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Education of the child with epilepsy as the element of its wellness' improvement
Edukacja dziecka z padaczką jako element poprawy jego dobrostanu

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Streszczenie

Padaczka jest najczęstszą chorobą układu nerwowego, jej etiologia jest wieloczynnikowa. Największe ryzyko zachorowania obserwuje się u dzieci w pierwszej dekadzie życia. Rozpoznanie padaczki oraz związane z nią problemy, dotyczą nie tylko dziecka, ale całej jego rodziny. Ważne jest podjęcie szeroko zakrojonych działań profilaktycznych i edukacyjnych, które zapewnią chorym bezpieczeństwo i pozwolą im na w miarę normalne życie.

Abstract

Epilepsy is the most common disease of the nervous system. Its etiology is multifactorial. The greatest risk for the occurrence of this disease is observed in children in the first decade of their life. The diagnosis of epilepsy and problems related to it affect not only the child but the whole family. It is important to take comprehensive measures of prevention and education to ensure patient safety and allow them to lead a normal life.

Admission

Epilepsy is a disease known since the dawn of human history. It first descriptions can be found in the Egyptian papyri, Jewish Talmud and the Babylonian Code of Hammurabi. Over the thousands of years it was thought that the disease is caused by demons endowed with a special power or the sacred, and the "epilamvanein" from the Greek meaning "possessed", "caught in possession." Breakthrough in the perception and understanding of epilepsy as a disease made in the year 400 BC Hippocrates. In his work "On the Sacred Disease," he found that epilepsy is a disease of the body located in the brain, which should be treated with medication and diet and no spells or witchcraft. [13]

Definition and diagnosis of epilepsy

International League Against Epilepsy Epilepsy is defined as a disease of the brain that seen on the basis of:

1. At least two not provoked (or reflex), seizures time> 24 h.
2. One not provoked (or reflex) seizure in a person at high risk of subsequent seizures (patients with structural brain damage).
3. The diagnosis of epilepsy [6].

Epilepsy is the most common disease of the nervous system. Statistics show that the world suffers from it approx. 50 million people. In Poland, this figure is estimated at 300-400 thousand. Steadily increasing the rate of new cases. In 75% of cases of epilepsy disclosed before 18 r. F. The highest risk observed in children in the first decade of life [4,11,15,33]. J. Wendorff threads that are 6/1000 of the cases [32]. The second summit of morbidity is over 65 years of age [13,14].

The diagnosis of epilepsy or a neurologist decides epileptolog. Of fundamental importance in diagnosing exactly is collected from the patient, and / or its parent interview. It is necessary to have an EEG and if necessary neuroimaging [28].

Confirmation of epilepsy in a child is often a shock for parents. They experience the negative emotions as fear, helplessness and fear of death and the future of the child. At the time of diagnosis, it is particularly important to provide emotional support and information for the whole family. Parents and child must be aware of certain limitations posed by the disease and how to deal with them.

Causes of epilepsy.

Epilepsy etiology is complex and multifactorial [4]. In Table I shows the main causes of epilepsy in children.

Table. I. The causes of epilepsy in children. On the basis of Dunin-Wasowicz D. Epilepsy and other seizure disorders in children. Ed. Medical Tribune Poland 2013. [4].

The etiology of genetic	The etiology of structural / metabolic	Unknown etiology
Rolandic epilepsy (epilepsy Roland)	CNS malformations (cortical dysplasia, lissencephaly, agenesis and hypoplasia amygdala	Which can not confirm the current genetic research and genetic imaging or structural
Dravet's syndrome	Brain tumors (oligodendroglioma, astrocytoma)	
Children with epilepsy absence seizures	Toxic damage brain (hyperbilirubinaemia, fetal alcohol syndrome (FAS) storage diseases	
Benign familial convulsions baby	Metabolic disorder (phenylketonuria, maple syrup urine disease)	
MELAS syndrome	Degenerative diseases of the nervous system	
Tuberous sclerosis		
Genetic syndromes (angelman syndrome, down syndrome)		

Seizures

A seizure is a sudden, transient brain dysfunction caused by the abnormal electrical discharge of neurons. In general, seizures can be divided into three groups: focal-related a specific area of the brain in one hemisphere generalized - involving the simultaneous electrical discharge in both hemispheres and seizures beginning of unknown [6].

