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Case report

The Case Report of Treatment Strategy for *Anorexia nervosa* with Psychotic Elements in Adolescent

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A B S T R A C T

Eating disorders in early childhood are the same frequency in boys and girls. During adolescence eating disorders are ten (10) times more frequent in girls than in boys. Worrying is the fact that eating disorders are the third chronic illness among adolescents after obesity and asthma. Depicting this adolescent we tried to show difficulty of treatment of this disorder, where in the beginning is important to stabilize body weight and prevent somatic damages such as: heart damage, amenorrhoea, changes in EKG (electrocardiogram) and electrolyte dysbalance that could endanger the life of patient. Simultaneously it is important to recognize and treat comorbid psychological disturbances such as in this case: depression, delusions with occasional psychotic reactions combined with unrealistic thinking about the layout of her own body. There is still no cure for the treatment of eating disorders which are in growing number of reports among male adolescents.

Key words: *anorexia nervosa, olanzapine, unrealistic body image*

Introduction

Richard Morton first described *Anorexia nervosa* more than 300 years ago, in 1689, as a condition of »a Nervous Consumption« caused by »sadness, and anxious cares«. In 1873, two prominent physicians separately described *Anorexia nervosa*; Charles Laségue described it as »a hysteria linked to hypochondriasis«, and Sir William W. Gull described it as »a perversion of the ego«[1].

The causes of eating disorders are not fully understood but we have reasons to believe that biological, psychological and social factors play important role in its development and outcome of treatment[2]. Eating disorders remain an important health care problem for clinicians working with children and adolescents[3]. Diagnostic and Statistical Manual of Mental disorders (DSM-IV) diagnostic criteria for *Anorexia nervosa* are: 1. refusal to maintain body weight at or above a minimally normal weight for age and height, 2. intense fear of gaining weight or becoming fat, even thought underweight, 3. disturbance in the way in which one´s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight, 4. in postmenarcheal females, amenorrhoea, i.e. the absence of at least three consecutive menstrual cycles. A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen administration[4] Amenorrhea is a DSM-IV criterion for the diagnosis of *Anorexia nervosa* and reflects weight and nutritional status rather than providing useful diagnostic information[5]. *Anorexia nervosa* has the highest mortality of any psychiatric disorder. It has prevalence of about 0.3% in young women. It is more than twice as common in teenage girls, with an average age of 15 years; 80–90% of patients with anorexia are females. It is the most common cause of weight loss in young women and of admission to child and adolescent hospital service. Most of the causes of *Anorexia nervosa*

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are immense distress and frustration in careers and professions[6].

Risk factors mostly are: women gender, family factors, biological vulnerability, individual psychological factors such as perfectionism and obsessive behavior, lack of confidence, feeling of inadequacy, depression, alcohol and drug use, genetic vulnerabilities, individual behavior such as dieting, involvement in activities or professional control-gymnastic, ballet, wrestling, actors, models, dysfunction of neurotransmitters (norepinephrine or serotonin), cultural risk factors such as living in industrialized country and imperative to being beautiful, stressful life events or sexual risk factors (Table 1)[7]. The multidimensional approach to the ethiopathogenesis of eating disorders include genetic, biological, psychosocial effects and premorbid personality markers[8]. Leptin which was discovered only a decade earlier, is a peptide that informs hypothalamic areas about the energy balance of the body. New scientific researches has suggested a possible role of leptin in eating disorders[9]. The younger age group is more likely to present with *Anorexia nervosa*, while the older adolescents can present with either anorexia or bulimia nervosa. Failure of outpatient management requires hospitalization for nutritional rehabilitation with close monitoring of fluid and electrolyte status to prevent the development of refeeding syndrome. Family involvement is vital, particularly in the younger patients, with ongoing family therapy offering the best outcomes[10].

Olanzapine has proven to be as effective drug in maintaining body weight as well as in alleviation delusions and unrealistic perceptions about own body and body weight, what was confirmed according to data in the literature in recent years.

