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Borderline personality disorder and nursing approach

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Abstract

Introduction: *Borderline Personality Disorder, is one of the ten Personality Disorders. These Disorders are split into three categories, with the Borderline being part of the second one where elements of dramatization and emotional instability are frequently evident.*

Purpose: *The purpose of the present study is to investigate and highlight the characteristics, the treatment and nursing approach for people with this disorder.*

Methodology: *The study material consisted of articles on the topic found in Greek and international databases such as: PubMed, Cochrane, Hellenic Academic Libraries Association (HEAL-Link), Scopus and PsycINFO, using keywords as: "Borderline Personality Disorder", "Diagnosis", "Therapy", "Treatment", "Holistic Care", "Nursing Care".*

Results and Discussion: *Bordeline Personality Disorder is characterized as a condition in which a person differs significantly from the average of people, about how he thinks, perceives, feels or relates to others. Treatment for this Disorder does not exist, however medication is used to remission the symptoms. Nurses are part of the treatment team. They're going to help the patient learn to live with the symptoms of his disorder. As these people are special patients, nurses must learn from their training not to focus on the patient's problem, but on the patient himself.*

Conclusions: *The key characteristics of Borderline are impulsivity and instability in interpersonal relationships, self-image and emotions. As there is no treatment, nurses as members of the treatment team must develop a relationship of trust with the patient in order to be able to help him in his recovery. It is important for nurses to be able to properly approach the person with Borderline Personality Disorder to learn to adapt according to his personality*

Keywords

Borderline Personality Disorder, Diagnosis, Medication, Holistic Care, Nursing Care.

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Introduction

Borderline Personality Disorder, according to the American Psychiatric Association and the DSM is one of the ten Personality Disorders. These Disorders are split into three categories, with the Borderline being part of the second one where elements of dramatization and emotional instability are frequently evident. (APA, 2013). The key characteristics of BPD are impulsivity and instability in interpersonal relationships, self-image and emotions. These symptoms tend to start in the early years of adulthood and affect various circumstances of the patient's life. This Disorder is usually found in the 1% - 3% of the general population while clinical patients cover approximately 10% of the cases. Individuals with Borderline Personality Disorder can also have an intense tendency of suicidal ideation and self-harm. The suicide rate is 8%-10% (Stroud & Parsons, 2012) but there are few epidemiological data for BPD patients in Greece. In order for the diagnosis of the Personality Disorder to be accurate, the individual needs to be over the age of 18 because its personality is still being shaped under this age. What is more, the patient's behavior should be persistent over time and not transient.

Purpose

The purpose of the present study is to investigate and highlight the characteristics of Bordeline Disorder as defined by the World Health Organization and the American Psychiatric Association, the treatment consisting, and the nursing approach for people with this disorder.

Methodology

The study material consisted of articles on the topic found in Greek and international databases such as: PubMed, Cochrane, Hellenic Academic Libraries Association (HEAL-Link), Scopus and PsycINFO, using keywords as: "Borderline Personality Disorder", "Diagnosis", "Therapy", "Treatment", "Holistic Care", "Nursing Care".

Results and Discussion

Historical background

In older times, scientists of the psychodynamic direction used the terms

"Ambulatory schizophrenia" and "Pseudo-neurotic schizophrenia" in order to describe a group of people that is in-between neurosis and psychosis, with the main characteristics of instability (emotional, interpersonal relationships and self-image) and impulsivity. In 1938 the term "Borderline" was suggested for the first time by the psychoanalyst Stern, in an effort to describe a patient who was in-between neurosis and psychosis and was mentally unstable and difficult to manage (Eby & Brown 2010). The Borderline Personality Disorder as an official term, was finally institutionalized in the early 1980's at DSM-III and constitutes one of the ten Personality Disorders since then (Lenzenweger & Clarkin, 2005).

Clinical Characteristics

Individuals that have been diagnosed with Borderline Personality Disorder are usually impulsive and unstable in their interpersonal relationships, self-image and emotions. These symptoms appear in the early adult life of the individual. They may appear as responses to personal and social situations and they differ, fundamentally, from the way the average person understands, thinks, feels and relates with others (Χριστοδούλουκαισυν., 2000).

The intense and unstable relationships are these people's main characteristic. They tend to be extremely sensitive to the idea of rejection and the fear of abandonment. When it comes to their interpersonal relationships, they usually have non-realistic expectations and show increased emotional instability in the case of unexpected disappointment and obvious rejection (Dubovsky & Kiefer, 2014; Andrew et al., 2011). Borderline Personality Disorder is, also, characterized by an unstable self-image and self-worth. The life goals, plans, values, sexual identity and friends of the BPD patient may change in an abrupt way and that is why these people respond better to a predictable and structured environment (Eby & Brown, 2010).

Moreover, impulsivity is one more key element of the BPD. The diagnosis requires impulsivity in at least two sections that could be proven self-destructive, such as gambling, irresponsible waste of money, reckless driving, bulimic eating, unprotected sex, substance abuse or self-harming behavior (Giannouli et al., 2009; Nehls, 2000). This type of impulsivity differs from the impulsive behavior that appears during the manic episodes where it is prolonged and accompanied by other symptoms of mania such as grandeur, stressful speech and lack of need for sleep.

Self-harming is, also, frequent in this Disorder. More specifically, 75% of the individuals that have been diagnosed with Personality Disorder and an even higher percentage of the clinical patients have attempted self-harm (Geoffrey et al., 2016). An 8 – 10% of the patients have successfully attempted suicide (Tomko et al., 2014) but there are numerous cases of self-harm without suicide, such as self-cutting, scratches or

burns on themselves which are much more common.

The aforementioned behavior, often, occurs when the person is worried about possible abandonment or rejection. It can also be seen during episodes of de-realization or depersonalization (Bach & Sellbom, 2016). Depersonalization consists of a detachment within the self, in which the individual feels like he is placed outside of his body and looks at himself from a distance. He doesn't feel pain if he is injured. Some patients claim that the pain from cutting and burning reminds them that they're alive (Eby & Brown, 2010).

Diagnosis

The immense need for a "common language" in clinical psychiatry, not only on an international level but also on a national, brought to the foreground the formation of the two taxonomic systems:

1) the Diagnostic and Statistical Manual of Mental Disorders (DSM), the American Psychiatric Association and

2) the International Classification of Diseases (ICD) of the World Health Organization.

These two systems are the tools for the classification and the diagnosis of mental illnesses and use specific diagnostic criteria in order for those illnesses to be diagnosed, including the Borderline Personality Disorder.

The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) includes nine diagnostic criteria. The individuals with Borderline Personality Disorder should have at least five of these criteria which should be evident in various circumstances of the person's life (APA, 2013).

Borderline Disorder patients make excessive efforts to prevent either an existing or an imaginary rejection. When they get the feeling of abandonment, they may intentionally change their self-image and behavior. They, also, experience intense anger even when separation is inevitable. They, often, associate abandonment with the belief that they are "bad" themselves. The intense efforts to avoid abandonment may lead to impulsive actions, like this of self-harm (Bach & Sellbom, 2016).

Furthermore, the unstable and intense interpersonal relationships are a behavioral characteristic of Borderline Disorder patients (Sellbom et al., 2014). They tend to idealize a friend, partner or mental assistant from their very first contact, to spend time together and share details of their personal life. However, they can easily change this sympathy into devaluation. The feel that this person does not give them time or listen to them, and mainly does not show his support.

The main feature of this Disorder, is impulsive behavior in at least two sections that could be proven catastrophic, such as excessive food or alcohol consumption, substance abuse, dangerous sexual intercourse and reckless driving (APA, 2013).

There may be an identity crisis with an intense and unstable self-image (Trull et al., 2011). The individual feels the need to drastically and dramatically change its self-image which is characterized by a shift in goals, values and professional aspirations. There may be a sudden change in his views and plans about his career, sexual identity and values (Tomko et al., 2014). Such behaviors, occur in situations in which the individual feels the lack of a meaningful relationship, progress and support.

Borderline Disorder patients adopt a continuous suicidal behavior or the habit of self-harm (APA, 2013). The repeated suicide attempts are often the reason why these people seek for help. These acts are overshadowed by threats of separation or rejection. Self-harm can occur during fun experiences and often brings relief to the individual.

Another criterion is the emotional instability which is caused by intense episodic discomfort or anxiety and lasts for a couple of hours or, very rarely, for a few days (Trull et al., 2011).The discomfort of people with Borderline Disorder is often disturbed during periods of anger, panic or despair and rarely by periods of calmness or satisfaction.