In a situation when the seizures are common and difficult to treat, you may receive a status epilepticus. It is defined as recurrent seizures, lasting from 5 to 30 minutes, between which the patient regains consciousness and remains bioelectric seizure activity [28]. Status epilepticus is a direct threat to life and requires immediate action to minimize hypoxia and brain damage.

The most common epileptic syndromes occurring in children and adolescents.

The syndrome is a disorder epileptic seizure on a substrate, which comprises the characteristic clinical picture specified age range, a specific type of seizures and changes in EEG, concomitant diseases and symptoms as well as a method of treatment and therapeutic response [15,33].

West syndrome

Most often it is the result of brain damage in the early stages of child development. Applies to infants between 3 -7 month life. Seizures manifest short-lived, occurring in a series, trunk slopes. The child's head and torso bends forward, pulls the lower limbs to the trunk and upper limbs were thrown forward. They may be accompanied by disturbances of consciousness, restlessness and screaming. West syndrome is often characterized by antibiotic resistance and leads to the inhibition of the development of the child's psychomotor [15,33].

Lennox-Gastaut syndrome

Is the most common drug-resistant epilepsies in children. Disclosed in toddlers and preschool, often leads to developmental delays and significant neurological deficits. Can be carried out in the form of attacks:

a) atonic, involving the sudden loss of control of muscle tone and posture, causing abrupt falls of the child.

b) myoclonic, or irregular contractions suddenly occurring muscle groups of high intensity.

c) myoclonic-astatic

d) atypical absence seizures ongoing often more than 20 seconds [15,33].

Children unconscious epilepsy (picnolepsy)

Typical absence seizures, "shut off" occur in previously healthy children, usually between 3 and 13 years of age. Last from a few to several seconds, can sometimes be accompanied by blinking and licking in the form of automatism in chuck, munching. Mental development usually remains valid [15,33].

Epilepsy Roland

It is the most common childhood partial epilepsy. It occurs in children aged 3-13 years old with a family history of epilepsy direction. Characterized by partial seizures motor or sensorimotor covering her face. Often they do not require treatment and about 16 years of age may spontaneously give way. Mental development of the child is correct [15,33].

Juvenile epilepsy unconscious

Seizures are revealed between 9 and 17 years of age. Apart from them, there are generalized seizures, tonic-clonic seizures, mainly of a sleepy [15,33].

Team Janza (juvenile myoclonic epilepsy)

Seizures occur most often between 12 and 18 years of age in otherwise healthy children. Apart from myoclonic seizures, mainly on the upper limbs, the majority of children are seizures generalized tonic-clonic and absence seizures juvenile type. Often provocative attack factor is sleep deprivation or a sudden wake up[15,33].

Help during seizure

The seizure usually occurs suddenly and unexpectedly. In 10-15% of children with focal or partial seizures with preserved consciousness, there may be signs of trailers, preceding the attack eg. A headache, nausea, anxiety or irritability.

If there is a sudden occurrence of convulsions:

Tab. II. Help during seizure based: https://www.epilepsysociety.org.uk/10-first-aid-steps-for-convulsive-seizures. [5].

You need:	**Do not:**
Keep calm	Panic
To protect the patient from injury, injury	Raise patient
Protect the head from injury by placing something soft	Easy movement, hold limbs
Loose clothing around the neck	To force open the jaws clenched, even if the bleeding underbite language
If the patient has ingots give rectal diazepam	Put anything between the teeth or mouth
Leave the natural course of the attack, observe the morphology and duration of seizure	Put the keys to Hands (quite a common superstition)
Frame after the attack patient in the side position, to ensure airway patency	Revive, after hitting Face, or pouring water
To remain with the patient to regain his consciousness	Interfere with the behavior of the patient during the confusion

Most of the seizures disappear after 2-3 minutes. The prolonged attack requires calling an ambulance because it can go into status epilepticus.

Knowledge of Polish society, on the assistance the patient at the time of seizure is inadequate. Examples are social research PRO-EPI conducted in Poland in 2009 and 2013. Although 48% of respondents claimed that they know how to help, as many as 84% answered that during the attack the patient should put something hard between the teeth [8,9]. Similar results were obtained Zielińska, a junior high school students who studied [35].

