INOVATIONS IN THERAPY OF AUTISM

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Abstract
There is no specifically marked medicine for the treatment of autism. A number of approaches have been used in evaluating the safety and efficiency of pharmacological treatments of both children and adults with autism. Two study parameters are particularly important, the presence of “blind” and control groups. The highest quality studies utilize equally “blind” and control procedures as well. They have to be performed at multiple sites with a large number of subjects.

Research evaluating medicine proposed for treatment of autism, is on the increase. There is accelerated emphasis on medicine testing and better information on treatments should be more available than in the past. In this article, the following classes of medicine and therapies will be discussed: possible future medicine treatments - such as oxytocin, tetrahydrobiopterin and ampakines, hormone therapies, anti-yeast therapies, vitamin therapies, dimethylglycine, alpha lipoic acid and diet therapies.

Key words: autism, therapy, studies.
Introduction

The autism is pervasive developmental impairment that occurs in early childhood characterized with impairments in social and communicative sphere, reduced interests and repeated behavior (1).

The autism has to be diagnosed up to the age of 18 months. Early intervention is very important for better results. The therapies include special education and rehabilitation treatment, treatment of speech therapist, occupational and behavioral therapy. There is no specifically marked medicine for the treatment of autism. There are no pharmacological treatments, which indicate noticeable improvement of core symptoms such as social, speech and cognitive impairments of autism. Medical therapies often enable autistic individuals to live outside the institutions (2).

Research evaluating medicine proposed for treatment of autism, is on the increase. There is accelerated emphasis on medicine testing and better information on treatments should be more available than in the past.

The aim of this article is to present some new types of biomedical treatments used in the world.

1. Treatments that could be used in future

The oxytocine is a tiny peptide hormone consisted of nine amino acids that mother normally secrets during child’s birth and breast-feeding. The animal studies associate it with social behavior. When oxytocine was injected in animals, it increased their social behavior, and when its blockers were used then their social behavior and social interaction were reduced (3).

Human data show that the role of oxytocine in treatment of autistic symptoms is possible.
Vo edna studija bile ispituvani koncentraciiite na oksitocin kaj 29 deca so autizam i 30 izedna-eni po vozrast deca bez autizam. Decata so autizam mal e poni ski ni voa na oksitocin. Decata bez autizam paula al e povski ni voa so tekot na vozrast, {to ne bilo los u-aj i kaj decata so autizam. Hollander i sor. napravi dilevojno-adi epa, pl acebo-kontrolirana studija na ininf uzi i oksi ticin kaj adul i, diagnostici irani kako autizamili Asperger-ov sindrom. Tie zabele al e namal uvawe na repetitivnoto odnesuvawe kaj 13 od 15 nabq uduvani subjekt i pri melinf uzi i oksi ticin zarazlika od ni v samo 6 od 15 -l enovi na pl acebo-grupata poka al e namal uvawe na repetitivnoto odnesuvawe. Ne bila najdeni razliki vo nesakanite efekti me|ti oksi ticin i pl acebo-grupata. Ovi e avtori ukali ni i toa deka socijal noto odnesuvawe mo`e da se podobri so oksi ticin nsko ot tretnan. Tetrahydrobiopterin (R-BH4) e drug lek, istra`uvan vo tretmanot na autizmot. Toj e hemisko soedinenie potrebno za sinteza na neurotransmiterite, kako se serotonine i drugite kateholamini. Vo edna otvoren pilot-studija est preduzeli deca so autizam bile tretirani so R-BH4. Roditeljite soopstile za podobruvawe vo kontaktot me`u deca i oksi ticin. PET-skenuvite pokali edna levojno-edna uvawe na dopamin D2 receptorot vo n. caudatus i vo putamen. N. caudatus i putamen se komponenti na si stemot na bazal ni te gangli i i se poliwa di aboko vo mozokot {to primaat razli ni i impulsi od korata na mozokot, gi procesiraat tie impulsi i gi vrataat do motorata kora. N. caudatus vlijaje na motivacija te procesi, a putamen i povrazan so nesvesnata koor di naci i ednostavnoto senzomotorno odnesuvawe. Bi deji si samo edna studija e sprovedena za ovoj lek, neophodni se i drugi i stra`uvawa za da se pro cenii negovata bezbednost i efikasnost. One study examined the concentrations of oxytocine in 29 children with autism and 30 children at the same age without autism. The children without autism showed higher level while growing up which was not the case in children with autism. Hollander et al. made double “blind”, placebo-controlled study of infusion with oxytocine in adults, diagnosed as autism or Asperger syndrome. They noted declined repeating behavior in 13 of 15 observed subjects who received infusion with oxytocine. Contrary to them, only 6 of 15 members of placebo group showed declined repeating behavior. There were no differences of unwanted effects between oxytocine and placebo groups. These authors indicated that the social behavior could be improved with oxytocine treatment. Tetrahydrobiopterin (R-BH4) is another medicine examined in the treatment of autism. It is a chemical compound necessary for synthesis of neuro-transmitters, such as serotonin and other kateholamines. In one open pilot study, six pre-school children with autism were treated with R-BH4. The parents reported improvement in eye contact, willing for interaction and number of words. PET-scans showed 10% increase in binding of dopamine D2 receptor in n. caudatus and in putamen. N. caudatus and putamen are components of the basal ganglion system and they are areas deep in the brain, which receive different impulses from the brain cortex, process those impulses and return them back to the motor cortex. N. caudatus influences the motivating processes and putamen is connected with unconscious coordination of simple sense-motor behavior. Since there is only one study carried out on this medicine, other researches are necessary to evaluate its safety and efficiency.
Ampakines are relatively new medicine class, which increase the activity of AMPA-receptor. These receptors help the transfer of glutamate signals in the brain. The studies show that these areas in the brain are less active and with less density of AMPA-receptors. They improved the memory of patients with Alzheimer disease. CX516 is ampakine which influences cognitive and behavioral symptoms in individuals with fragile X syndrome and autism (7).