These patients are, also, characterized by a chronic feeling of emptiness (APA, 2013). They can easily get bored of anything and are constantly looking for something to do. They have a difficulty in controlling their anger which is usually inappropriate. This anger takes place when they feel neglected, embarrassed or abandoned.

In periods of intense stress, individuals with Borderline Disorder experience transient paranoid ideationor severe detachment symptoms [APA, 2013]. These episodes tend to be transient and they usually last a few minutes, hours and, very rarely, days. They occur during periods of realistic or imaginary abandonment and usually go away when another person's stay is perceived (Trull et al., 2011).

On the other hand, the World Health Organization, through the International Classification of Diseases (ICD-10), suggests that there should be a separate description of five areas – characteristics for the recognition of Personality Disorder. According to ICD-10, the individual should exhibit three of the general

characteristics of Personality Disorders and at least two of the characteristics of Borderline Disorder (Στεφανήςκαισυν., 1997).

According to the basic criteria of the ICD-10, at first, there should be an indication of the patient's characteristics and the permanent patterns of the mental experience and behavior, as a whole, should be significantly deviant from the culturally expected and accepted rules. Such a deviation must be manifested in more than one area, like cognitive function, emotionality, control over impulses and satisfaction of needs, and how the individual relates to others and handles interpersonal situations. This deviation should be present extensively as a behavior that is inelastic, maladaptive or dysfunctional across a wide range of personal and social situations. What is more, there should be mental stress or an unpleasant impact on the social environment, or both. There must be an indication that the deviation is stable and long-lasting and has begun in late childhood or adolescence. Deviation cannot be interpreted as a manifestation or consequence of other mental disorders, and at the same time an organic brain disease, trauma or dysfunction must be excluded as possible causes of the deviation (Μαδιανός, 2006).

Provided that there will be a recognition of at least three criteria of the general diagnostic criteria, the ICD-10 suggests the following diagnostic criteria for Borderline Disorder. It is mainly characterized by disturbances and uncertainty about oneself, goals and inner preferences. Patients usually have a predisposition to engage in intense and unstable relationships that often lead to emotional crises (Whewell et al., 2000). They are filled with a sense of grandeur and become very manipulative with people around them. As soon as they realize that those around them do not embrace their grandeur, they will become quite hostile. These people go to great lengths to avoid abandonment. In this endeavor, they display repeated threats or acts of self-harm. Chronic feelings of emptiness, as well as negative emotions and bad mood are distinctive characteristics of theirs (Στεφανήςκαισυν., 1997). Individuals with Borderline Disorder show severe emotional instability, and they are also very anxious and usually depressed. They are, also, detached andcarry a pattern of indifference. Apart from that, they do not feel the need to develop intimacy with others and are mostly indifferent to their feelings (Μαδιανός, 2006).

The symptoms should be intense to make the diagnosis and associated with weakened psychosocial function. Once the diagnosis of Borderline Personality Disorder is made, the proposed ICD-10 model includes the assessment of the condition of individuals with BPD as mild, moderate or severe (Στεφανήςκαισυν., 1997).

Looking at the two taxonomic systems DSM-5 and ICD-10, there do not seem to be major differences in the recognition of Borderline Disorder, however some differences are noticeable. One of them is the way of diagnosing Borderline Disorder, in DSM-5 there are nine diagnostic criteria for the recognition of Borderline Disorder, while in ICD-10 the diagnosis of Personality Disorder comes first and then the recognition of Borderline Disorder. Also, the absence of psychosis is observed as a diagnostic criterion in ICD-10. The element of psychosis, according to ICD-10, seems to be a diagnostic criterion of schizophrenia and schizotypal personality disorder and not of Borderline Disorder.

Despite the already existing diagnostic criteria, further research seems to be needed to determine whether some criteria should be more important than others. For instance, self-harm and suicide attempts along with unstable interpersonal relationships may be more important signs in the diagnosis of Borderline Personality Disorder.

Therapy/Treatment

Ensuring the right treatment for people with Borderline Personality Disorder is especially important. The initial priority in the psychosocial treatment of Borderline Disorder is to avoid self-harm. Other issues that need attention are mood problems and the impulsive behavior. The treatment of this Disorder is long lasting. It requires the individual to work with a team of health professionals.

Dialectical Behavioral Therapy is a cognitive and behavioral psychotherapy used specifically for Borderline Personality Disorder. Dialectical Behavioral Therapy has been shown to reduce suicidal behavior and the need for hospitalization, while increasing interpersonal functionality and anger control (Beck et al., 2015).

Equally important is psychopharmacology, which should be taken as complementary therapy and not as the main. Polypharmacy is a common problem faced by people with Borderline Disorder. Research shows that 80% of people diagnosed with Borderline Disorder are on medication, while 40% of them seem to be receiving more than 3 medications (Gunderson & Berkowitz, 2003). Serotonin reuptake inhibitors are the most widely used class of drugs in people with Borderline Disorder that help with the symptoms of depression (Zanarini et al., 2001). Another class of drugs used is that of

benzodiazepines. Although there is no research data to support their use in people with Borderline Disorder, they are used to treat anxiety and emotional instability. However, they should be prescribed, if necessary, very carefully and in small doses (Stoffers & Lieb, 2015; Zanarini et al., 2001). Anticonvulsants seem to have positive effects on reducing depression and interpersonal problems.Another widely used class of drugs are antipsychotics, which are used both for psychotic symptoms and to manage mood instability (Lieb et al., 2010).

All classes of drugs should be prescribed with great caution as there are individuals with Borderline Disorder who are prone to suicide attempts, with the result that the medication can be fatal in case of overdose. Due to the different classes of medications available, medication should be adjusted according to the symptoms of the person with Borderline Disorder and unnecessary medication should be avoided.

Nursing Approach

The nurse is an integral part of the team of health professionals in which he comes in contact with people with Borderline Disorder. Peplau is the one who stressed the importance of the relationship that is being developed between the nurse and the patient. She, also, pointed out how important it is for the patient (as a human) to be the focal point of nursing care and not his problem.

Peplau's model, which is based on psychodynamic and psychodramatic theories, seems to be the most appropriate for the nurses' proper treatment of people with Borderline Disorder. Peplau described 4 interrelated and overlapping phases in the nurse-patient relationship [Peplau, 1997]. The orientation phase in which the nurse understands and evaluates why the person is at the point of receiving help. Then, follow the phases of identification and exploitation, which are phases of work, patient support in recognizing internal dissonance as well as developing and testing strategies that reduce internal dissonance. Finally, there is the analysis phase, where the patient uses these strategies to reduce and resolve internal dissonance and psychological pain [Peplau, 1992].

The role of the nurse in the treatment of people with Borderline Disorder is mainly supportive. The nurse, is the one who will help these people learn to cope with the demands of daily life and to meet their basic needs [O'Connell & Dowling, 2013]. This procedure should be done in collaboration with the patient, so it is especially important to develop a trust relationship. The nurse should encourage the person to make small gradual decisions about his daily life, so the person takes on a role in the treatment team by helping in his smoother and faster recovery and well-being.

People with Borderline Disorder are people who have difficulty in developing interpersonal relationships so they need to be given more time to develop a proper therapeutic relationship. This proper relationship, allows the nurse to determine the roles he will adopt as well as the nursing interventions he will follow and the roles the person must adopt in order to proceed with the recovery (Papathanasiou et al., 2013; Stockmann, 2005).

The nurse is responsible for a big part of the patient's care. In order to be able to provide proper nursing care and for his patients to have the right healing process it would be right to try to see the person and not the problem. Unfortunately, the nurse during his training is detuned in his attempt to learn the practical part correctly, forgetting that he must also understand the psychosynthesis of his patient (Henderson, 2002).

Conclusions

People with Borderline Personality Disorder are characterized by a rather peculiar behavior, with impulsivity, tendencies of self-injury and unstable interpersonal relationships being key features. The diagnosis of the Disorder cannot be made before the age of 18, as until then the personality is still being formed. However, it is important to diagnose Borderline Disorder early so that people can learn how to control their impulsivity and reduce the tendency for self-harm. Nurses have an important role in this process, as they are next to these people teaching them how to cope with meeting their basic needs. In order to do this, a therapeutic relationship must be developed between nurses and patients, but individuals with Borderline Disorder find it difficult to develop and maintain a relationship. Knowledge of the salient features is essential to create a favorable therapeutic alliance, to increase the patient's self-awareness, to plan realistic therapeutic goals and to match the treatment with the individual's personality. Nursing has a human-centered character so nurses should not forget that behind the problem they face, there is a person who is the center of attention.

Conflict of interest

Authors declare that they have no conflict of interests.