Life of a child with epilepsy

Quality of life of children with epilepsy and their loved ones will increase if they have proper knowledge about the disease. Enormous importance education and prevention as part of improving the welfare of the child.

1. The seizure-inducing factors:

- infections fever. At the time of increase in body temperature, a child with epilepsy should receive the antipyretic drug. This applies especially to small children, whose nervous system is immature and its excitability increased [28].
-no sleep, fatigue. Sleep should last for approx. 8-9 hours. Avoid sleepless nights and sudden awakenings.
- abuse alcohol, psychoactive drugs. Alcohol, caffeine, amphetamines and other psychoactive substances, even in well-controlled epilepsy, may increase the number of seizures and enter into unfavorable interactions with antiepileptic drugs.
-stress. It is believed that stress hormones, especially cortisol affect the increase in the excitability of neurons [31].

- hyperventilation. Too fast and deep breathing causes a decrease in the level of CO2 in blood with subsequent respiratory alkalosis. This leads to hypoxic tissues and organs of the body, resulting in an increase in the excitability of neurons.
-changes weather. Weather conditions such as high temperature, low volume of cooling, low oxygen content, high water vapor pressure in the air may induce the seizure. Ventilate the room cool the body and receive a large amount of fluid at a high temperature and avoid hot weather increased physical activity [24].
- menstruation girls. Some women around menstrual period intensify attacks. This is the consequence of an imbalance between pro-convulsive concentrations of estrogen and progesterone anticonvulsant [18].
- flashes light flashing disco, staying long at the computer or watching television. They may induce seizures in epilepsy photo sensitive [11,15].

2. Treatment

Today, the most common treatment is the pharmacological treatment of epilepsy. It brings good results when applied systematically. It should be emphasized that alone, treatment discontinuation sudden withdrawal of drugs or dose reduction recommended by your doctor, leads to epileptic seizures. Drugs should be taken at fixed times in the case of sustained release formulations should be taken at 12 hours. Continuity is important to prevent a decline in drug concentration in the blood serum [4,15].

Today, medicine has very many antiepileptic drugs, both conventional and new generation. The latter are better tolerated, they have a favorable pharmacokinetic properties and rarely interact drug.

Unfortunately, some children antiepileptic drugs may cause side effects. Among them, they are: nausea, loss of appetite, weakness, drowsiness, dizziness, ataxia, irritability or skin allergies [22,23,32].

It is worth to a child with epilepsy, seizure control had a diary which records important information such as:. the number of attacks, dosage and possible side effects of a girl should enter the date of menstruation.

Treatment of epilepsy is a long process, usually takes approx. 2-5 years and its goal is to eliminate attacks and allow the patient to lead as normal life.

In the case of absence seizures for 2-3 years, your doctor may decide to slowly abandon the drugs. When the time comes to fit withdrawal please go back to the previously administered medication [15]. The cure epilepsy says when the patient is free of seizures for at least 10 years, including at least five years does not take antiepileptic drugs [7].

3. Vaccination

Vaccination has been a subject of discussion and different opinions. Many epileptic syndromes are diagnosed at 1 year of age. Then also for the largest amount of mandatory vaccinations. Detail arouse controversy vaccination against pertussis and measles-mumps-rubella vaccine. It is believed that the whole cell pertussis vaccine (DTP) vaccine is the most reactive of childhood, and MMR quite often there is an increase in body temperature. Neurologists children formulated the following guidelines for vaccination of children with seizure disorders [20]:

1. before vaccination, the child must be examined by a doctor to rule out contraindications and minimize the risk of NOP. If in doubt, it is recommended the neurological consultation.
2. there is no need to adjust the doses of antiepileptic drugs in connection with the vaccination.
3. end of antiepileptic treatment should be made after the vaccination.
4. immunize against pertussis acellular vaccine should be used (DTPA).

5. Vaccination against pertussis and measles have to pause in children with the undetermined diagnosis, with a high probability of progressive disease of the nervous system and seizures.
6. with good control of epilepsy, the child can be vaccinated with MMR DTPa and after 6 months from the last attack.
7. unstable epilepsy is an indication for temporary suspension of vaccination against pertussis, however, after the completion of 1 year. f, due to the possibility of injury, the child should be vaccinated DT vaccine. Bordetella pertussis infection can cause a number of serious health complications. Therefore, it is reasonable to provide DTPa persons from the vicinity of the child, to eliminate potential sources of infection. This is called. cocoons strategy [20].

