

Pharmaceutical Treatment in Autism Spectrum Disorder

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Abstract

Research has found that two antipsychotic drugs, Risperidone and Aripiprazole, can help reduce emotional affection, aggression, hyperactivity and self-harm. Many people taking Risperidone and Aripiprazole report effects such as weight gain, somnolence and abnormal movements. Because of these side effects, these medicines can be best used for children who have more severe symptoms. Stimulant drugs remain the most effective agents in the treatment of patients who have TSA. Since incentives can exacerbate tics type behaviours or stereotypes, the risk-benefit ratio of stimulants in these patients should always be carefully examined and discussed with families. Indeed, with a single dose of methylphenidate (0.4 mg / kg), it was found to improve about one-third of the patients with increased hyperactivity, stereotypes, dysfunctions or motor tics.

Keywords: autism, antipsychotics, stimulants, stereotypes, antidepressants.

Introduction

The pharmacological treatment of patients who have TSA is still based on antidepressants (SSRIs and atypical antidepressants such as Venlafaxine or Mirtazapine) that seem very useful to patients who have symptoms of anxiety, repetitive behaviours, obsessions or compulsions, and social avoidance / withdrawal. Cholinergic medicinal products may also offer alternative treatment for patients who have significant irritability).

Pharmaceutical Treatment in Spectrum Autism Disorder

Defining Spectrum Autism Disorder

Autism is a condition considered to be one of the most common disorders of childhood, more common than cancer, diabetes and Down syndrome. International statistics show that 1 out of 68 children suffer from autism and the data recorded in recent years in Romania show a continuous increase in their number.

It is a neurobiological disorder that affects the baby until the age of 3 years, until this age the deficiencies are obvious and a diagnosis can be established. Autism involves all levels of development, cognitive, behavioral, coarse motricity, fine motorism, virtually all the aspects of the normal development of a child are affected.

Autism is not a disease but a behavioral disorder therefore diagnosis cannot be made by blood tests, DNA analysis or other clinical investigations. The only way a psychiatrist in paediatrics puts the diagnosis of autism is by analyzing the child's behaviour. Therefore, parent involvement is essential, because he /she must first observe if anything abnormal occurs in the development of the little one.

Diagnostic criteria and coexisting manifestations

The current specific criteria for TSA diagnosis involve three categories:

1. Affected social interaction, as shown by:
 - a) Deficiencies in the use of non-verbal communication, specific behaviours, such as avoiding eyes in the eye, facial expression, body postures;
 - b) Inability to develop age-appropriate reciprocal relationships;
 - c) Lack of spontaneity;
 - d) Lack of social reactions, interests, limited awareness of mutual emotions.
2. Qualitative deficiencies in communication skills, shown by:
 - a) Speech delays or lack of language acquisition (lack or reduced frequency of early language, lack of response to sounds);
 - b) Inability to initiate or maintain a conversation;
 - c) Language stereotypes and repetitive use of language;
 - d) Lack of development of age-appropriate play or lack of social imitative play.

3. Presence of preoccupations with certain forms, patterns, repetitive behaviour, limited interest in certain activities:

- a) Narrow and unusual interests;
- b) Inflexibility for certain activities;
- c) Motor stereotypes (hand waving, finger movement, jumping);
- d) Concerns about parts of objects, shapes, patterns.

Diagnostic criteria imply appreciation of those abnormal delays or abnormalities in social interaction, imaginative language and / or games in the first 3 years of life, so as to make a comparison between normal behaviour for the child's age and current behaviour. Therefore, a priority is to identify the early signs of TSA and initiate interventions as soon as possible to help the child evolve. Several studies on infants at high risk of autism confirm that in some children delays and TSA deviations can be identified between 6 and 12 months. Symptoms vary according to age, as can be seen in Table. 1

Table 1. Symptoms by age

<i>No.</i>	<i>Age</i>	<i>Symptoms</i>
1.	2 - 3 months	Lack of eye contact frequently with others.
2.	3 months	Does not smile for visual or auditory contact.
3.	6 months	He/she has no facial expressions to express joy.
4.	8 months	Does not turn the head in your direction when you talk to him /her.
5.	9 months	Does not slam words.
6.	1 year	He/she is irritated by the sounds around him/her, does not sigh, does not turn his/her gaze to the person who speaks to him/her, he/she is not able to look at a point somebody points to.
7.	16 months	Does not consciously speak a word.
8.	18 months	Not idiot with things that interest him/her.
9.	24 months	Does not make a sentence in two words.