2. Hormonal therapy

The secretin is polypeptide, consisted of 27 amino acids secreted in small intestine as a reaction to the chloro-hydrogen acids from the stomach. The secretin is absorbed in the blood and challenges the pancreas to secrete bicarbonates, which neutralize the acid in the intestine. The secretin reduces the circulation in the intestine and moderately inhibits intestine motion, slowing down the movement of intestine content. Because of its protective and relaxing effects on the intestine, the secretin is used as a part of diagnostic tests conducted to evaluate the reasons for gastro-intestinal impairments; for example: chronic diarrhea and syndrome of irritable intestines.

Children with autism, as other children with gastro-intestinal problems, can be treated with secretin while diagnostic testing. A patient with autism, Peter Beck, at the age of 4, was treated with secretin in laboratory testing carried out to find the reasons for his chronic diarrhea. After three-week treatment of secretin infusion, the behavior remarkably changed. Peter could pronounce more than 100 words, compose short sentences, reply questions and he improved eye contact. His diarrhea improved, too (8). In another study, similar symptom improvements are registered, causing interest for secretin therapy in autism.
This study shows that secretin can improve the condition of intestinal mucus, i.e. normalize it disabling the big proteins or toxins to pass from intestines into the blood, which prevents the syndrome of porous intestines (9). When inserted in therapeutic doses, the secretin is applied intravenously. It is usually applied in smaller doses in duration of six weeks, or once if it is a bigger dose. Some studies show no side effects while others report possible occurrence of skin rash, generalized blush on head, neck and chest immediately after the infusion, as well as fever, tachycardia, vomiting and increased irritability. One of the latest researches rejects the findings of the studies where secretin did not show any useful effect nor had unwanted activities. This double “blind”, placebo controlled and cross-examined study shows that secretin improves symptoms in children with autism and chronic diarrhea much better than in those children without this problem. Janet Kern and colleagues studied 19 children with autism, giving each child an infusion with secretin (2CUs/kg) and one infusion of placebo salty solution. The researchers reported that 5 boys with chronic diarrhea reduced the irritability, anxiety, crying, hyperactivity when treated with secretin, and did not respond to placebo, while others did neither respond to secretin nor placebo. Additionally to this, children with autism and chronic diarrhea showed improvement in vocabulary and reduction of stereotype behavior. The aggravation was noticed in one child without gastrointestinal symptoms who showed escalation of behavioral problems. At the end, they concluded that there was a subtype of children with autism or pervasive developmental impairment and chronic diarrhea, who benefited the secretin (10).
3. Anti-yeast and Fungicide Therapy