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Disorders of social functioning and quality of life in patients with gastroesophageal reflux disease while combined with undifferentiated connective tissue dysplasia

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Abstract

Introduction. *It has been scientifically confirmed that the risk of developing gastroesophageal reflux disease (GERD) increases especially with generalized or regional disruption of connective tissue structure, which is widespread among the population. Patients with such comorbid pathology may have a wide range of symptoms that may go beyond the general symptoms of heartburn and regurgitation. The symptoms and complications of GERD affect general health, daily and social functioning, physical and emotional activity. It also affects the quality of life (QoL) associated with health through frequent breaks during sleep, work and social activities.*

Purpose. *study the dynamics of the level of quality of life and social functioning in patients with gastroesophageal reflux disease in combination with the syndrome of undifferentiated connective tissue dysplasia.*

Methodology. *A total of 120 patients were included in the study: 65 men and 55 women: in 75 of them (Group II) GERD occurred on the background of UCTD, in 45 (Group I) as an independent disease. The control group consisted of 12 healthy individuals. The study was comprehensive. The Medical Outcomes Study 36-Item Short-Form Health Status (SF-36),the Gastrointestinal Symptom Rating Scale (GSRS) and the scale of "Personal and social performance" (PSP) - were used to study patients in detail.*

Results and Discussion. *Analyzing the results obtained on the basis of the GSRS questionnaire (Table 1), in patients with GERD on the background of UCTD, compared with patients of group I and the control group, there is a significant increase in three and four from the five scales. QoL in patients of Group II on the scale "Abdominal pain" were 14.3 ± 0.4 points, in Group I - 5.6 ± 1.3 points, in the Control Group - 2.4 ± 0.8 points, on the scale "Reflux syndrome": 13.7 ± 0.9, 10.5 ± 1.3 and 3.1 ± 0.9, respectively. "Dyspeptic syndrome" - 15.3 ± 0.4 points in Group II, 12.2 ± 0.6- in Group I and 6.1 ± 0.3- in the control group. "Constipation syndrome" 9.5 ± 0.8, 5.6 ± 1.03 and 5.7 ± 0.4, respectively (p <0,05).*

Conclusions: In this research we investigated the effect of comorbid pathology on QoL in patients with GERD, which developed against the background of UCTD. The results confirm that patients with such combined pathology have a lower level of quality of life and social functioning, and the tactics of treatment of such patients should take into account these changes.

Keywords

Gastroesophageal reflux disease, undifferentiated connective tissue dysplasia, quality of life, social functioning.

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Introduction

The number of patients suffering from undifferentiated connective tissue dysplasia (UCTD) has been steadily increasing in recent decades and ranges from 9 to 85%, depending on the population. As a premorbid background for the development of many pathological conditions and chronic diseases, the syndrome of UCTD requires more attention from clinicians. Especially often, against the background of this syndrome, there are disorders of the digestive system, in particular - the esophagus. The reason is the mesenchymal nature of its origin. Against the background of inflammatory diseases of the upper gastrointestinal tract more often than in patients without signs of dysplasia, motor dysfunction, in particular, gastro-oesophageal and duodeno-gastric reflux .

It has been scientifically confirmed that the risk of developing gastroesophageal reflux disease (GERD) increases especially with generalized or regional disruption of connective tissue structure, which is widespread among the population. Patients with such comorbid pathology may have a wide range of symptoms that may go beyond the general symptoms of heartburn and regurgitation (Kumar, A. et.al., 2020). The prevalence of GERD ranges from 5.2-8.5% in East Asia to 6.3-18.3% in Iran. And Arshad Kamal Butt et.al. in their study among Pakistanis note a much higher prevalence - 22.2% - 24.0%. There is a worldwide increase in the incidence of GERD and its complications, including Barrett's esophagus and esophageal adenocarcinoma. Back in 2008, GERD was classified as one of the 5 diseases, which significantly impairs the quality of life of patients. Recent studies by Michele Ludici on the quality of life (QoL) of patients with UCTD once again drew our attention to the comorbidity of these two conditions. This is because according to J. B. Marshall, most often in diseases of the connective tissue affect the esophagus. And V. Kondoh et. al. diagnosed with pathological reflux in 29.0% of patients with UCTD, while in its absence it was registered in 2.0% of those examined with GERD. Even more often manifestations of the gastroesophageal system were detected against the background of connective tissue pathology, which included its undifferentiated dysplasia, among which gastroesophageal reflux (GER) was observed in 68.0%, regurgitation - in 43.0%, dysphagia - in 33.0% of patients. Also, in UCTD, the balance between the factors of aggression and protection of the esophageal mucosa is disturbed by weakening the latter. According to the results of lower esophageal manometry, in 55% of patients with connective tissue pathology, there was a decrease in the tone of the lower esophageal sphincter, a symptom of which may be reflux (Denaxas et.al., 2018).

The symptoms and complications of GERD affect general health, such as daily and social functioning, physical and emotional activity. It also affects the quality of life associated with health through frequent breaks during sleep, work and social activities (Iudici, M. et.al., 2017; Kumar, A. et.al., 2020).

These data are comparable with our previous data, according to which in adults with developed GERD on the background of UCTD, arthralgia, Raynaud's phenomenon, low body weight, bone, joint and skin phenotypic traits that correlate with the frequency and duration of GER. (Romash I.B et.al.,2020).

QoL research is a highly informative tool that determines the effectiveness of the health care system and allows to give an objective assessment of the quality of health care at the level of its main consumer - the patient. From the point of view of the principles of evidence-based medicine, the patient's QoL is the only noteworthy criterion and the main goal of the effectiveness of treatment of long-term, chronic diseases. (Romash I.R et. al., 2019; Moskalenko V. F et.al., 2014).

Purpose

The aim of the study was to study the dynamics of the level of quality of life and social functioning in patients with gastroesophageal reflux disease in combination with the syndrome of undifferentiated connective tissue dysplasia.

Methodology

From June 2017 to December 2019, 378 patients with GERD were examined in the University Clinic of Ivano-Frankivsk National Medical University and in the therapeutic department № 2 of the municipal enterprise "Central City Clinical Hospital" of Ivano-Frankivsk. The study included 134 patients. All of them provided written informed consent. During the study, 9 patients were lost for follow-up (at one stage or another expressed a desire not to continue to participate in the study).

During follow-up, 5 patients were diagnosed with certain differentiated connective tissue disease (1-scleroderma, 3-systemic lupus erythematosus and 1 Sjogren's syndrome), which

were excluded from the study. 120 patients were included in the study: 65 men and 55 women: in 75 of them (group II) GERD occurred on the background of UCTD, in 45 (group I) as an independent disease. The control group consisted of 12 healthy individuals, without signs of UCTD, randomized by age and sex. The mean age of the subjects was 42.0 ± 6.5 years. The majority of patients (62%) received higher and secondary special education, 75% of those surveyed were employed, and 7.3% retired.

When entering the study, the most common clinical manifestations were arthralgia / arthritis (45.6%), Raynaud's phenomenon (45.6%), dry eyes and/or mouth (32.6%), frequent gastroesophageal reflux disease (32.6%), myalgia (26.0%) and asthenia (26.0%).

The study was comprehensive. The Medical Outcomes Study 36-Item Short-Form Health Status (SF-36) (Ware et al., 1993), the Gastrointestinal Symptom Rating Scale and PSP - the scale of "Personal and social performance " (Morosini P. L., Magliano L., Brambilla L., Ugolini S., Pioli R., 2000) were used to study patients in detail.

Each patient was asked to complete a questionnaire SF-36.10, consisting of 36 questions grouped into 8 domains: physical functioning (PF), social functioning (SF), role limitations related to physical problems (RP), role limitations associated with emotional problems (RE), mental health (MH), vitality (VT), body pain (VP) and perception of general health (GH). The indicators of each scale are compiled in such a way that the higher the value of the indicator (from 0 to 100), the better the score on the selected scale. From them form two parameters that estimate eight concepts of health: psychological and physical components. The physical component includes: GH - the general perception of health, PF - limitations in physical activity due to health problems, RP - limitations in normal role activities due to physical health problems, BP - physical pain. The mental component includes: SF - limitations in social activities due to physical or emotional problems, MH - general mental health, psychological distress and well-being, RE - limitations in normal role activities due to emotional problems, VT - viability (energy and fatigue). The scores of each scale vary between 0 and 100, where 100 represents complete health, and the results are presented as scores compiled in such a way that the higher score indicates a higher QoL level. This questionnaire is general, can be used for patients with various pathologies, as well as for population studies. It has proven itself in many clinical studies, easy to use.The questionnaire SF-36 is multidimensional, fairly simple, short, reliable, valid and sensitive.