TABLE 1
RISK FACTORS ASSOCIATED WITH *ANOREXIA NERVOSA*

Risk factors	Main features
1. Genetic factors	more connection with monozygotic twins (56%)
2. Disturbance axis hypothalamaus-pituitary-gonads	↑ cortisol in plasma ↑ endogenous opiates ↓ serotonin
3. Premorbid personality traits	↓ sex drive defence of oral fantasies
4. Mother-child relationship	absolute authority of the mother passive father
5. »Crisis« of identity	the struggle for self respect of their own identity
6. The impact of »modern« life style	imperative of beauty, thinness, an ideal of youth
7. Selection of occupations that required thinness	ballet dancer, gymnast, jockey, dancer
8. Relationship within the family	overly protective parents, control daughter, avoid separation
9. Personality traits	68% have major depressive disorder 65% have anxiety disorder (26% obsessive compulsive disorder, 34% social phobia)
10. »C« Cluster of personality disorder	25% of patients with *Anorexia nervosa*

↑ – increased
↓ – decreased

Case Report

D. Č. is 15 years old girl, who attend first class of secondary school. She was living with her parents and twin sisters seven years old. Mother is unemployed, father is employed. One of the twin sisters is under neurologically treatment because of epileptic seizures, mother is under treatment by oncologist because of breast cancer. Early psychomotoric development was regular, she established regular control of sphincters, spoke up and walked on the feet properly. During elementary school she was excellent pupil, with good manner. During early childhood on physical plan, she was not seriously ill, she denied any traumatic injury of the head, convulsions and disturbances of consciousness. Family relationships were in harmony alleged by the parents, mother was occasionally tended to anxious and depressive symptomatology, related to her own malignant disease.

Year and the half before the admission in the University Department of child and adolescent psychiatry, she began an intensive diet, after observation by her peers that she was an overweight. She has lost 30 kilograms during time period of 10 to 12 months, and last 3 months she has eaten minimal quantity of food. Alleged by the family, she ate strictly determined food, mostly with lower caloric values, she has insisted on very specific type of bread, she has chosen dishes, of the fruit she has taken only apples, she exercised intensively, she was attempted to walk as much as possible. Beside changes related to food, we observed disturbances in psychological functioning: she dragged from the surrounding, she was going out with her peers less often, time spent mostly in her room, with mother talked only about food, she verbalized fear of fattening. Parents were expressed concern because she was very weak in last time, she was barely standing on her feet and looked very exhausted. Also had all the excellent grades in school, but school authorities have expressed concern for her health. In august twenty--fifth of the 2008, outpatient review was made on Pediatric clinic and has proposed hospital treatment. First hospitalization on Psychiatric clinic for child and adolescent psychiatry was in April 2008. In somatic and neurological status we have observed that the patient was pale, tired, with cold skin on touch, lanugo hairs over the skin, halos around the eyes, external mucoses were pale, weights 44 kilograms, heights 170 centimeters, with body mass index of 15.2. According to normal range (18.5–25.0) our patient is severely underweight. A body mass index nearing 15 is usually used as an indicator for starvation and the health risks involved, with a BMI

<17.5 being an informal criterion for diagnosis of *Anorexia nervosa*[6]. In psychological status: decreased mood, abulic, anhedonic, resigned, with insufficient criticism to her condition, denied suicide thoughts, not psychotic. After admission of the patient, broad laboratory investigation was done: complete blood count, iron, C-reactive protein (CRP), liver enzymes tests, sex hormones, cortisol, adrenocorticotropic hormone (ACTH), thyroid hormones (TH), C-peptide, and all of these tests were in the normal range. Creatinine was 71 μmol/L (normal range: 18–62 μmol/L), unsaturated iron binding capacity (UIBC) 25.1 μmol/L (normal range:31.0–72.0 μmol/L), transferrin saturation (TSAT) 37 μmol/L (normal range:6–33 μmol/L). She was examined by pediatrician, who has recommended diet with higher caloric intake and Ensure plus potion. Because of amenorrhoea, which has occured a year before the hospital treatment, she was investigated twice time by gynecologist, who did not prescribe pharmacological treatment. Psychological testing displayed that the she was above average intelligence for adolescent, without cognitive disturbances, but with nutrition disturbance (anorexia), followed with depressive symptoms, lower self esteem, obsession and social withdrawal. In treatment plan beside intensive psychotherapy and sociotherapy also was included pharmacological treatment with antidepressant, because of marked clinical depressing picture. Pharmacological treatment was started with escitalopram five (5) mg per day, with increment of dose on ten (10) mg per day, after one week. Gradually, we have observed discrete shift on willing-affective plan, patient became more critical to her own condition, but still with a resistance to taking large quantities of food. After discharge from the Clinic, it was continued ambulatory care.