Probiotic is a microorganism used in therapeutic aims to control growth of yeast, fungi and intestinal bacteria. There are hundreds of different useful types of bacteria available in pharmaceutical houses, such as: Lactobacillus acidophilus, Lactobacillus casei, Lactobacillus bulgaricus, Lactobacillus salivarius, Lactobacillus termophilus and Lactobacillus plantarum. Other useful types are Bifidobacterium bifidum and Streptoccus faecium (not to be confused with Streptoccus faecalis, which is pathogen bacteria). These types of bacteria can be found in different forms, such as suspensions, powders, capsules and pills. These products can help to control yeasts and pathogenic bacteria from the family Clostridia in intestinal tract. Simultaneous use of Probiotic with fungicide therapy is recommended. The fungi are part of intestinal eco system and they control other organisms. If Probiotic is not simultaneously used with fungicide medicine, then a growth of pathogenic bacteria can occur.

Another important procedure is the control of bacteria growth through diet, i.e. ejecting of sugar because of its stimulating effect on bacteria growth. The basic rule for sugar elimination is not to eat sweets. The list of restricted food includes candies, ice cream, cakes, sweet pies, chocolate, and fruit juices. When starting with this diet, it seems that water becomes the main drink for the child. All types of sugar should be eliminated including honey, syrups, fruit sugar and refined sugar. Some authors recommend complete while others recommend temporary elimination. Sometimes, however, it is necessary to add vitamin C if the child is used to drinking orange juice, which is also eliminated. The fruit must be eliminated from the diet in a period of one month in order to fasten the elimination of fungi.
Desertite {to sodr`at mnogu {e}er treba da bi dat i sf r`eni na neopredel eno vreme. Vo toj sl u-aj glavni i zvori najagi endni dra ti }e bi dat kompi rite, gravot, p-enkata, sl adok tropski kompi r, brokol i dr. Site vi dovi meso r i ra se dozvol eni vo ishrana ta. Di etata, i sto taka, treba da bi de kom bi ni rana so fung ci dha terapi ja, {to dava dvapati pogol emef ek vo el i naci ja tana razmo`eni te crevni gabi, otkol ku ako di etata se kori}i bez fung ci dha terapi ja.

**Ni stati ne** eden od najstarite i najbezbedni fung ci dni lekovi. Negovata bezbednost se dol`i na faktot {to toj ne se apsorbira vo krvotekot vo dozi koi naj}esto se pri pi {u vaat. Re-i si 100% od ni stati not se el i ni - rirani vo f ecesot. Zaradi toa {to ne vi e guva vo krvta, toj e bezbeden i ne mo`e da predi zvi ka neko seriozni nesakani de jstva. Mnogu od decata so autizmne sakatat da zemat kapsul i, zaradi {to najdobra op ci ja e davawe vo fora ni na suspenzi ja. Naj-esto suspensi te na ni statin se for mulirani da sodr`at 100.000 edini vo 1ml. Ako se dade vo 48 pati pogol eni dozi od preporo`ani te, toga{ mo`e da dade nesakani ef ekti vo smi sl a na zgol emena agreg si vnost.

**Amfoterici n B** mo`e da bi de mnogu toksi}en ako se dade i intravenski. Zatoa, pak, denar oral no toj e mo`e da bezbeden lek. Koga }e se dade oral no, negovat bezbednost se spo eduva so onaa na ni stati not, bi dej)i tojlo o se se apsorbira od GIT (11).

**4. Vitaminoterapija**

Vo 18 studii, sprovedeni za eval uacija na dejstvoto na **vitami n ot B6** kaj licata so au tizam toj poka`al pozitivni rezultati. Nitu eden nesakan ef ekte bi soopfiten vo tie studii. Ova e pove}e od znaa-en rezultat za ef i kasnostai bezbednosti, osobo ako se znae deka drugi te lekovi {to se davaat kaj autizm potoka`al e nekonzi sten tni rezultati i imale rizik od nesakani ef ekti.

