helps diagnose epilepsy, sleep disorders, migraines, and other neurological disorders through brain wave analysis . It does this by recording electrical signals coming from different parts of the brain . These signals reflect different brain states , such as sleep , wakefulness, concentration, and so on. In addition, the EEG is a very effective tool for detecting seizures of epilepsy . It helps detect abnormal electrical activity in the brain, which may be the cause of epilepsy attacks .

In addition , EEG can help detect other neurological diseases , such as brain tumors, encephalitis, meningitis, and others . This condition can cause changes in the electrical activity of the brain, and this can be detected using an EEG . The EEG does not cause the patient any pain or harm during the examination . In addition, EEG is cheaper than other imaging methods . EEG scans are quick and easy . Currently, it can also be used to assess brain function in comatose patients . In this

case, a quick and easy implementation of the EEG research process comes to the rescue. Headaches are a common problem in teenagers. Some types of heads may be associated with abnormal electrical activity in the brain. On the other hand, the EEG research method is very useful in this regard. Thus, the EEG is of great importance in neurological disorders that occur in adolescents.

TMS (Transcranial magnetic stimulation) is used to alter this brain activity. In short, it is used to stimulate certain parts of the brain. This means that it is used to treat depression, anxiety, obsessive-compulsive disorder, and other neurological disorders. TMS is still considered a new technology in the diagnosis of neurological disorders in adolescents and is not widely used. But treating depressive states that don't respond to medication during the depression process can be effective. It also reduces the side effects that cause diseases such as migraines and oxidative stress. TMS is a non-invasive method, that is, a safe and painless method. It has fewer side effects than other medications. The effect of TMS can manifest itself faster, sometimes patients notice improvement within a few weeks. In addition, TMS can be an alternative to medications, especially for patients who do not respond to medications. TMS helps alter brain function, which plays an important role in treating neurological disorders in adolescents. However, the use of TMS in adolescents also has several disadvantages. For example, the long-term effects of tmsnn are not fully understood. TMS is not suitable for all patients equally, especially for adolescents. In addition, TMS can cost relatively more than other medications. Before using TMS in adolescents, it is very important to consult a doctor. I think TMS is one of the most useful technologies these days. Because at the present time, that is, in the current age of technology, teenagers live a virtual life. This leads to the fact that depression in adolescents causes conditions such as anxiety.

We can get computed tomography (CT) scans using state-of-the-art computer technologies that are currently being used in the field of neurology in medicine. CT is a very widely used technology. It allows you to get images of the brain and other organs, and also helps doctors get accurate information about neurological disorders in adolescents.

AI technology is constantly evolving, and there are many innovations in this area. Currently, the following innovations are taking place in the field of AI:

1. * New generation scanners : High-resolution images, new CT scanners allow you to get high-resolution images, which helps doctors detect even small changes.

* Less radiation, new scanners use less radiation, which reduces the risk to patients

* Faster scanning, new scanners provide faster scanning, making it more convenient for patients .

2. In oncology, computed tomography is widely used to diagnose cancer and monitor the effectiveness of treatment .

Cardiovascular diseases, CT scans of heart diseases help diagnose narrowing of blood vessels and other cardiovascular diseases .

Neurosurgery and computed tomography play an important role in the diagnosis of brain tumors, blood vessel damage, and other neurological diseases .

It is used in orthopedics for the diagnosis of bone fractures, osteoarthritis and other diseases of the musculoskeletal system.

In short, computed tomography plays an important role in the treatment of neurological disorders in adolescents . They can help you make a quick and accurate diagnosis, develop a treatment plan, monitor treatment effectiveness, and plan surgery . However, it should be remembered that CT has a radiation effect .