Peculiarities of social dysfunction were assessed on the basis of the Personal and social performance (PSP) scale, which assesses the degree of impairment in four main areas: (a) socially useful activities, including work and study; (b) personal and social relationships; (c) self-service; (d) restless and anxious behavior. The level of dysfunction was assessed by the severity of these areas from 0 to 5 (absent, weakly expressed, markedly expressed, significantly expressed, strongly expressed).

GSRS is a specific questionnaire consisting of 15 questions grouped into five clusters for a detailed study of symptoms reflecting reflux, abdominal pain, indigestion, diarrhea and constipation. GSRS has a seven-point Likert-type scale, where 1 means no problem symptoms and 7 means very problematic symptoms.

The reliability and validity of GSRS are well documented (Dimenäs, E et.al., 2008), and the values of the norms are available for the general population. In working with patients, we adhered to the ethical principles of the Declaration of Helsinki of the World Medical Association (Helsinki 1964, 2000 ed.). The study was approved by the Bioethics Committee of Ivano-Frankivsk National Medical University. Before inclusion in the study, all patients signed voluntary informed consent. All patients agreed to participate in the study and provided written informed consent

Statistical analysis of the results was performed using software packages STATISTICA 7.0., And a package of statistical functions of the program "Microsoft Excel, 2016". The reliability of the obtained indicators was confirmed by calculating errors for relative values, and the probability of data difference in the compared groups was proved based on calculating the coefficient t (Student) and determining the accuracy of the error forecast. The arithmetic mean (M), standard error (± m) were used to describe quantitative features.

Results and Discussion

In the study and comparison groups, the analysis of QoL parameters was performed. The comparative analysis revealed a probable decrease in QoL in patients with GERD, which occurred against the background of connective tissue dysplasia. compared with the control group who did not have concomitant pathology.

When assessing the social functioning of patients with GERD comorbid with UCTD on the PSP scale, the most pronounced violations were found in the module "restless, anxious behavior" on average in Group I - 4.8 ± 0.18 points (95% CI 4.6-4.9); Group II - 4.1 ± 0.37 (95% CI 3.73-4.47);

Control Group - 4.9 ± 0.1 (95% CI 4.79-5.0). The cluster "personal and social relations" is presented as follows: 4.2 ± 0.46 points (95% CI from 4.2 to 4.78); 3.2 ± 0.18 (95% CI 3.15-3.92), 4.8 ± 0.16 (95% CI 4.53-5.0), respectively. The module "socially useful activity" and "self-service" was less affected, where group differences were not statistically significant.

Analyzing the results obtained based on the GSRS questionnaire (Table 1), in patients with GERD on the background of UCTD, compared with patients of group I and the control group, there is a significant increase in three and four of the five scales. QoL in patients of group II on the scale "Abdominal pain" was 14.3 ± 0.4 points, in group I - 5.6 ± 1.3 points, in the control group - 2.4 ± 0.8 points, on the scale "Reflux syndrome": 13.7 ± 0.9, 10.5 ± 1.3 and 3.1 ± 0.9, respectively; "Dyspeptic syndrome" - 15.3 ± 0.4 points in the main (II) group 12.2 ± 0.6- in the comparison group and 6.1 ± 0.3- in the control group;"Constipation syndrome" 9.5 ± 0.8, 5.6 ± 1.03 and 5.7 ± 0.4, respectively (p <0,05).

In the study and comparison groups, the analysis of quality of life indicators was performed. The comparative analysis revealed a probable decrease in QOL, both among its physical and mental components, in patients of group II in comparison with group I who did not have concomitant pathology and control group. A comparative assessment of the dynamics of the physical components of the quality of life of patients with GERD against the background of NDST is presented in Figures 1a) and 1b).

Table 1. Assessment of the quality of life in patients with GERD in combination with UCTD and as an independent disease.

Clinical group	n	Quality of life according to the GSRS questionnaire, points				
		abdominal pain	reflux syndrome	diarrhea syndrome	dyspeptic syndrome	constipation syndrome
I Group (GERD)	45	5.6±1.3*	10.5±1.3*	4.8±0.7	12.2±0.6*	5.6±1.03
II Group (GERD+UCTD)	75	14.3±0.4*^	13.7±0.9*^	5.1±1.08	15.3±0.4*^	9.5±0.8*^
Control Group	12	2.8±0.4	3.1±0.9	3.4±1.07	6.1±0.3	5.7±0.4
p1 (II Gr / I Gr.)		<0.01	<0.01	0.81	<0.01	<0.01
p2 (II Gr./Contr. Gr)		<0.05	<0.05	0.26	<0.01	<0.01

Notes:
1. ^ - (p <0,05) data are reliable between the study groups.
2. *- (p <0,05) data are reliable relative to the control group.

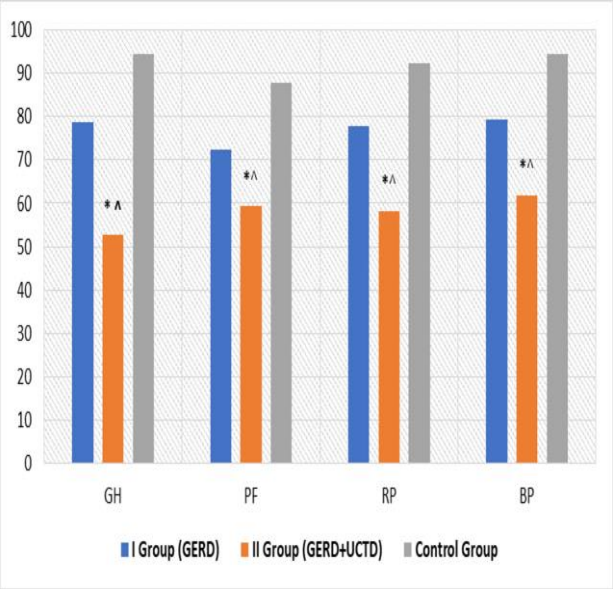

Fig. 1a) Dynamics of quality of life indicators (physical component of health) in patients with GERD.

Notes:
1. ^ - (p <0,05) data are reliable between the study groups.
2. *- (p <0,05) data are reliable relative to the control group.

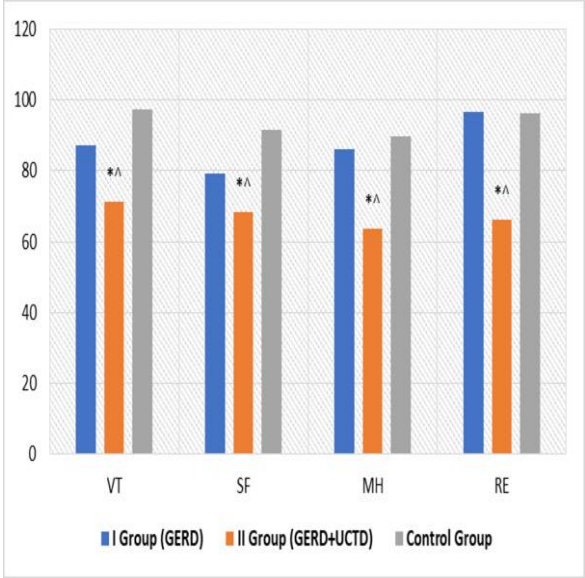

Fig 1b) Dynamics of quality of life indicators (mental component of health) in patients with GERD.

Notes:
1. ^ - (p <0,05) data are reliable between the study groups.
2. *- (p <0,05) data are reliable relative to the control group.

Conclusions

In this research we investigated the effect of comorbid pathology on QOL in patients with GERD, which developed against the background of UCTD. The results confirm that patients with such combined pathology have a lower level of quality of life and social functioning, and the tactics of treatment of such patients should take into account these changes.

Conflict of interest

The author declares that she has no conflict of interests.

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Implementation of the DIR Model and the DIR/Floortime Approach in the System of Palliative Care for Children

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Abstract

Introduction. *One of the systems that can be used in the system of palliative care for children is the Developmental Individual Relationship (DIR)/Floortime concept, which can be flexibly adapted to individual features of a child, and at the same time it has intelligible and clearly-defined tools for work and interaction, that take into consideration not only individual peculiarities of a patient, but also their parents and specialists.*

Purpose. *The purpose of the paper was to review the possibilities and prospects of using DIR/Floortime model in the system of palliative care for children.*

Methodology. *The paper was prepared on the basis of input from Belarusian Children's Hospice and also took into account experience of implementation of the DIR/Floortime Model (report information of ICDL' specialists).*

Results and Discussion. *In the course of the work the main tasks for providing palliative care to sick children were outlined and 6 points of introduction of the DIR /Floortime concept into this system were singled out.*

Conclusions. *The main postulates of the DIR concept fully coincide with the modern principles of palliative support. Using DIR/Floortime Model also can solve urgent tasks of the system of palliative care for children: build a team-based, positive, supportive and safe relationship around a child and family; help to prevent conflicts; improve the emotional background of the child in care.*

Keywords

Child psychology, mental health, education, palliative care, DIR Model, DIR/Floortime Approach.