The deserts, which consist of much sugar, should be eliminated forever. In that case, main sources of carbohydrates are potatoes, beans, corn, sweet potatoes, broccoli and others. All kinds of meat and fish are allowed in the diet. The diet should be combined with fungicide therapy, which shows twice bigger effect in elimination of intestinal fungi growth, than if the diet is used without it.

**Nystatin** is one of the oldest and the safest fungicide medicine. It is safe due to the fact, that it is not absorbed in the circulation of the blood in mostly prescribed doses. Almost 100% of Nystatine is eliminated in feces. Because it does not enter the blood, it is safe and cannot cause any serious and unwanted activities. Many autistic children do not want to take capsules and the best option is a suspension. Most frequently, suspension of Nystatin is formulated to contain 100.000 units in 1 ml. If it is applied in 4 - 8 times bigger doses than the prescribed one, then it can show unwanted effects of increased aggressiveness.

**Amphotericin B** can be very toxic if applied intravenously. If applied orally, it is a very safe medicine. When applied orally, its safety is compared to the one of Nystatin because it is badly absorbed from GIT (11).

**4. Vitamin Therapy**

In 18 studies implemented for evaluation of influence of **vitamin B6** on people with autism, it showed positive results. There were no unwanted effects, reported in these studies. It has been more than a significant result for the efficiency and safety, especially when it is known that other medicine applied in autism showed inconsistent results and had unwanted effects.
The research on the use of vitamin B6 started in the 60s of the last century. In 1966, two British neurologists – A.F. Heeley and G.E. Roberts – reported that 11 of 19 children with autism found abnormal metabolites in the urine using triptophan test. Applying each patient 30 mg tablet of vitamin B6 they succeeded in normalizing the urine. This study did not make any behavioral investigations. The German researcher V.E. Bonisch in 1968 reported that in 12 of 16 children with autism showed significant behavioral improvement when they were applied high doses of vitamin B6 from 100 mg to 600 mg per day. Three of his patients could talk for the first time after applying vitamin B6 in this open clinical trial.

After the publication of the book “Infantile autism”, Dr. Bernard Rimland in 1964 started receiving hundreds of letters by parents who had tried megavitamin therapy on their children with autism. In the questionnaire he had sent to about 1000 parents, he found out that 57 had experimented with high doses of vitamins. Most of them saw positive results with their children. As a result of this, Dr. Rimland started a large study with over 200 children with autism who were given mega doses of vitamin B6, niacinamide, pantoten acid and vitamin C. The vitamins were put in a multi type tablet, specially designed for this study. At the end of the study, after four months, it was obvious that the vitamin B6 was the most important one of the four examined vitamins and that in some cases it brought excellent improvements. The vitamin B showed considerable improvement with 30% to 40% of the children. Only a few children showed minor unwanted effects (irritable and sensitive to sounds) which disappeared when magnesium was added. Magnesium, not only eliminates unwanted effects, but it frequently improves speech and behavior.

Two years later, he and two other researchers initiated a second experimental study for megavitamin therapy, concentrating on vitamin B6 and magnesium.
Toj bil dvojno-slep placebo-kontroliran eksperiment kaj 16 deca so autizami povorno i mal o statisti -ki zna-ajni rezultati. Dozi te se dv `el in mej u 300 mg i 500 mg dnevno.

Vo dvete studii decata pok a `ale i irok rang na izvonredni rezultati so vitami n B6. Ti i mal e podobar kontakt so o-i te, po-k a `uval e pogol emi n teres kon svetot okol u ni v, pomal ku bile besni, govorot bi podobari, op to zemeno stanal e ponor mal ni. Francuski te istra`uva-i, predvodeni od prof. Gilbert LeLord, napravile dopol nite dol no i stra uwayne so vitamin n-B6 i magnezi um. Ni vni ot eksperiment go sprovel e v rz 44 hospitalizirani deca so autizam Ottoga i maat publi cirano pov o studii, kade {to ja i sptuvaat upotreba na vitami n-B6 so magnevi um i li bez nego kaj deca i adul ti so autizam Vo ni vni te studii davan e 1 gram dnehvi viti m-B6 i pol ovi na gram magnezi um LeLord i sor. neodamna gi rezimi ral e rezul ta ti od 91 pacient, kade {to zabe le `al e kaj 14% markatno podobruvawe, kaj 33% podobruvawe, 42% bile bez podobruvawe i kaj 11% vlo`uva at na klini `kata sli ka. Vo site vni studii ne bile zabei e an nesakani dejstva.