First check examination after discharge (sixth month)-adolescent was still resigned, apathetic, she ate minimal amount of selected food, refused intake of food with higher caloric values, she isolated herself and dragged herself from peers. Dose of escitalopram was increased on twenty (20) mg in the morning. Second check examination after discharge (seventh month)-without shift in psychic status, body weight was 44.5 kg, laboratory test displayed increased liver transaminases, aspartate transaminase (AST) 94, normal range:14–22 U/L; alanine transaminase (ALT) 177, normal range:10–20 U/L. After doing some other tests (ultrasound of liver and markers for viral hepatitis B and C) it was concluded that was slightly and transitory liver lesion. We have put out escitalopram from therapy. Given the deterioration in the mental status and body weight of 45 kilograms, it was again recommended hospital treatment, but family rejected it. We have started pharmacological treatment with fluvoxamine in dose of fifty (50) mg in the evening, but because of increased liver transaminases this medication also was put out of therapy. Third check examination after discharge (ninth month)-adolescent successfully passed entrance examination for secondary medical school, although her first choice was general-program secondary school. From parents we have found out that adolescent »was in fear that she will not pass entrance examination for general-program secondary school« and self-initiatively decided to enter into secondary medical school. Adolescent cited as a reason for her choice was »her will to help other people«. Her weight was stable, appetite was still weak, it was observed her preoccupation with nutrition and foodstuff. We have put in therapy sulpiride capsules in dose 100 mg twice a day, considering the fact that this medicine does not affect the metabolism, does not increase liver transaminases, in lower doses has good antidepressant effect and increase appetite. Fourth check examination after discharge (tenth month) – it was observed deterioration in mental status, she was very exhausted, hardly stood on her legs, looked malnourished (body weight 43 kilograms, body height 170 cm), body mass index (BMI) 14.87 directing the malnutrition, very uncritical to her condition, not motivated for treatment, rejected staying on Clinic. From parents we found out that she was extremely tense, irritable, changed mood easily, conflicts were often if parents does not buy strictly specific food etc. In school she still had excellent grades, but she did not fit well in their peers, mostly she was alone, she did not go out, during the day was quite asleep. Self-initiatively decreased taking of Ensure Plus potion from six to two doses. Ensure plus is a source of complete, balanced nutrition that provides concentrated calories, protein and fiber to help patients gain or maintain weight. One Ensure Plus has approximately 350 calorie density so daily income in our case was 2000 calories (4 to 6 per day). Ensure Plus may be substituted for Ensure if the patient needs to drink 3 or 4 cans of regular Ensure to reach a weight goal. Fifth check examination (tenth month) – in treatment was included atypical antipsychotic drug olanzapine tablets in dose of five (5) mg in the morning with sulpiride two hundred (200) mg divided in two doses. During examination it was observed that the patient was physically and mentally exhausted, in mental status delusions and unrealistic attitudes about external appearance were presented, completely uncritical to her external appearance, she considered that she was not »thin« enough, persistently has rejected taking food in more meals, mostly has consumed apples. She was very abulic, not motivated for therapeutic process, has rejected taking medicines. Hospital treatment was recommended. Second hospitalization at the clinical department for child and adolescent psychiatry (13.10.–17.11.2008.) – in psychiatric status depressive mood was dominated, ambivalent attitude according to suicide, delusions, possessed ideas about external physical appearance, with general physical exhaustion as reaction on visible undernourishment (body weight 43 kilograms, body height 170 centimeters). It was done comprehensive somatic investigation and retest by psychologist: electroencephalography (EEG) examination (normal), control complete blood count (mild microcytic anemia), sex hormones: follicle-stimulating hormone (FSH), luteinizing hormone (LH), estradiol, progesterone-all were in normal range. She was examined by cardiologist-except bradycardia on electrocardiogram (EKG) test, all parameters were normal. Thyroid hormones were in normal