Children with epilepsy, because of frequent hospitalizations, infections are exposed to infectious diseases that could be avoided carrying out vaccination. Therefore, you must carefully decide whether to postpone the release of their vaccinations.

4. Learning

Epilepsy has a major impact on the intellectual development of the child. From 5% to 50% of children manifest difficulties school. They may be the result of organic CNS damage, disease, or pharmacotherapy environmental impacts institutions. In children with epilepsy observed deficits in eye-hand coordination, memory, attention, and often also be ascertained dysgraphia, dyscalculia and dyslexia [22,23]. E. Moses In the study, 37% of children with epilepsy reported problems in the art [22]. Objects were the most difficult for product effect: mathematics, language Polish chemistry and physics [22].

Polish teachers in schools often do not have the awareness of the specific problems of education of pupils with epilepsy. Treat them on an equal footing with students healthy, judging according to the same criteria, without regard to learning difficulties [11,21]. K. Twarduś in his publication reports that only 17% of children said that they are treated with understanding, adequate for their health and intellectual capacity [30]. In the school environment, there is a fear associated with the responsibility for the care of a student with epilepsy. It happens that the teachers themselves restrict children's participation in physical education classes, school trips and events [34].

Frequently, according to Michalska A., et al., This is because of insufficient knowledge of the procedure during the seizure [21]. that teachers themselves are limited children's participation in physical education classes, school trips and events [34]. Frequently, according to Michalska A., et al., This is because of insufficient knowledge of the procedure during the seizure [21]. that teachers themselves are limited children's participation in physical education classes, school trips and events [34]. Frequently, according to Michalska A., et al., This is because of insufficient knowledge of the procedure during the seizure [21].

Most neurologists are of the opinion that a child who has sufficient intellectual capabilities and well-controlled epilepsy should attend public school mass [8,9,11,22]. Not all schools willing to accept a student with epilepsy and not all parents want their child to attend a "regular" school out of fear for his safety and ill-treatment by their peers. Unfortunately, there are still alternative special schools, integrated classes and individual study path, with the result that approx. 40% of children [8,11].

Learning difficulties and frequent child's absence from school due to illness, are not conducive to integration with their peers. It happens that a child is seen by them as hyperactive, irritable, "the other: and therefore unacceptable. Epilepsy in our society is still considered a mental illness, fear of awakening [35]. Justified therefore becomes a proper dissemination of knowledge about epilepsy in the school environment. This will see the

problems and needs of the student with epilepsy and give him the necessary support educational and psychosocial.

5.Telefon phone

Mobile Phones strongly etched into our reality. Most people can not imagine living without them. This applies particularly to young people who do not use the phone only to talk but use it continuously, as an indispensable tool to access information. Research shows that emitted by mobile phone electromagnetic field has no negative impact on the recording of the bioelectrical activity of the brain [17]. Therefore, the child can use the phone to talk. However, too intensive use of mobile phones (games, social media, videos, etc.) Combined with fatigue and sleep deprivation can induce a seizure [15].

6. Computer and television

Visual stimuli on the type of flashing light may lead to the development of the most common reflex epilepsy, epilepsy photogene [15].

It is believed that approx. 4% of the total population of children showed paroxysmal EEG changes in response to photostimulation. More often, this applies to girls than boys. Group is particularly predisposed children with juvenile myoclonic epilepsy [15].

The attacks may be provoked by rapidly changing images on television, computer games, disco lights, sunlight, geometric patterns, reading clear black letters on a white background.

Knowing stimuli Photosensitivity should take some action to prevent the occurrence of the attack. Television monitors should be smaller, with a high refresh rate, preferably made in LCD and plasma technology. The distance from the monitor a child is three or four times the screen diagonal. The TV should be turned on by remote control, without looking at the screen. To watch TV, you can use special optical glass in blue leveling sensitivity to light. The room in which the child is using the computer or watching television must be illuminated, preferably behind the TV, the computer, set the lighted lamp, that was not much difference contrasts [15].