Possible causes

- Use of antidepressants during the first months of pregnancy

Both the use of antidepressants during pregnancy and the prevalence of autism spectrum disorders have increased in recent years. Investigating the association between maternal use of antidepressants during pregnancy and autism has become a very important point for autistic patients.

Antidepressant use rates during pregnancy have increased in recent years, and studies indicate that 1% -8% of pregnant women receive antidepressants. Some studies find that prenatal exposure to antidepressants is associated with adverse effects in the offspring, such as an increase in congenital heart malformations or the occurrence of autism. It has been suggested that increasing serotonergic activity during brain development may increase the risk of autism, and two recent epidemiological studies link prenatal exposure to selective serotonin reuptake inhibitor (SSRI) with TSA (Autism Spectrum Disorder).

A limitation, recognized in both these epidemiological studies, is that a parental psychiatric disorder is itself associated with an increased risk of autism in the offspring, and therefore the suggested effect of the drug may be a consequence of maternal disease rather than a treatment. Discontinuation of antidepressants during pregnancy, however, presents an increased risk of relapse to depression, with known risks for the mother as well as for the child.

Children exposed to any type of antidepressant during pregnancy reported a 50% higher risk for autism compared to those not exposed to treatment. The association was found for both high and low doses, and the risk estimates were comparable regardless of the time of exposure. Treatment and counselling of pregnant women with affective disorders should take into account the known adverse effects of untreated affective disorder as well as the known and potential adverse effects of antidepressants.

▪ Exposure to pollution during pregnancy

Another factor that may be a potential cause of TSA (Autism Spectrum Disorder) is exposure to pollutants and toxic substances during the foetal development. This possibility was presented due to the perceived increase in TSA prevalence in recent years, and the belief that it appeared as a disorder detected in geographic areas with high pollution rates. Although no conclusive evidence has so far been found, this has become an active field of research.

▪ Genetic causes

The identifiable genetic causes can be divided into:

1. Monogenic diseases;
2. Chromosomal abnormalities;
3. CNV (microdeletions / duplications).

Neuronal synapse defects are the basis for the pathophysiology of TSA manifestations, a mutation in the neuroglin coding gene (NLGN) that is located on chromosome X, or polymorphisms in genes coding for neurexins (NRXN) are involved in the occurrence of clinical symptomatology in patients with TSA, since interactions between postinaplastic neuroleins and presynaptic beta-neurexins are essential for synaptogenesis.

Psychotropic Medication in Autism Spectrum Disorder

Psychotropic medication is that medication that acts on the brain, which changes the concentration of some key substances at its level. These drugs influence mental processes and mood and act on nerve pathways in specific areas of the brain and help to correct certain chemical imbalances in the brain that produce the symptoms of mental illness.

Psychotropic substances can act on the brain in two ways, namely:

- by stimulating these processes, and they are called psychoanaleptic;
- the depression of these processes, and they are called psycholeptics;

Psychotropic substances also include psychodysleptics, i.e. substances that create hallucinations, such as LSD, but which are not used as medicines.

Active substances and age at which autism drugs are indicated

Rispolept contains risperidone. Risperidone is a neuroleptic (antipsychotic, tranquilizer) indicated in schizophrenia, acting predominantly on its negative symptoms (such as isolation, apathy, difficulty in speaking, that occurs in autism).

Risperidone is also indicated in the short-term symptomatic treatment (at most 6 weeks) of persistent aggression in behavioral disorder in children from the age of 5 years and adolescents with under-developed mental retardation or mental retardation.

Clopixol contains the active substance zuclopentixol, an antipsychotic, as well as risperidone, indicated primarily in the treatment of schizophrenia and other psychoses related to schizophrenia, mania and agitation and aggression in patients with mental disabilities. Clopixol is not recommended for children and adolescents.

Cerebrolysin contains small protein fragments that help brain cells to function and protect and repair. Studies in young, adult and aged cognitive animals have

shown that it can improve the ability to learn. Cerebrolysin can be given to children as directed by the physician. Cerebrolysin is administered as an injection.

Tonotyl N contains amino acids. Amino acids are substances that make up the proteins. They can be given to children and are indicated in senile dementia, diseases that affect neuronal metabolism, as tonic in weakness, anorexia and convalescence. Tonotil N has the effect of stimulating brain activity, producing energy and increasing oxygen use at the cellular level.

Strattera contains the active substance atomoxetine. It is indicated in attention deficit / hyperactivity disorder (ADHD). It is used in children older than 6 years and adolescents. Unlike other drugs administered in ADHD, it is not a stimulant, it is not an amphetamine.