range. Pediatric examination: Ensure plus potions up to 2000 calories per day. She has been on continuous psychotherapy with cognitive behavioral approach individually. Along with the surveillance of medical staff in seven days polyvitaminic therapy with glucose and vitamines B and C was udertaken. Daily menu was made up according pediatric recommendations up to 2000 calories per day. Dose of olanzapine was increased on ten (10) mg divided in two doses with sulpiride tablets. The aim of therapy was to prevent further decrease on body weight, but also confrontation with the general state of the goal to achieve more critical attitude to disease and external appearance. Considering that the patient occasionally displayed symptoms of psychotic behavior as a consequence of longtime starvation and insufficiently intake of energy (glucose), monitoring of patient and her behavior was enhanced. Over a period of psychotherapeutic discussions with adolescent, we heard that she was not satisfied with school choice recently, she was not well suited in secondary medical school, most of her girlfriends were enrolled in gymnasium. She was not seen herself as skinny, she was thought that she has finally reached desired weight. During pediatric examination, she was informed on possibility of coercively treatment with nasogastric probe, if she still continued to reject food intake, but without substantial effect on her attitude on external appearance. Diagnostically it was an impression that she has progressively proceeded to clinical picture of psychotic reaction. Dose of olanzapine was increased on fifteen (15) mg per day, adding valproate in dose of three hundred (300) mg in the evening. Sulpiride was excluded from therapy. Retest by psychologist from tenth month displayed the persistence of disturbances related to test from fourth month of 2008. year, when adolescent verbalized fear of thickness, was feeling guilty after food intake, but partially with critical attitude on her relation to food, raised social anxiety and inadequate strategies for stress coping. Gradually, there was increase on body weight and four weeks after hospital treatment body weight was forty seven (47) kilograms. Patient was further persisted on her attitudes to the food. Because of school duties she was discharged in partially improved condition at the request of her parents, against advice of physicians. First control examination after hospital treatment – she had stable body weight, but she was still ambivalent, abulic, socially isolated, with often mood oscillations, tended to aggressive behavior toward her mother, related to food selection because mother has cooked equally for her and the rest of the family. She has avoided intake of some food, mostly she has eaten apples and integral pastry. Laboratory findings: liver enzymes AST, ALT, gamma glutamyltransferase (GGT) were in normal range. Second control after hospital treatment-she had stable body weight (body weight 47 kilograms, body height 170 centimeters), with excellent grades on school semester, discrete shift on willing-affective plan, occasionally mood oscillations, she has expressed tiredness and drowsiness. During examination we have observed cold skin, lanugo hairs over the skin and face pallor. It was still present amenorrhoea with occasionally constipations. Patient

TABLE 2
COURSE OF THERAPEUTIC INTERVENTIONS

August 2007, 73 kg, 170 cm		
April 2008, 43 kg, 170 cm	The first hospitalization in a psychiatric clinic	Ensure Plus (4-6 times a day) Escitalopram
June 2008	The first control examination	Escitalopram 10 mg daily Escitalopram 20 mg daily in two divided doses after three weeks
July 2008	The second control examination	Escitalopram excluded from therapy Fluvoxamin 50 mg in the evening was included
September 2008	The third control examination	Sulpiride 100 mg daily in two doses
September 2008	The fourth control examination	Sulpiride 200 mg daily Ensure Plus (two times daily)
October 2008.	The fifth control examination	Olanzapine tablets (orodispersible) 5 mg in the morning
November 2008	The second hospitalization	Olanzapine 10 mg daily divided in two doses Polyvitamin therapy with 5% glucose and vitamins B and C for 7 days Ensure plus (2000 calories per day)
November/December	The second hospitalization	Olanzapine 15 mg daily divided in two doses Valproate 300 mg in the evening
December	The first control examination after second hospitalization	Olanzapine 15 mg daily Valproate 300 mg daily
January 2009, 49 kg, 170 cm	The second control examination after second hospitalization	Olanzapine 15 mg daily Valproate 300 mg divided in two doses Escitalopram 10 mg in the morning