Children it is recommended to use the computer for no longer than 1-2 hours. day [12], the screen should not be a big baby can not sit too close to the computer. Games are not recommended with plenty of light stimuli and rapidly changing images. Most of the games bought in stores have information bear a warning against the possibility of calling a seizure.

7. Travel

In patients with epilepsy, there is no impediment to travel. Children with frequent seizures but should be properly prepare:

-take together a sufficient supply of drugs, because abroad they may be available under different names in other forms than those to which he is accustomed.

-pack supply of drugs in a separate bag in the event of loss or theft of the main luggage.

-Have with you written information about the type of epilepsy that is suffering and medication you are taking.

-equip a special identification bracelet containing essential medical data.

-carrying on travel by plane to inform about the disease (when attacks occur frequently) staff deck.

-found abroad, in situations where there is a competent person with a companion, someone from the environment to warn about their disease.

-during the long transoceanic flights overcoming time zones disrupts sleep and causes its deficiency which can result in the attack, along with overcoming time zones is also easy to

lose track of medication in the pores. To organize your medicine according to the scheme daily, that there is no skipping for subsequent doses.

8. Sports

Among children with epilepsy and their caregivers, there is still a misconception that physical activity increases the risk of seizure. Exercise is therefore limited to a minimum, and doctors are pressure exposing sick with PE. [34] Meanwhile, it has been shown that a well-chosen exercise alleviates the disease and reduces the number of seizures. Hyperventilation accompanying effort has a slightly different mechanism than the artificially induced hyperventilation EEG. It is a response to the increased oxygen demand and at the same time prevents hypercapnia. During exercise, increased levels of adenosine are released endorphins, neurotransmitters modular system which leads to protecting against attacks [1,2,3]. During bouts of physical activity are rare. KO Nakken in their study reported that 63% of patients never had seizures during sports or immediately after. [25] Many, however, said that physically active children learn better, have a better mood, higher self-esteem and self-confidence and better contact with the peer group [15,16,25].

People with epilepsy when properly secured (helmets, sunglasses, reflective vests, life jackets, pads, ponds, etc.) Can enjoy most sports. Note, however, that the effort to properly nourish and hydrate the body. The decision to sports activities the child should be taken in each case individually, taking into account the likelihood of attacks, their type and duration.

The fact of the disease must inform the physical education teacher or coach.

Table III shows the classification of sports on the basis of a risk for patients with epilepsy and others.

Tab. III. The classification of sports on the basis of a risk for patients with epilepsy and others on the basis of: G. Capovilla et al. Epilepsy, seizures, physical exercise, and sports: A report from the Task Force ILEA Sports and epilepsy. Epilepsy 2016; 57 (1): 6-12 [2]

Groups and sports (no significant risk)	Sports group ii (moderate risk for the patient with epilepsy and others)	Group iii sports (high risk for the patient with epilepsy and others)
Sports (except facilities listed in the second group)	Alpine skiing	Aircraft
Bowling	Archery	Climbing
Contact sports (judo, wrestling)	Track and field (pole vault)	Jumping from the diving board
Team sports (baseball, basketball, cricket, hockey, football, rugby, volleyball)	Biathlon, triathlon, modern pentathlon	Professional horse riding
Cross-country skiing	Canoeing	Motor sports
Curling	Contact sports that could cause injury (karate, boxing)	Parachuting
Dance	Cycling	Rodeo
Golf	Horse riding (shows, competitions)	Diving
Squash, table tennis, tennis	Ice hockey	Ski jumping
	Fencing	Lonely sailing
	The gym	Surfing, Windsurfing
	Shooting	
	Skateboarding	
	Skating	
	Snowboarding	
	Swimming	
	Water-skiing	
	Weightlifting	

Education of patients and their immediate environment about the benefits of physical activity can bring significant benefits in terms of enabling the patient to use the fullness of life.

8. Driving

In the modern world, the question of the overall availability of cars move quickly determines the comfort of life from which people affected by epilepsy would like to use. No driving is a problem for young people who feel "car-free", excluded from normal life. In Poland, the license can be obtained, depending on the category, at the age of 14-16 years.

These are categories AM (motorcycle, quad light), A1, B1, T (motorcycle, heavy).

The issue of driving license regulated by the Regulation of the Minister of Health dated 07.17.2014 y on the medical examination of persons applying for the right to drive and drivers [26].