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Introduction

Palliative care for sick children involves providing assistance to a wide category of patients that includes not only oncology patients but also children with congenital or/and acquired diseases and (multiple) complex developmental disorders. Thus, we cannot talk about a narrow range of diagnoses: every child has his own individual aspect of a disease. A team of specialists, who provide palliative care for a family and a child, are tasked not only with medical, but also psychological and pedagogical support of a child and his parents. One of the standards of high-level palliative care is to provide assistance not singularly to a child, but to the entire family of a patient. In addition, the extensive experience of palliative support of patients in different countries shows that the emotional background of a palliative patient has a direct impact on the somatic and mental condition of the child and even on the nature of the course of his\her disease (Itskovich, G.,2018; 2019).

The system of palliative care in many countries is currently being created and established or improved. The model of care for terminally-ill children undergoes changes for humanism and personalized approach, which takes into account not only a patient's interests, but also peculiarities of their stay in the family. However, even in a personalized system of care specialists of different profiles who work in a team need a common frame of orienting points. It will make the teamwork focused, well-coordinated and consistent (Gomozova, E. S., & Gomozova, M. A., 2019). One of the systems that can be used in the system of palliative care for children is the Developmental Individual Relationship (DIR)/Floortime concept, which can be flexibly adapted to individual features of a child, and at the same time it has intelligible and clearly-defined tools for work and interaction, that take into consideration not only individual peculiarities of a patient, but also their parents and specialists (Pajareya, K., Sutchritpongsa, S., Kongkasuwan, R., 2019; Boshoff, K., Bowen, H., Paton, H. et all., 2020; Hess, E., 2020).

Purpose

The purpose of the paper was to review the possibilities and prospects of using DIR/Floortime Model in the system of palliative care for children.

Methodology

The paper was prepared on the basis of input from Belarusian Children's Hospice and also took into account experience of implementation of the DIR/Floortime Model (report information of Interdisciplinary Council on Development and Learning' specialists).

Results and Discussion

Therefore, providing of palliative care for sick children has the following tasks:

- To organize effective teamwork of specialists of different profiles within a single framework of the palliative system for a particular client; it implies using single terminology and following the common assistance concept, which experts can rely on for their work to be consistent and coordinated.
- A child's family must be included into the system of assistance: family members need to be trained specific methods of care and medical manipulations, but also it is crucial to teach them the correct interaction with the child and to provide them with psychological counselling and spiritual support if necessary.
- Children with complex diseases are often subjected to chronic stress associated with frequent hospitalizations, surgical treatment, as well as stress caused by instrumental and/or psychological trauma. These problems also need to be systematically addressed.
- Professionals who work in the field of palliative care often face intense severe experiences, which puts them at risk of emotional burnout. In this regard, it is necessary to focus on burnout prevention and psychological well-being of specialists.

Implementation of the DIR/Floortime concept into the system:

1) The DIR concept is both multidimensional and flexible. The first aspect of the DIR is the development component which shows us the current state of the child and his actual level of development. Personalized approach presupposes that we take into account not only a child's level of development, but also all his/her individual characteristics: history of illness, his sensory-motor profile, specifics of the family system where the child resides (resources and "weak" areas, history of the disease as seen by family members, psychological state of close relatives of the child, etc.). Component "D" shows us how to build interaction with each specific child and their family based on the previous two points. Besides, there are several other "dimensions" – these are the characteristics of each involved specialist, their individual profile, experience, skills and current emotional state. Basing on this data we can personalize

interaction of all specialists with a patient and/or their family and fully adapt it to the child's needs.

2) The crucial role of affect in the DIR/Floortime model needs to be emphasized. The DIR/Floortime teaches us to establish and develop emotionally healthy and positive relationships. Besides, special attention is paid to compliance with ethical principles, as well as to respect for each patient, their family members, and specialists involved. The DIR/Floortime gives us specific tools for building emotionally warm relationships, with a full range of acceptance of all emotions experienced by all participants of the process. Such practice and attitude has a therapeutic role in itself – it helps to prevent emotional burnout of everyone involved and helps to regulate the emotional background of a patient, which, as we have already indicated, directly affects his/her condition as a whole.

3) Reflection. The DIR/Floortime concept increases the level of awareness in the specialist-child or specialist-parent interaction. It implies self-improvement of each specialist, development of their self-awareness, which leads to the more conscious and careful usage of their skills and abilities in work.

4) Team. The DIR / Floortime suggests teamwork of different specialists – of medical, psychological and pedagogical profiles, rehabilitation specialists, etc. However, these specialists, provided they have the necessary training, have an opportunity to coordinate their work according to the common DIR parameters, and form a single joint vision of the dynamics and prospects of a child in their care.

5) Family. The DIR/Floortime concept emphasizes a huge role of the family system and of cooperation with family members – those who take care of the child. They become the main "players" in the team. The advantages of such an approach are undeniable: it allows parents to cope with the trauma of the disease, they feel the support from outside and realize their important role within the team, also it facilitates the work of specialists, since some part of the work can be taken over by trained parents.

6) Child. For many years in post-soviet countries the role of a seriously ill patient was "inanimate" and impersonal. These people were treated as objects that needed to be manipulated and cared for. Only recently they have raised a question of the quality of life of such people and humane attitude to them. The DIR/Floortime approach helps us to avoid excessive stress while dealing with seriously ill children. As practice shows, the atmosphere of the medical institution changes dramatically for the better and stress levels of patients and their relatives reduce significantly when the staff know and successfully use the tools to establish emotionally warm and safe relationships. Moreover, it increases work motivation and improves the emotional state of employees of the institution.

Limitations of the study

Potential challenges in the implementation of the DIR/Floortime approach in the system of palliative care

1) The first difficulty we might encounter is the delay of important results. It is not enough just to train the staff and give them "tools" of the approach to get some persistent changes in the work of the team. Each team member will have to go through a stage of internal changes, and work on self-reflection, empathy, increasing awareness of their experiences and interactions, both in the team and with patients. However, in the long run, this very approach helps to get a better result in terms of team cohesion, improving motivation and emotional state of employees.

2) The use of the DIR/Floortime requires a very subtle adjustment of the connection specialist-child, and there might appear situations when a child and a specialist will not coincide in some parameters (individual characteristics, emotional state, etc.). This will require "replacing the player" or taking some other action to deal with the problem.

3) In very rare cases, some team members might consider the DIR/Floortime concept unsuitable due to their personal characteristics. They might find it difficult to use non-directive methods, as well as to work with their emotions. Each such case requires an individual approach and search for solutions.

4) Staff training will take a certain amount of time, and then, after training, regular supervisions need to be provided. Professionals who provide assistance have to complete not only the introductory 101 course, but also 201 and/or 202 DIR/Floortime courses. Parents and attending personnel (nurses, junior nurses) can complete only the introductory 101 DIR/Floortime course, but they need to receive the support of a more qualified specialist on a regular basis.

5) The work of such a team requires regular supervisions by an independent external expert of the appropriate qualification for high efficiency maintenance.

Conclusions

Due to its flexibility, adaptability, and inclusion of the emotional aspect, the DIR/Floortime model can be widely and successfully used in the system of palliative care. The main postulates of

the DIR concept fully coincide with the modern principles of palliative support. In addition, the use of this model not only increases the competence of employees, but also solves other tasks: team cohesion, prevention of emotional burnout, development of emotional intelligence, awareness and empathy of everyone involved. Building a team-based, positive, supportive and safe relationship around a child and family helps to prevent conflicts, and to improve the emotional background of the child in care.

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Conflict of interest

The author declares that she has no conflict of interests.