was told that is necessary to achieve gain in body weight, because of production of sex hormones and establishing of regular menstrual cycles. Mother and father was explained possibility of referral adolescent to Clinic for psychological medicine, because of examination and possible agreement about family therapy (Table 2). Third control examination after hospital treatment: she had stable body weight, partially more critical to external appearance, but also pronounced depressive clinical picture. It was still recommended to continue with present therapy. Laboratory test: total cholesterol (TC) 4.8 mmol/L, high density lipoprotein (HDL)-cholesterol 1.07 mmol/L, triglycerides 1.03 mmol/L, low density lipoprotein (LDL)-cholesterol 3.3 mmol/L, iron 9 μmol/L, blood urea nitrogen (BUN) 5.2 mmol/L, creatinine 77 μmol/L, ALT 30 U/L, GGT 24 U/L, CRP 1.5 mg/L-all in normal range.

Disscusion

The core psychological feature of *Anorexia nervosa* is the extreme overvaluation of shape and weight. People with anorexia also have the physical capacity to tolerate extreme self imposed weight loss and many people with *Anorexia nervosa* use over-exercise and overactivity to burn calories. Our adolescent has met all criteria with amenorrhoea which has existed four months prior to hospitalization on Clinic and body mass index of 14.5.

Individuals with *Anorexia nervosa* tend to have obsessive-compulsive and dysphoric mood, high constraint, constriction of affect and emotional expressiveness, anhedonia, and asceticism. Such symptoms often begin in childhood, before the onset of an eating disorder, and persist after recovery, suggesting that these are traits that create vulnerability for developing eating disorder[11]. Considerable evidences suggest that altered brain serotonin 5-hydroxytryptamine (5-HT) function contributes to dysregulation of an appetite, mood and impulse control in *Anorexia nervosa*. Stress and/or cultural and societal pressures may contribute by increasing anxious and obsessive temperament. Individuals with *Anorexia nervosa* may discover that reduced dietary intake, by reducing plasma tryptophan availability is a means by which they can modulate brain 5-HT functional activity and anxious mood[12]. Resent studies have hypothesized that perinatal complications might increase the risk of developing eating disorders. The presence of signs of neonatal dysmaturity at birth seems to influence the development of high levels of harm avoidance in eating disorders[13]. Adolescents with *Anorexia nervosa* are usually high achievers and are often involved in a number of extracurricular activities such as tutoring, volunteer work and community leadership, they tend to be perfectionists, have internalizing coping styles and obsessive behaviors. The family dynamics commonly seen in families of teenagers with *Anorexia nervosa* include conflict avoidance, undue degrees of enmeshment with either parent, rigid and overprotective parenting[14]. Girls with higher BMI, who accepted societal standards of thin-ideal, perceived major social pressure to be thin throughout direct and persuasive comments designed to establish the importance of dieting and develop eating habits[15]. By hetero-anamnestic data from parents we have found out that disturbances in adolescent were began in the period when the mother began treatment by oncologist because malignant disease on her breast. In this period, mother was also under psychiatric treatment because of depressive symptoms, without capacity to recognize what was happening with her daughter. Also, one of the youngest daughter has epilepsy and during that stressful period her condition also get worse. All that stressful events have made our adolescent more anxious in actual situation. Family and her friends have described adolescent as obsessive in carrying out her tasks and decent girl, with excellent grades in all classes. Always trying to be the best in everything. Naturally, she has greater osteomuscular composition and loss of thirty (30) kilograms during last year, started to worry family and school authorities, and after the diagnostic process by pediatrician, they came to Clinical department for child and adolescent psychiatry. Psychodynamically, can be taken into consideration the feeling of intense worry for the mother and changed the school selection. Adolescent originally wanted to enter high school language but she chose nursing school. The treatment of eating disorders as *Anorexia nervosa* is based on multimodal approach. In some cases escitalopram may reduce depression and anxiety during weight gain. The pharmacological options for *Anorexia nervosa* are very limited. Peptide hormones are increasingly being evaluated for eating disorder treatment, including ghrelin agonists, neuropeptide Y1 and 5 antagonist, orexin receptor antagonists, corticotropin-releasing factor receptor 2 antagonist, histamine 3 antagonists, melanocortin 4 receptor antagonists, beta 3-adrenoreceptor agonists, 5-hydroxytryptamine 2A antagonists and growth hormone agonists[16].The decision to hospitalize a patient is based on the patient's medical condition and the amount of structure needed to ensure patient's cooperation. *Anorexia nervosa* patients who are 20 percent bellow the expected weight for their height are recommended for inpatient programs, and patients who are 30 percent below their expected weight require psychiatric hospitalization for 2 to 6 months[4]. A cardiovascular risk profile might be expected in *Anorexia nervosa* due to low body weight and dietary fat intake[17]. It is an eating disorder which, in case of life-threatening complications, requires admission to the intensive care unit. Prolonged electrolyte disturbances in *Anorexia nervosa*, catabolism and insufficient immunity are main factors for developing an acute inflammation, as well as some other complications such as cardiorespiratory failure, nosocomial infections and sepsis with multiple organ failure[18]. Taking into account very low body mass index (BMI) of 14 which was pointed to extreme malnutrition, amenorrhoea and poor somatic condition followed with bradycardia in EKG (electrocardiogram), anemia with hypothermia, lanugo hairs over skin and bad psychological condition, we have taken position on hospitalization in Clinic. At first hospitalization we have noticed great resistance and loss of motivation in relation to the therapeutic ap-