Meg (Magnetoencephalography) technology is also one of the very widely used technologies . Meg is one of the technologies used to measure the electrical activity of the brain . But this is more accurate than an EEG. It detects very weak magnetic fields generated by the brain . These fields are created by the electrical activity of brain cells . Many diseases have been diagnosed with this technology . For example, autism . Autism, this disease, is a complex and multifaceted condition in adolescents characterized by limited social contacts, communication and interests As for the Meg , it is important to note that in addition to its importance in the diagnosis of autism, it is also of great importance for studying the brain activity of adolescents . Brain development can be tracked using the Meg . This is especially important for adolescents with autism compared to adolescents with normal brain development . Again, you can define the learning and memory processes . This provides insight into how adolescents perceive, process, and remember information Meg also helps to explore social and emotional processes . As mentioned above, adolescents with autism will have impairments in their social connections and emotional processes . Meg , on the other hand, provides an opportunity to diagnose

these disorders by providing information about how adolescents communicate with others, how they understand emotions, and how they react.

Overall, Meg is a very valuable tool for studying adolescent brain activity. In addition to diagnosing autism, it allows you to study the brain development of adolescents and study memory processes, social and emotional processes. This will help you gain a deeper understanding of adolescent brain activity and behavior

Advantages of Meg:

- * High Time accuracy: Meg measures brain activity in milliseconds, allowing you to track rapid changes in brain activity.
- * Non-invasive: Meg does not require access to anything inside the brain. This makes it a safe and painless method.
- * High spatial accuracy: with the help of Meg, you can distinguish signals coming from different parts of the brain, which allows you to study brain activity in detail

Disadvantages of Meg

- * High cost : Meg systems are very expensive, which does not make them a common method .
- * Limited spatial accuracy : it is difficult to measure the activity of deep parts of the brain using Meg .
- * Interference sensitivity: Meg systems are very sensitive to external interference , which can reduce measurement accuracy .

Meg is useful for monitoring brain development and in many other areas of research . To sum up, MEG is also one of the advantages of modern computer technology . And it is considered important in the treatment of neurological disorders in adolescents .

Other modern computer technologies also include DBS (Deep Brain Stimulation). In this technology, electrodes are placed in specific areas of the brain to alter brain activity . This technology plays an important role in the diagnosis of neurological disorders in adolescents . The significance of the DBS method in the diagnosis of neurological disorders in adolescents is as follows :

1. Improved movement control: DBS usually plays a role in controlling movement in Parkinson's disease or other disorders that impair brain function . In adolescents, this method can be effective in the early stages of the disease .

2. Therapeutic effect: DBS can lead to normalization of neuronal activity by sending electrical impulses to the brain . This method is useful in the treatment of diseases in adolescents, especially in cases where drug treatment is ineffective .

3. New treatment options: Effective use of DBS for various neurological disorders in adolescents can help improve their quality of life , especially if other treatments are not sufficient .

4. Minimally invasive method: DBS surgery is minimally invasive, so the patient can recover faster, which is especially convenient for teenagers .

However, the use of DBS in adolescents is complex and requires caution . Because teenagers are still developing the body, and changes in the brain may differ from what is expected . It is also important to consider the psychological and physical effects during surgery and treatment .

DBS is used to treat diseases in adolescents such as Parkinson's disease, Tourette's syndrome, and epilepsy . For example, the DBS method is not directly used to diagnose Parkinson's disease . The diagnosis of Parkinson's disease is usually based on the patient's clinical symptoms and uses DBS only for treatment . Now let's talk about the role of DBS in the treatment of Parkinson's disease in adolescents . In adolescents, Parkinson's disease (parkinsonism) is extremely rare . Because this disease usually occurs in people over 60 years of age . When adolescents have Parkinson's disease or its symptomatic forms, they are referred to as "age-related parkinsonism." Although the role of DBS in this case is not clear and widespread, it can be used as a treatment for some patients . In the moderate to severe stages of adolescent Parkinson's disease, DBS can effectively relieve motor symptoms such as tremors , stiffness, and difficulty controlling movement . DBS helps improve movement by electrically stimulating areas of the brain . This can reduce the symptoms of the disease and improve the quality of life of adolescents . Although Parkinsonism very rarely begins in adolescents , in some cases DBS becomes an effective treatment , especially if the disease worsens over the years . DBS is commonly used in the advanced stages of Parkinson's disease , but as we said earlier, its use for adolescents requires caution .