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Mithridatism for dementia? Hypoxic - Hyperoxic training in dementia

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Abstract

***Introduction**: Intense research on dementia has been conducted during the last years. As advances in the field have started changing the landscape of dementia treatment, it is necessary to assess the impact of novel therapeutic modalities.*

***Purpose**: The current evidence about hypoxic – hyperoxic treatment for dementia is reviewed in this article.*

***Methods**: We conducted a thorough PubMed/MEDLINE and Google Scholar search.*

***Results**: Preclinical and clinical data are available. Hypoxic – hyperoxic treatment is encouraged in the context of the multimodal treatment of dementia. There are concerns about the recovery of memory with regard to specific modalities of this treatment. Future perspectives are highlighted in the light of potentially useful biomarkers and health policy.*

***Conclusion**: While constant updates and further research is critical to understand the impact of hypoxic – hyperoxic treatment in dementia, the available studies are limited and, hence, research that is more extensive is necessary. Currently, it is important to assess the current state of knowledge highlighting the success but also the stalemates of this treatment.*

Keywords

Intermittent hypoxia, Hypoxic – hyperoxic training, Cognitive performance, Dementia.

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Introduction

The concept of Mithridatism dates back to Mithridates the 6th, king of Pontos during the 1st century BC. Mithridates would consume non-lethal amounts of poison to protect himself from poisoning in the future. By taking the poison in gradually increased doses, the king made himself "immune" enough to the poison to make it ineffective when he would attempt to take his life some years later after a defeat in battle. Mithridates would have to order one of his bodyguards to take his head eventually. In a vague sense, he managed to create tolerance against a toxic factor. (Valle et al., 2017)

The pattern of Mithridatism has been classic in toxicology and pharmacology throughout the years. Interestingly, hypoxic - hyperoxic treatment seems to abide by this concept. Essentially, hypoxic - hyperoxic treatment consists of the use of hypoxia, a genuinely toxic factor for neuronal integrity and memory, as a training stimulus to create tolerance against ischemia and safeguard human memory. Scientists have come to investigating such treatment modalities due to the prevalence and morbidity of neurocognitive disorders.

Neurocognitive disorders, especially major neurocognitive disorders (dementias), have serious effects on patients, families, the health system, and the economy (Hugo & Ganguli, 2014). Alzheimer's disease (AD) is a major risk for mortality (Murphy et al., 2013), admission to hospitals and nursing facilities, and home healthcare in the United States (US). The expanses of health services and the informal expanses of non-paid caregiving of dementia patients' are high and escalating. Caregivers from the family suffer high affective pressure, depression among other health issues ("2020 Alzheimer's Disease Facts and Figures," 2020). Globally, In 2010, almost 35.6 million individuals were assumed to be surviving with dementia, a number anticipated to grow to about 115.4 million individuals by 2050 (Prince et al., 2013).

Pathophysiology of dementia

Amyloid plaques and neurofibrillary tangles are featured abnormalities, which determine AD. Amyloid plaques comprise mainly a 40-42 amino acid peptide called amyloid-β (Aβ), which is accumulated in fibrils including a high β-sheet structure. Plaques turn insoluble and sediment in the brain's outside cell spaces. Amyloid plaques are usually linked to distended, dystrophic neurites, astrogliosis, and activated microglia that make a neuritic plaque. However, amyloid plaques and neurofibrillary tangles aggregate inside the cell in neurons. (Prince et al., 2013). A-β is naturally created by neurons inside the brain and released in the brain's outside cell spaces where during the pathogenicity of AD it shifts configuration, turns insoluble, and sediment as plaques. A-β does not have an identified, physiologic role, yet an increasing evidence has shown that under specific testing circumstances, A-β could regulate synaptic transmission. Yet, the function of A-β in natural synaptic role or in the disease's context is unknown (Chavez et al., 2000).

The role of hypoxia in neurodegeneration and dementia

Hypoxia regulates metapolyzing amyloid plaque protein (APP), causing a growing production of Aβ through the amyloidogenic mechanism. Time-reliant hypoxic upregulation of APP has been further proven at the mRNA and protein levels, following 10–180 mins of ischemia, which might function as a guarding pathway to raise the levels of neuroprotective soluble APPα (Serebrovska et al., 2019). Yet, most times the growing APP leads to more levels of Aβ, not soluble APPα since hypoxia prefers metapolizing APP through the amyloidogenic mechanism (Urike Bayer et al., 2017)

Purpose

To review the current evidence about Hypoxia – Hyperoxia treatment for dementia.

Methodology

This is a literature review study. We searched Pubmed and Google Scholar with the following strategy: ((prospective[Title/Abstract] OR cohort[Title/Abstract] OR follow-up[Title/Abstract] OR review[Title/Abstract] OR longitudinal[Title/Abstract] OR meta-analysis[Title/Abstract] OR systematic review[Title/Abstract]) AND (hypoxia – hyperoxia treatment[Title/Abstract] OR dementia[Title/Abstract])) AND (hypoxia OR hyperoxia OR dementia) AND "humans"[MeSH Terms], up until August 30 2020. This search strategy aims to identify: 1) Clinical trials involving hypoxia – hyperoxia treatment; 2) Other original studies or metanalyses related to the use of this treatment. Original, peer-reviewed studies in English and Russian were included.

Results

There has been encouraging evidence from the field of basic research that supported the methods that led to their studying in clinical context. There are studies, both clinical and basic researches that show that intermittent hypoxic-hyperoxic treatment can reduce dementia and

more specifically Alzheimer's disease (AD) or mild cognitive impairment which is a precursor of AD.

It is known that in AD the pathological evidence is the presence of amyloid plagues. Clinical data has showed that is AD patients the reduction of cerebral perfusion happens before memory and cognitive impairment. Hypoxia is the direct consequence of hypoperfusion. Improving oxygen supply in the brain might have a positive impact on AD pathology. Normobaric hyperoxia (NBO), not only provides more oxygen but was also found to be protective in recent experimental and clinical pilot studies. Morris water maze tests showed that NBO treatment improved the spatial learning and memory problems in AβPP/PS1 transgenic mice. Immunohistochemical and thioflavin S staining showed that NBO treatment significantly decreased Aβ deposition and neuritic plaques formation in the cortex and hippocampus of AβPP/PS1 transgenic mice. Immunoblotting and ELISA assay revealed that NBO treatment reduced Aβ production by inhibiting γ-secretase cleavage of AβPP. From the above it is suggested that NBO may have a potential therapeutic effect at the early stages of AD. (Gao et al., 2011)

A study conducted by Malle et al. focused on the effects of normobaric hypoxia (NH) exposure has on memory and physiology of the human body as well as the physiological and cognitive effects of oxygen breathing before and after the NH exposure.
For this study 86 healthy men divided randomly into 4 groups, were used. The groups were: the Normoxia-Air group (N = 23), where subjects were breathing air, the Hypoxia-Air group (N = 22), NH exposure was preceded and followed by air breathing, the Normoxia-O_2 group (N = 21), similar to the Normoxia-Air group, except with the addition of 100% O_2 breathing periods and the Hypoxia-O_2 group (N = 20), whose participants were exposed to 100% O_2 before and after NH exposure. The Paced Auditory Serial Addition Test was performed to test their memory. Moreover, peripheral oxygen saturation (Spo_2), heart rate (HR), and electroencephalogram (EEG) were recorded. (Malle et al., 2016)

The results from this study showed that acute NH exposure caused a typical physiological response like decreased Spo_2 and increased HR, but not the same as the physiological response to acute hypobaric hypoxia. Impairment in working memory was also caused by the acute NH. Oxygen breathing after NH exposure caused a slowing in the EEG which is associated with making working memory ability worse. For this reason, NH is suggested to be surrounded by air breathing. (Malle et al., 2016)

In another study, researchers used quantitative proton magnetic resonance spectroscopy to evaluate the regional metabolic alterations, after a 24-hour hypoxic or hyperoxic exposure on the background of ischemic brain insult, in a total of 60 female Wistar rats which were divided in two age-groups of rats of equal number: young - 3 months old and aged - 24 months old. Each age group was further subdivided into three subgroups of 10 rats each. Two of these subgroups were anesthetized with Nembutal (30 mg·kg-1), after overnight fast, and by ligation of the right common carotid artery, cerebral ischemia was induced to them. After taking extracts from three different brain regions (fronto-parietal and occipital cortices and the hippocampus) from both hemispheres concentrations of eight metabolites (alanine, choline-containing compounds, total creatine, γ-aminobutyric acid, glutamate, lactate, myo-inositol and N-acetylaspartate) were measured. This showed that in the control normoxic condition, there were significant increases in lactate and myo-inositol concentrations in the hippocampus of the aged rats, in comparison with the young ones. In the ischemia-hypoxia condition, the most predominant changes in the brain metabolites were found in the hippocampal regions of both young and aged rats, but the effects were more evident in the aged animals. The ischemia-hyperoxia procedure caused less changes in the brain metabolites, which may indicate more limited tissue damage. (Watanabe et al. 2019)