proaches, and distorted image of her own appearance and body weight, followed with statements »I am not skinny, I have a good body weight now and need to maintain it«. We have decided for less aggressive psychotherapeutic approach considering earlier confrontation with pediatrician led to an aggravation of her mental state. The major characteristics patients with *Anorexia nervosa* are: 25% loss of body weight, weight phobia, preoccupation with food, body image disturbances and many others medical conditions: bradycardia, hypotension, dehydration, hypothermia, electrolyte abnormalities, amenorrhoea, metabolic changes and abdominal distress. Anorexic adolescents resist treatment and may die if not cured[19]. The eating disorders as *Anorexia nervosa* and bulimia nervosa present with comorbidity in a number of important areas, including depression, bipolar disorder, anxiety disorder (obsessive-compulsive disorder, panic disorder, social anxiety disorder and other phobias, and post-traumatic stress disorder) and substance abuse[20]. The aims of medical treatment are to promote bodyweight gain and nutritional recovery. Psychiatric goals are address the psychosocial precipitants, treat comorbid mood disorders and assist the patient to develop alternative coping skills[21]. While serotonin, dopamine and prostaglandin promote the ingestion of food, by contrast, neuropeptide Y, norepinephrine, GABA and opiod peptides inhibit food ingestion, causing the occurrence of eating disorders. Mood stabilizers as lithium, anxiolytics, serotonin and noradrenalin reuptake inhibitors, and antipsychotic drugs are often used in the treatment of eating disorders[22]. Megestrol acetate is currently used to improve appetite and to increase weight in cancer-associated anorexia and 1993 was approved by USA Federal Drug Administration for the treatment of anorexia, cachexia or unexplained weight loss in patients with AIDS. Megestrol may interfere with the normal menstrual cycle in women and also may cause many other side effects, and in our patient this drug was not a choice for treatment[23]. Whereas antidepressants have not been proven to be useful in promoting weight gain, they can play a role in the treatment of comorbid conditions such as a major depression, obsessive-compulsive disorder or other anxiety disorders. Selective serotonin reuptake inhibitors may help prevent relapse in some patients with *Anorexia nervosa*, once weight restoration has been achieved. Atypical antipsychotics as olanzapine, facilitate weight restoration and decrease eating-focused and weight-focused anxiety. Those drugs should not be used as a first-line treatment but could be tried in patients whose condition is refractory to treatment or high-risk patients. Cardiac and liver functions should be monitored and caution should be exercised in the use of drugs that may compromise cardiac function. Drugs that prolong QT interval or that lower the seizure threshold (bupropion) should also be avoided[24]. Results showed that olanzapine, an atypical antipsychotic, is known to result in weight gain and suggested that olanzapine may be safely used in achieving more rapid weight gain and improvement in obsessive symptoms among women with *Anorexia nervosa*[25]. *Anorexia nervosa* patients often show extreme hypophagia and excessive physical activity. Olanzapine treatment reduced physical activity in hyperactivity *Anorexia nervosa* patient[26]. Excessive physical activity is commonly described as a symptom of *Anorexia nervosa* and suppression of hyperactivity by olanzapine in anorectic patients as well as in ABA rats suggested a role of dopamine and serotonin in this trait. These data support a role for dopamine in anorexia associated hyperactivity[27]. In our case the main therapeutic goal was to prevent further weight loss and possible somatic damages (heart complications) and with combining of olanzapine and sulpiride we have achieved an increase in body weight of about four kilograms in ten weeks. Sulpiride as a drug in smaller doses has an antidepressant effect and in higher doses has antipsychotic effect, and considering that it does not affect increase of liver transaminases, we have it chosen as a drug of choice in the treatment of low mood, lethargy and loss of motivation. Because sulpiride has an amenorrhoea as a side-effect, after the initial treatment we have replaced it with valproate as a mood stabilizer[28]. Sulpiride as an antipsychotic blocks dopamine 2 recepors in tuberoinfundibular patway. This causes plasma prolactin concentration to raise, also galactorrhea and amenorrhoea, so we excluded sulpiride in further therapeutic plan[29]. Hyperprolactinemia is also one of the clinical sign in *Anorexia nervosa*, primary because of hypothalamic dysfunction, but also because of overactivation of dopamine system that can produce eating deficit. Valproate may be effective in treating patients with eating disorders such as *Anorexia nervosa* and bulimia. It is used to treat an associated psychiatric disorder (mood) but also valproate is used for weight gain[30]. With olanzapine in dose of ten (10) mg on daily basis and the occasional infusion of glucose and B vitamines, we have kept body weight of adolescent. Simultaneously we have alleviated symptoms of psychotic behavior: we have decreased delusions of her own appearance and body weight as well as the irrational food selection and caloric values of certain foods. On several occasions we did examination by cardiologist and endocrinologist. Adolescent is still in continuous psychotherapeutic approach, where with the help of cognitive behavioral method is trying to influence the behavior of adolescent in relation to food habits. It is necessary to organize family psychotherapeutic approach as well as support from family and school authorities. Prognosis and further course of disease is uncertain and presenting great challenge for every physician who is involved in the treatment of these patients.