Drugi dve studii odi stra uwa-ki te grupi vo SAD, predvodeni od Thomas Gualtieri i sor. na Uni verzitetet vo Severna Karolina i George Ellman i sor. od Sonoma, dr`avna ta bolnica vo Kalifornija, imale pozi tivi studii kaj pacienti so autizam (12).

Vitami n C e va` an antioksi dant i mo`e da bi de od gol ena pol za kaj dejto na auti zam Toj e vitami n rastvorliv vo voda i zatoa mogu retko mo`e da se zabel e`i vi sti nskatoki -nost, ovser {to mo`e da se formiraat kri stali i na skurki se li na u rinata, kogatoj se koristi vo ekstro mena vo sko dozi. Vitami n not-C treba da po-ne da se dava vo doza od 5 mg/kg dnevno.

That was a double “blind”, placebo-controlled experiment with 16 children with autism and again there were statistically significant results. The doses ranged from 300 mg to 500 mg per day.

In both studies, the children showed wide range of excellent results with vitamin B6. They had better eye contact, showed bigger interest for the world around them, were less furious, their speech was improved, they became more normal in general.

The French researchers led by Professor Gilbert LeLord additionally examined vitamin B6 and magnesium. Their experiment was carried out with 44 hospitalized children with autism. Since then, they have published a large number of studies, examining the use of vitamin B6 with magnesium or without it, both with children and adults. In their studies, a daily dose of 1 g. vitamin B6 and half a gram magnesium was applied. LeLord and associates have summarized their results recently with 91 patients and stated 14% with noticeable improvement, 33% with improvement, 42% without improvement and 11% with worse clinical picture. In all their studies, unwanted actions have not been noticed.

Other two studies of the research groups from USA, led by Thomas Gualtieri and associates at the University of North Caroline and George Ellman with associates from Sonoma, the state hospital in California, has positive results in patients with autism (12).

Vitamin C is an important antioxidant and could be of great benefit for children with autism. The vitamin is soluble in water and therefore real toxicity is rarely noticeable, except formation of crystals in ascorbic acid in the urine when used in extremely high doses. Vitamin C has to be applied with starting daily dose of 5/10 mg/kg and with gradual increase of the dose. The use of vitamin C has been examined in a small double “blind”, placebo-controlled cross-examined study, where a slight alleviation of the symptoms has been found in schoolchildren. The authors have put forward hypothesis that the action is due to assumed dopaminergic effects of vitamin C. The results of this study have not been repeated again (13).
**Folic acid** is useful when applied for autism. The great French researcher Jerome Lejeune reported that a dose of 250 mg of folic acid at one kilogram of corporal weight per day showed great improvements in some children with autism. He applied a daily dose of 20 mg folic acid to thousands of mentally retarded children (mostly with Down syndrome) in different studies without any harmful and unwanted effects (14).

**5. Dimethyl-glycine (DMG)**

DMG is a substance with sweet taste described as natural, a simple component with unknown and unwanted effects. DMG is available in many healthy food stores in USA. It is legally classified as nutritious substance. It is used in many forms mostly as small tablets of 125 mg. They are tasteful and children quickly chew them.

Many studies have proved that DMG enhances efficiency of the immunity system, improves physical and athletic performances, both in people in animals, and has a wide range of useful effects. It is very safe. It is present in small quantities in brown rice and the liver. From the aspect of chemistry and physiology, it is soluble in water like vitamins, as for example vitamins of B group. The main reason it has not been classified as vitamin is the fact that it has not specific symptoms related to the deficit of DMG.

Since the very beginning of the therapy with DMG, many parents reported that their children’s behavior considerably improved, they had better eye contact, improved speech, showing greater interest and abilities for talking.