As it is already well-known, chronic hypoxia stimulates angiogenesis in brain and other tissues. Therapeutic IHT (intermittent hypoxic training) then, can improve the vascularity of the brain and prevent AD. When in hypoxia, cerebral angiogenesis starts by the transcription factor, hypoxia-inducible factor-1 (HIF-1) when genes with promoter regions containing hypoxic response elements, including the vascular endothelial growth factor (VEGF) gene, are activated. (Takashi et al. 2019)

There are also clinical studies that support these findings. More specifically, Urike Bayer et al. in a clinical study in 2017 studied thirty-four patients from the Geriatric Day Clinic aged between 64 and 92 years old who participated in a controlled trial. These patients received randomly MTP and IHHT (experimental group-EG) or MTP and placebo-breathing with machine face mask (experimental group-CG) in a double-blind fashion. Before and after the 5- to 7-week intervention period (MTI + IHHT vs. MTI + ambient air), cognitive function was evaluated by the Dementia-Detection Test (DemTect), the Sunderland Clock-Drawing Test (CDT), and functional exercise capacity by the total distance

of the 6-Minute Walk Test (6MWT). (Bayer et al., 2017)

Results from other studies showed that after MTI + IHHT was administered, DemTect showed important improvement (+16.7% vs. -0.39%, P < 0,001) as well as the 6MWT with a larger increase in EG than CG (+24.1% vs. +10.8%, P = .021). Furthermore, the CDT showed similar results with DemTect with an increase in EG but decrease in CG (+10.7% vs. -8%, P = 0,031). Also, there was found to be a relation between the changes of the 6MWT, the DemTect and the CDT. The studies concluded that, IHHT is easy in application and well tolerated by geriatric patients up to 92 years and, helped in the improvement in cognitive function and exercise capacity in geriatric patients after MTI (CIRRITO & HOLTZMAN, 2008) (Lall et al., 2019).

Bayer et al. in 2019 updated the previous study by performing some additional tests and including new results. Like before, she studied thirty-four patients (64-92 years old) who participated in the double-blind clinical trial. The patients took part in a 5–7 weeks lasting MTI (strength, endurance, balance, reaction, flexibility, coordination, and cognitive exercises) and performed IHHT (breathing 10–14% oxygen for 4–7 min followed by 2–4 min 30–40% oxygen) in the Hypoxic Group (HG) or placebo treatment with ambient air in the Normoxic Group (NG). Before and after all treatments, mobility was assessed by the Tinetti Mobility Test (TMT), the Timed-Up-and-Go Test (TUG) and Barthel-Index, while perceived health was evaluated by one part of the EQ-5D Test, the EQ visual analogue scale (EQ VAS).

These tests showed that after the MTI plus IHHT or normoxia sessions, results of the TMT, TUG, Barthel Index and EQ-VAS revealed no significant difference between HG and NG (Bayet et al., 2019)

Another study indicated that, IHHT added to MTI did not cause any additional improvements in patient's health and mobility compared to MTI alone (Pichiule & Lamanna, 2002).

Serebrovska et al. also conducted a study in 2019 which examined the effects of intermittent hypoxic-hyperoxic training (IHHT) on elderly patients with mild cognitive impairment (MCI) which is a precursor of AD. The study used twenty-one participants between 51 and 74 years of age which were divided into three groups: Healthy Control (n = 7), MCI+Sham (n = 6), and MCI+IHHT (n = 8). IHHT was performed five times per week for three weeks which means a total of 15 sessions. Each IHHT session had four cycles of 5-min hypoxia (12% FIO2) and 3-min hyperoxia (33% FIO2). Cognitive parameters, Aβ and amyloid precursor protein (APP) expression, microRNA 29, and long non-coding RNA in isolated platelets as well as NETs in peripheral blood were investigated. (Serebrovska et al., 2019)

The study found an initial decline in cognitive function indices in both MCI+Sham and MCI+IHHT groups and important connections between cognitive test scores and the levels of circulating biomarkers of AD. IHHT resulted in the improvement in cognitive test scores, along with significant increase in APP ratio and decrease in Aβ expression and NETs formation one day after the end of three-week IHHT. These effects on Aβ expression and NETs formation remained more pronounced one month after IHHT. In conclusion, the results from this pilot study suggested a potential usage of IHHT as a new therapy to improve cognitive function in pre-AD patients and slow down the development of AD (Serebrovska et al., 2019).

Discussion

In this review, we elaborated on hypoxic - hyperoxic treatment in the context of dementia. We retrieved information from original studies spanning from preclinical to clinical research. The existing evidence seems to back the use of hypoxic - hyperoxic treatment, however there are few preclinical and clinical studies. With regard to mechanisms, the effects of hypoxia on the nervous system and the prevention or progression of dementia vary from study to study, indicating that the results also depend on the design of the studies.

A previous review study of Lall et al, concluded that hypoxia can prevent and treat AD (Lall et al., 2019). Our review has reached the same conclusion with regard to improving the status of patients with AD but we cannot reach the conclusion that hypoxic - hyperoxic treatment can prevent AD among healthy individuals. Another review has indicated that intermittent hypoxia has not always beneficial effects on patients with AD. Genetic traits might have contributed in the variability of the results (Manukhina et al., 2016). We have also reached the same conclusion.

The interplay between preclinical and clinical studies is also notable. Preclinical studies were conducted first encouraging the design of clinical interventions. With clinical studies initiated, basic research kept proceeding unraveling key information for the personalization of hypoxic - hyperoxic treatment. Interestingly, in a study on 40 male mice where 40% oxygen with normal atmospheric pressure was utilized in the early stage of Alzheimer disease, there was a notable improvement in AβPP/PS1 transgenic mice after

1-2 months of treatment. The same treatment had no effect in wild-type mice. Such findings support the hypothesis of genetic interference that was suspected in clinical studies. Translational clinical studies may detect biomarkers determining the individuals who will benefit more from hypoxic - hyperoxic treatment.

In another study, normobaric hypoxia (NH) appeared to decrease γ-secretase cleavage of AβPP and Aβ in mice (Gao et al., 2011). Taking into account the involvement of these factors in the pathogenesis of dementia, and particularly AD, this finding indicates that IHHT can hinder the further progression of the disease. Provided that large clinical studies verify these outcomes, hypoxic - hyperoxic treatment can be used as a dementia stabilizer, while cognitive training can improve the functionality and the quality of life of the patients.

The interplay of clinical and preclinical research is highlighted in the study of Marci et al. Their data indicated that hypoxia leads to cerebral ischemia resulting in the damage of the hippocampus-controlled functions (Macri et al., 2010) and then a study on healthy young men verified that NH and hypobaric hypoxia (HH) can have adverse effects on memory. In both cases, the damage was attributed to physiological response to acute NH and HH. These modalities are different and using oxygen after acute NH can slow cerebral activity down harming the recovery of memory (Malle et al., 2016). This finding, a synergy between preclinical and clinical research, suggests a serious adverse effect of this treatment. Participants of future studies should be properly warned and monitored.

Other studies have identified further biomarkers in patients with AD. Exercise capacity, cognitive performance and safety in geriatric patients have been correlated with an increase in APP130 and APP110 fractions in platelets, decrease in Aβ expression and downregulation of lncRNA BACE-AS and NETs formation (Serebrovska et al., 2019) (U. Bayer et al., 2017).

Hypoxic - hyperoxic treatment and contemporary healthcare

The early diagnosis of dementia spectrum diseases is a challenge for modern biomedicine. When it comes to hypoxic - hyperoxic treatment, the necessary assessment and monitoring of patients or healthy individuals undergoing such interventions will require improved imaging techniques. Watanabe et al. have suggested the visualization of A2 noradrenergic neurons with MRI based on the detection of noradrenaline groups of cells in the brain by T1-weighted MRI with magnetization transfer (Watanabe et al., 2019).

Hypoxic - hyperoxic treatment would face cost and implementation issues. With small studies, absence of long-term results and a need for expensive additional genetic testing, Hypoxic - hyperoxic treatment can be expensive and inaccessible to patients in the future. Regulatory and legal parameters are also implicated. University hospitals and centers of excellence can offer this treatment to large number of patients to verify its efficacy and define the eligible population. If this intervention proves to be cost effective, the necessary regulatory steps can be taken. Licensing procedures ought to take into account the multimodal approach of providing this treatment.

Limitations of the study

Currently it seems that preclinical and clinical evidence regarding hypoxic - hyperoxic treatment is encouraging but limited. Systematic approaches on studies with small populations or short follow up time would not lead to credible conclusions. Future studies will need to study the effect of hypoxic - hyperoxic treatment in larger population sets. On the other hand, the indication that hereditary traits might affect the efficacy of hypoxic - hyperoxic treatment represents an opportunity of tracking genetic biomarkers. In this context hypoxic - hyperoxic treatment could be reserved as a precision medicine modality in the future.