Conclusion

Anorexia nervosa has the highest mortality of any psychiatric disorder[31]. For the treatment of *Anorexia nervosa*, the key elements are optimal pharmacological management, cognitive therapy and family therapy. Nutritional rehabilitation and weight restoration are essential. In this case we described the clinical features of *Anorexia nervosa* with psychotic elements and optimal

pharmacological treatment in order to achieve weight gain and stabilization of some somatic parameters. Recently, we still do not have effective drugs to treat anorexia.

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PRIKAZ TERAPIJSKOG PLANA U LIJEČENJU ANOREXIJE NERVOZE SA PSIHOTIČNIM ELEMENTIMA U ADOLESCENTICE

SAŽETAK

Poremećaji prehrane su u ranom djetinjstvu jednako učestali kod dječaka i kod djevojčica. Za vrijeme adolescencije se oko deset puta češće javlja kod djevojaka. Zabrinjava podatak da su poremećaji prehrane treća kronična bolest kod adolescenata, nakon debljine i astme. Mlađi adolescenti i adolescentice češće oboljevaju od anoreksije, dok stariji adolescenti u jednakoj mjeri i od anoreksie ili bulimije. Prikazom ove adolescentice smo nastojali ukazati na težinu liječenja ovog poremećaja gdje je u početku važno stabilizirati tjelesnu težinu i spriječiti somatska oštećenja kao što: oštećenje srca, amenoreja, promjene u EKG nalazu i elektrolitski disbalans koji bi mogli životno ugroziti pacijenticu. Istovremeno je važno prepoznati i liječiti i komorbidne psihičke poremećaje kao što su u ovom slučaju: depresija, deluzije, uz povremene psihotične reakcije vazano uz nerealna razmišljanja o izgledu vlastitog tijela. Još uvijek ne postoji lijek za liječenje ovog poremećaja koji se u sve većem broju javlja i među adolescentima muškog spola.