The Pure DHA food supplement contains omega-3 acids (docosahexaenoic acid) from fish oil. Omega 3 fish oil supplements are recommended by the Romanian Paediatric Society and the Society of Neurology and Child Psychiatry of Romania (SNPCAR) to maintain normal brain function.

These supplements can be administered from the age of 6 months. DHA is a very important fatty acid for the development and normal functioning of the small child's brain and throughout the life.

Conditions of administration

It is recommended that the child be consulted by a specialist in infantile neurology and infant and adolescent psychiatry or by physicians who are well acquainted with the treatment of behavioral disorders in children and adolescents.

Pharmacological treatment is not indicated for all children with this syndrome and the decision to administer these medications should be based on a very careful assessment by the physician of the severity of the child's symptoms in relation to his or her age and persistence. So the decision belongs to the doctor.

In any case, medical treatment must be an integral part of a more comprehensive treatment program that includes psychosocial and educational interventions, psychotherapy, educational and social measures and aims to stabilize children with behavioral syndrome characterized by symptoms that may include a history of chronic reduction of attention, distraction, emotional lability, impulsivity or moderate to severe hyperactivity.

Risks in the event of a sudden discontinuation of medication

Sudden discontinuation of long-term treatment with some psychotropic substances may lead to the appearance of a set of symptoms called abstinence, withdrawal, or interruption syndrome.

Sudden discontinuation of Risperidone may result, for example, nausea, vomiting, sweating, difficulty sleeping.

Sudden discontinuation of Clozapine may result, for example, in muscle stiffness, feeling sick, difficulty sleeping.

In Strattera, no symptoms of abstinence syndrome have been reported.

In the case of Cerebrolysin, Tonalin N and Pure DHA, abrupt cessation of treatment does not imply abstinence syndrome.

Advantages of psychotropic drugs and medical malpractice

As I said earlier, psychotropics in autism act on serotonin and dopamine in the brain, which in this case are in excess, altering transmissions from the neuronal level in such a way as to bring them to normal.

It is imperative that drug treatment be an integral part of a more comprehensive treatment program that includes psychosocial and educational interventions, psychotherapy, educational and social measures and aimed at stabilizing children with this behavioral syndrome. Malpractice can only be established by specialized medical committees, it cannot fit into a template.

With each situation, the specialist doctor is faced with a single case, for which he will determine the administration of psychotropic drugs based on the benefit / risk ratio, which must be as high as possible (i.e. the benefits of psychotropic medication must exceed as much of the risks that such a medication implies in the given context).

Medical malpractice is defined as "professional misconduct by the health service provider through action, inaction, negligence, recklessness, ignorance or non-compliance with confidentiality, consent, and obligation to provide health services resulting in causing harm to the patient and involving engaging civil liability." It is, in short, a medical professional error that damages the patient.

The key word for malpractice is the error. What the public should understand is that in the context of malpractice, the error has two components: factual error (dependent on the nature of the medical act) and error of norm (depending on professional attitudes).

The factual error cannot be attributed to the healthcare provider because it is the consequence of an imperfection of medical science at the present time or of a specific, individual patient reaction that leads to a misunderstanding of the situation by the physician involved and by any other doctor.

Erosion is the medical mistake that can be attributed to the healthcare provider because it is the result of non-compliance with certain rules unanimously accepted in medical practice. These can be caused either by taking unnecessary actions or by failing to take an action that is necessary in the present case.

Conclusions

Research has found that two antipsychotic drugs, Risperidone and Aripiprazole, can help reduce emotional affection, aggression, hyperactivity and self-harm. Many people taking Risperidone and Aripiprazole report effects such as weight gain, somnolence and abnormal movements. Because of these side effects, these medicines can be best used for children who have more severe symptoms.

Other types of medicines used are:

- Antidepressants: Prozac, Cipramil, Saraf;
- Stimulants: Ritalin, Adderall, Tenex.

Stimulant drugs remain the most effective agents in the treatment of patients who have TSA. Since incentives can exacerbate behaviors or stereotypes, the risk-benefit ratio of stimulants in these patients should always be carefully examined and discussed with families. Indeed, a single dose of methylphenidate (0.4 mg / kg) was found to improve about one-third of patients with increased hyperactivity, stereotypes, dysfunctions or motor tics.

The pharmacological treatment of patients who have TSA is still based on antidepressants (SSRIs and atypical antidepressants such as Venlafaxine or Mirtazapine) that seem very useful to patients who have symptoms of anxiety, repetitive behaviours, obsessions or compulsions, and social avoidance / withdrawal. Cholinergic medicinal products may also offer alternative treatment for patients who have significant irritability.

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