At the beginning, pre-school children are recommended a daily dose of half of 125 mg tablet or capsule when having breakfast, and older children one tablet.
Postepeno treba da se zgoljmuva dozata od edna na ~etiri tableti dnevno, a za vozrasi te od 2 na 8 tableti dnevno. Ako se pojavja po-~etno zgoljmuva na hi peraktna vrste (tj. se javuva kaj 5-10% od slu~aite), toga dozata treba da se namali. Vo toj slu~aj, se dodava 800 mg folni kiselina. DMG se preporu~uva davawe za 2-3 nedeli, potem dodava se B6 i magnezium.

6. Alfa-lipoaic kiselina
Alfa-lipoaic kiselina e ditiol masna kiselina, koja pretstavuva priroden vznosok, ki mo~e da bide vredno kaks kaj deca, koja se zaznaje za autizam. Alfa-lipoaic kiselina e naturalni produkt na ~ove~kite kletki i zaradi toa ima minimalna toksi~nost. Ispituvane doze ~e do 25 mg/kg/dnevno, na kaj deca i tozi vklju~uva do 3 godini. Alfa-lipoaic kiselina mo~e da oseboma otstranuvaweto na `ivata od intracelularno do ekstracelularno. Toa mo~e da bide mnogu polezno za mobiliziranje na `ivata, kaks kaj ovozmo~uva dostapnost na DMSA da ja vrze `ivata.

7. Diet free of gluten and casein
Glutenite se proteini, kaks kaj je zastupan vo rastitelni svet na potkla~en na potklasta monokotiledoni. Vo ova semejstvo se ~amenot, ja~menot, ovesot, r`ta i nivnite derivati. Caseinot e fosfoprotein od mlekoto. Obecemo, se, da ke je similar kaj glutenot. Ima sigurni podatoci deka nekoi od deca, ki so berze prebesto, so intolerantni kon hrana, pri kaks kaj se: glavobolka, bolenost vo `eludnikot, grevfane, vriskawe i pla~ewe, sleeping problems, hyperactivity, aggression, high

The dose has to be continuously increased from 1 to 4 tablets daily, and for adults 2 to 8 tablets per day. The dose has to be reduced if initial increase of hyperactivity occurs (noticed at 5 – 10% of cases). In that case, 800 mg folic acid is added. DMG is recommended to be applied for 2-3 weeks, then gradually adding B6 and magnesium.

6. Alpha-Lipoic Acid
Alpha-lipoic acid is ditiol fatty acid, which is a natural binding agent and powerful antioxidant. It was used in Germany on the treatment of diabetic neuropathy with excellent results. Its antioxidant effects can be a great benefit in children with autism. The treatment starts with a daily dose of 1-3 mg/kg and it increases to 10 mg/kg. Alpha-lipoic acid is a natural product of human cells and therefore it has minimal toxicity. The examined doses of more than 25 mg/kg daily applied for more than 3 years with adults, did not show any toxicity. Alpha-lipoic acid can alleviate the removal of mercury from intracellular to extra-cellular. That can be very useful for mobilization of mercury, which enables DMSA to bind mercury.

7. Diet Free of Gluten and Casein
Glutens are proteins present in flora and belong to the subclass monocotyledons. In this family are wheat, barley, oats, rye and their derivates. Casein is phosphor protein in milk with very similar molecule structure to gluten.

There are certain data that some people with autism are intolerant towards food that contains gluten and casein and they respond with many physical and behavioral problems such as headaches, stomachaches, nauseating, screaming and crying, sleeping problems, hyperactivity, aggression, high
problemi vo spieveto, hiper aktivnost, agresija, pre-uvstvitielnost kon zvukovi, zmor, depresija, crenvi problemi (dibohydr, opst piaci, gasovi), uzi i inf ekci duri i konvulzi. Za da se podobri ovaai sptomatologija ozi ja treba da se iizbegnuvaat oni e vi dovi hrana (to gi soderat glutenot i kazi not.