In people diagnosed with epilepsy, antiepileptic agents, and applying for the issue of driving license AM, A1, A2, A, B1, B, B + C or T, you can decide no contraindications to drive vehicles if the person presents the opinion of the neurologist confirming no seizure in the last two years of treatment. Over the next two years is required to have checkups every six months, and then every year for 3 consecutive years or as your doctor neurologist.

If a person stands on drugs, it is contraindicated, driving from the start of the withdrawal of treatment until the end of 6 months after cessation of treatment. Subsequent research taking place according to the above-reported scheme.

A person who wants to get a driving license of category C1, C1 + E, C + E, D, D + E, D + E, in which epilepsy or have a fit of epileptic symptomatology decides that there are medical contraindications.

When applying for obtaining a driving license, you must give an opinion in the form of a neurologist consultation card neurological formula contained in the Regulation of the Minister of Health.

In the current Regulation disappeared provisions requiring a doctor in the case of a patient with epilepsy, the obligation to notify the authority issuing the license. Responsibility for the issue of road safety, their own and third parties, therefore, lies at the very sick. Even short-term disturbance of consciousness while driving is a serious threat and the possibility of an accident. For the consequences of the accident, but also concealing the fact of the disease, they threaten certain law and civil penalties.

9. Sexual Initiation

Age of sexual initiation among young people is getting lower, so it is reasonable that girls with epilepsy have knowledge of fertility and birth control. if the decision to have children should be aware of and planned. Unfortunately, the majority of teen pregnancies are unplanned, which may expose the unborn child to the teratogenic effects of antiepileptic drugs. Neurologist role, in this case, is to try to minimize the dose of a drug or a change in treatment less teratogenic effects [18].

The most effective way to prevent pregnancy is taking oral contraceptives. Their choice should be consulted by both the gynecologist and neurologist. Some anti-epileptics react with contraceptive tablets causing a decrease in their efficiency, in turn, oral contraceptives may reduce the concentration of antiepileptic drugs and cause epileptic seizures [18].

10. Professional activity

When the child grows up there is the problem of choosing the future career, learn, work. Nowadays, thanks to modern methods of treatment, from people sick with epilepsy greatly expanded opportunities for professional fulfillment. In many cases, there is nothing to prevent a child educated in most professions. Polish Society for Epilepsy conducted research which shows that most people with epilepsy have a high school education and found employment as computer scientists, teachers, economists, clerks, accountants, dealers or mechanics [19]. People suffering from epilepsy reborn competition where due to a sudden loss of consciousness can be a danger to themselves and others, eg. Working at heights, handling heavy machinery, or work in the night seasons. Unfortunately, among people with epilepsy in Poland, only 40% have a job, despite the fact that many more declare their willingness to work [8,9].

The reasons for this state of affairs should be seen in the severity of the disease and the associated absence, fears of worse treatment by the supervisor or response to the occurrence of a seizure at work. Those who undertake the work should inform your manager the existence of epilepsy.

Sometimes, however, that patients hide the disease because they are afraid they will not be employed, they lose their job or be promoted. According to research, 50% of people with epilepsy did not inform colleagues about the disease and the third did not report the fact of the employer disease [8,9,27].

Concealment of the disease is associated with specific consequences of the law, which the patient with epilepsy must be aware of. Only 40% have a job, despite the fact that many more declare their willingness to work [8,9]. The reasons for this state of affairs should be seen in the severity of the disease and the associated absence, fears of worse treatment by the supervisor or response to the occurrence of a seizure at work. Those who undertake the work should inform your manager the existence of epilepsy.

Most people with epilepsy can be as valuable employees unions leading a normal life. The condition is good treatment efficacy, real knowledge about epilepsy among employers and their positive attitude towards patients.

Summary

Education and prevention are an important part of the measures taken to ensure the welfare of children and young people with epilepsy and their careers. Knowledge about the disease, the ability to cope with it, as well as the motivation to appropriate health behaviors determine the effectiveness of therapy.

A child suffering from epilepsy, aware of their disease, can normally live, learn, play sports and pursue their career and life plans.

However, for this to happen, it is necessary to change public awareness, epilepsy because it is still among the people is of concern and anxiety.

Ability to provide assistance during the seizure and showing children the acceptance and understanding will give them a sense of security and make life easier with the disease.

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