There are some risks associated with using DBS in adolescents. For example , during surgery, there may be a risk of infection , unpleasant reactions of the nervous system, excessive brain stimulation, etc. Also, during treatment after DBS, you should pay attention to the psychological and physiological state of adolescents .

When adolescents are diagnosed with Parkinson's disease, DBS may be an effective treatment , but it should be used with caution . DBS mainly helps to improve movement symptoms and improve the patient's quality of life in moderate to severe stages of the disease . However, the use of DBS for adolescents requires an individual approach and comprehensive clinical observation .

Now let's talk about neurological diseases in adolescents . For example, we can take epilepsy . Epilepsy is a condition that occurs as a result of a sudden change in brain function and is manifested by repeated disturbances in the sensitivity or properties of the brain . Epilepsy in adolescents is a medical condition caused mainly by changes in brain development caused by injuries . The role of modern computer technologies in the diagnosis and treatment of this disease, which occurs in adolescents, is huge. These technologies simplify the process of detecting diseases, optimize treatment and increase the effectiveness of patient monitoring . For example, fMRI and EEG technologies are used to determine the source of epilepsy . Using fMRI, you can track brain activity in real time , which can help in detecting epileptic foci . Computer algorithms combine these two types of data to provide more accurate analysis . Thus, modern computer technologies open up great opportunities for the treatment, diagnosis and prognosis of epilepsy in adolescents .

Modern computer technologies open up more opportunities in the treatment of neurological disorders in adolescents . It is important that neurological disorders in adolescents are detected at an early stage, as this increases the effectiveness of treatment. Computer technologies, in particular, allow early detection of epilepsy or changes occurring in the brain . Since each patient's condition is unique, modern computer technologies can help develop individual treatment plans . And this individual approach helps to improve the patient's condition . Predictive systems based on artificial intelligence use EEG and other biomedical data to predict the likely time and frequency of epilepsy attacks . This allows the patient to be prepared for attacks and ensures that they will take prompt action if necessary .

Conclusion:

Summing up , we can say that modern computer technologies are an effective tool in the diagnosis, treatment and rehabilitation of neurological disorders in adolescents, which leads to significant changes in the field of medicine . Their



capabilities, when used correctly, play an important role in preventing diseases and improving the quality of life of patients .

When I think about the use of modern technologies in the treatment and diagnosis of neurological disorders in adolescents , on the one hand, it is very promising . Because these technologies allow us to study the brains of adolescents in detail , detect diseases at an early stage, and develop effective treatment methods . This will help them improve their quality of life and lead healthier lifestyles in the future . But, on the other hand, there are also some problems in this area. For example , modern computer technologies can be very expensive, which makes them not accessible to everyone . In addition , ethical considerations must be taken into account when using these technologies . For example, it is important to protect teens ' personal information and protect their identity .

When using modern computer technologies in the treatment and diagnosis of neurological disorders in adolescents , in my opinion , one of the most important aspects is the adaptation of technologies to adolescents . Teenagers learn and express themselves differently from adults . Therefore, technologies intended for the treatment and diagnosis of neurological disorders should be developed taking into account the specifics of adolescents . For example , virtual reality apps adapted for teenagers can help them learn in a playful and interactive way . This allows them to learn more about neurological disorders and participate more actively in the treatment process .

In addition to using modern technologies to treat diseases in adolescents , there are online resources that can help them learn about neurological disorders . These resources help teens understand their condition , learn about treatment options, and connect with other teens . On social media, teens will be able to connect with other teens struggling with neurological disorders and join support groups . This helps them not feel alone and gain experience from others .

Personally, I believe that the role of modern computer technologies in the treatment and detection of neurological disorders in adolescents is extremely important . These technologies are leading to revolutionary changes in healthcare , creating opportunities for identifying and effectively treating neurological disorders, especially in adolescents . But I think it is necessary to conduct further research on these technologies and try to reduce their cost . Thanks to this, these technologies

can be widely distributed . Only then would neurological disorders in adolescents decrease even more.

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