Tretmanot so di eta bez gluten i kazein po-drzbi ra pri druvave kon odredeni pravila {to treba da se po-i tuvaat:
• di etata mora da se sproveduva kontinuirano i dosledno;
• nau-ete go deteto deka hrana ne e samo zadovolov sto, tukui i izvor na zdravje;
• odnapred bi deki gotovni na iskuvi enija i i majte dobr a zamena za sekoj vid hrana;
• odnapred obezbedite dobra i vkusna hrana za deteto;
• zdravjeto na deteto neka bi de pri oritet i celoto semejstvo neka jazmata sta a hranata kako i deteto;
• povzete se so drugi ljudi {to primenuvaat vakva dieta;
• vni naajtene na saboterite vo i shranata;
• poka`ete i na sredi nata deka sakate na deteto da mu pomognete, a ni kako deka sakate da mu go smeni ten na i not na i vot;
• i spituajte go toa {to treba da vi eze vo detski ot organi zam vki u-uva}i g lekovi- te, vitami ni tie i drugo;
• sadovite za gotvewe na hranata i piborot za jadewe mora da bi dat posebni;
• proktite koi se upotrebuvaat mora da bi dat posebno skl adi rani;
• da se izvastat rodnite za celite na dietai da se zamolat da ne im davaat na decata tajno od zabraneta a hranata;
• ni kako ne predavaite se bi dejii na krajot je bi de etezodovol ni odrezul tatite.

Prehrambeni proktitite {to mo e da se koristat vo di eta bez gluten i kazein se sredne ve:

sensitivity to sounds, fatigue, depression, in testinal problems (diarrhea), obstipatio, gases), ear infections and other convulsions. Food containing gluten and casein should be avoided in order to improve these symptoms.

The treatment with a diet free of gluten and casein means obeying certain rules that have to be respected:
• The diet has to be carried out continuously and persistently;
• Teach your child that food is not only pleasure, but source of health;
• Be ready for temptations in advance and have good replacement for any kind of food;
• Provide, in advance, good and tasty food for your child;
• The health of your child has to be a priority and the whole family has to use the same food as your child;
• Contact with other people who use the same diet;
• Take care of nutrition saboteurs;
• Show people that you want to help your child and not to change the child’s life;
• Examine everything which enters your child’s organism, including medicine, vitamins and so on;
• The dishes for preparing food and cutlery have to be special;
• The used products have to be separately stored;
• To inform the relatives about the aims of the diet and to ask them not to give the child secretly the forbidden food;
• Do not give up because, at the end you will be satisfied with the results.

Food products that can be used in the diet free of gluten and casein are the following:
• Protein sources: pork, lamb, veal, beef, chicken, turkey, duck, pheasant, crabs, seashells, tuna, trout, salmon, sardines, eggs, vegetable proteins – soybean, soybean shells, soybean yoghurt.

• Flour: rice flour, soybean flour, starch, corn flour, groats, lentil flour, bean flour, chestnut flour, millet flour.

• Vegetables: lettuce, leek, garlic, carrot, celery, parsley, white potatoes, tomatoes, spinach, beet, green paprika, peas, green beans, soybean, bean, cucumber, pumpkin, squash, cabbage, cauliflower, corn, rape.

• Fruit: pears, quince, figs, oranges, mandarins, strawberries, raspberries, blackberries, pineapple, melon, watermelon, coconut, dates, bilberries, apricots, peaches, plums, prunes, cherries.

• Drinks: fruit juices, carrot juice, beet juice, tomato juice.

• Grains and seeds: nuts, sunflower seeds, pumpkin seeds, almonds, hazelnuts, sesame, chickpea, peanuts.

• Other: pure cocoa, cooking chocolate (without milk), margarine free of casein, vinegar, fruit vinegar (without apple and grapes, and in diet with fungi, then wine vinegar must not be used).

Food products that must not be used in diet free of gluten and casein are the following:

• milk and milk products (cheese, feta cheese, yoghurt, cream, sour milk);
• Wheat and wheat products (pastas and flour);
• Barley and barley products (flour);
• Oats and oat products (flour);
• Rye and rye products (16).

Conclusion

Biomedical therapy of autism is a current method and it is essential to consider that medicine is not
كات 필요한 درمان و انتقال دارویی است. درمان مصرفه B6، مگنزیم، و آدرنال بیوپترین در کودکان با اوتیسم می‌باشد. 

کینزیلی پایگاه نشرات.