Conclusions

In the existing studies, hypoxic - hyperoxic treatment appears as a beneficial additional treatment for dementia. It may contribute in preventing dementia in healthy individuals. It seems that genetic factors are involved in the efficacy of the treatment. Normobaric and hyperbaric hypoxia modalities can be used in patients with damage of the nervous system, which leads to benefits in cognitive function, however depending on the administration of hypoxic - hyperoxic treatment memory recovery may be impaired especially in healthy individuals (Serebrovska et al., 2019) (Malle et al., 2016). Mithridates has managed to determine the optimal way of self-poisoning to avoid adverse effects. Nowadays, the same challenge falls upon contemporary scientists with regard to the use of hypoxic – hyperoxic treatment in dementia.

Conflict of interest

The authors declare no conflict of interest with regard to this study.

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Stigma and mental health: The curious case of COVID-19

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Abstract

Introduction: *This article considers the impact of COVID-19 on stigma and mental health across the life spectrum and the ways that people access services.*

Purpose: *To explore the ways that a pandemic (COVID-19) has changed/shifted the relationship between mental illness or mental ill health and stigma across the life spectrum and call to re-focus resources on sustainable healthy societies, building cultures of peace.*

Methodology: *A literature search was employed, combined with informal interviews and observation.*

Results and Discussion: *On the one hand, the pandemic has opened public discussion of mental health challenges such as anxiety and depression, reducing some of the stigma attached as the experience is more common amongst people who have not previously declared mental health challenges. On the other hand, people previously experiencing mental ill health have mostly had that health challenge exacerbated by the pandemic. With fewer resources available, and changes in service delivery to largely on-line resources, the reduction in stigma has not meant better mental health care and services, but rather further marginalized some of the population. Cultures of peace are inclusive and provide space for full growth of all citizens, in contrast to reactive approaches now more readily applied. Mental health services are a basic right for all people and should be considered as such in all planned health strategies.*

Limitations: *The article focuses on literature review, anecdotal and observation and is focused over a short term, in North America. It is a preliminary study.*

Strengths: *As a preliminary study, the article highlights an emergent and present dilemma. It also highlights the need for a much more holistic, global approach to mental health and wellbeing across the lifespan.*

Conclusion: *While there are calls for national strategies for mental health services and services for people with dementia, in particular, there is still a need to take a more holistic approach to mental health as part of a whole health strategy to support human dignity and inclusion across the lifespan*

Keywords

mental health, mental illness, dementia, stigma, COVID-19, peacebuilding

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Introduction

COVID-19 continues to greatly impact the ways ordinary citizens lead our lives. With the shutdown of businesses, educational establishments of all kinds, services, and almost any kind of direct human contact outside of family 'bubbles', there has been an increase in the reported incidence of anxiety and depression in particular. There has also been a change in the ways that anxiety and depression are talked about. Mental ill health in general, has become a more acceptable topic of discussion on the interpersonal, community and even the international level. This article shares a preliminary exploration of the ways that the pandemic (COVID-19) has changed/shifted the relationship between mental illness or mental ill health and stigma for some and the various ramifications of same. The article begins with an introduction to COVID-19, the pandemic that has changed lives and caused many deaths around the world. We move to a discussion of mental health and the stigma that often accompanies it. We then explore the change in the relationship between mental health and stigma in the first six months of COVID-19 and consider the shifts to accessing services for those living with mental health challenges during these times. We conclude by considering ways that the challenges of this pandemic may be utilized for improvement in approaches to mental health and wellbeing (health promotion, services, service access, service promotion and attitudinal change). This article is further to an introductory article on mental health and peacebuilding in Canada and Ukraine (Flaherty, Sikorski, Hayduk, Klos, & Vus, 2020).

Purpose

This article explores the ways that a pandemic (COVID-19) has changed/shifted the relationship between mental illness or mental ill health and stigma and the various ramifications, considering mental health and illness in general and dementia in particular as these are the areas of our special interest. We note that this is a preliminary discussion in the midst of a pandemic that has been experienced for six months for those of us who live in North America, but several more months in different areas of the globe.

Methodology

A literature search was employed, combined with informal interviews and observation.

Results and Discussion

COVID – 19

COVID-19 is the name attributed to the novel-corona virus first reported to officials in Wuhan City, China in December in 2019. The virus or infections disease, first identified as connected to a food market in Wuhan City spread very quickly to other countries. Officially known as SARS-CoV-2, the disease was identified as such in early January 2020 and this disease has now been found in all corners of the world (World Health Organization, 2020). At the time of writing, autumn 2020, there have been almost 929 thousand deaths out of almost 29.3 million cases worldwide (BBC News, 2020). In response to the speed the disease has spread, many countries shut down work from offices, and closed all in-person business by mid-March of this year. While this is a global phenomenon which stopped international travel for months and halted much in-person communication for that same time period and longer, many businesses have not re-opened in Canada at the time of writing. When they do open, it is with strict protocols about wearing masks, sanitizing areas, and restricting access (Government of Ontario, 2020) .

Both the responses to and the impact of the virus have varied across sectors, often related to a number of the social determinants of health, including Indigeneity, food security and insecurity and socio-economic resources in general (Statistics Canada, 2020).

Mental Health

The Canadian Association of Social Workers' (n.d.) provides a helpful definition of mental health:

Mental health is the capacity of the individual, the group and the environment to interact with one another in ways that promote subjective well-being, the optimal development and use of mental abilities (cognitive, affective and relational), the achievement of individual and collective goals with justice and the attainment and preservation of conditions of fundamental equality.

Indeed, Helen Verdeli (2016) reflects on the WHO's 2001 statistics related to the challenges to mental health and wellness, noting that one in four people around the world will "experience at some point in their lives a mental or neurological condition" (Verdeli, 2016, p. 761). Verdeli is clear that "cultural norms, beliefs and attitudes can either exacerbate stigma and instill shame or serve as protective factors by establishing clear social roles and community structure" (p. 765) to support good mental health and assist both

individuals and communities to reach their full potentials.

Indeed, while sometimes seen as controversial and stigmatizing (DeFehr, 2020), the diagnosing of mental ill health, often known as a "disorder" has become critical in today's medical approach to health for individuals to access many of the services that can help them live well, particularly when dealing with what are considered to be "major mental illnesses", or serious mental illness (SMI) – "mental, behavioral or emotional disorder[s] resulting in serious functional impairment, which substantially interferes with or limits one's major life activities" (National Institute of Mental Health, 2019, para 4). Even when symptoms are accurately reported to medical practitioners, many people experiencing mental ill health receive inadequate care. In Canada for example, family doctors are often overworked and overwhelmed with patients, and as a result, many people are left without a family doctor (Canadian News Facts, 2001; Dinshaw, 2016). This is troubling because the majority of individuals who seek professional help for their mental health turn to someone they know and trust, their family doctor (Statistics Canada, 2017) and it is often there a referral is made to more specialized services, if they are available and deemed necessary. We remember that these are not preventative services, but rather responding often to health challenges that will have already impaired an individual's ability to function in society.

If one is fortunate enough to access a suitable mental health care individual or service, there are still challenges to accessing appropriate treatment. A study with users of mental health services and psychiatrists (Gunasekara, Patterson, & James, 2017) revealed that it was not uncommon for patients to feel as if they were being judged in the process of accessing treatment, and that their humanity was reduced to a diagnosis.

In Canada, out of a population of just over 35 million people (Statistics Canada, 2017) over the course of a year an estimated 4.9 million Canadians over the age of 15 required professional help for their mental health (Statistics Canada, 2017). Many of those people were unsatisfied with the quality of care they received more than a third felt that they received only adequate assistance (Statistics Canada, 2017). Importantly, these numbers record only those who actually received service and not the many suffering who have not yet sought or received help. An estimated 564,000 Canadians live with Alzheimer's disease and other dementias, yet people with the illness often feel excluded or treated differently (Alzheimer Society, n.d.).

Mental health and stigma

One of the greatest challenges facing people experiencing mental health issues is stigma, described by Goffman (1963) as the social exclusion and reduction of an individual based on an undesirable trait such as is found in the negative views associated with those who dealing with mental illness (Vogel, Heimerdinger-Edwards, Hammer, & Hubbar, 2011). Numerous researchers have noted the harmful impacts of social stigma on those with mental health conditions (see Chronister, Chou, & Liao, 2013; Clement, et al., 2015; Corrigan, 2000).

Stigma surrounding mental health is reproduced daily, found often in the language used when discussing mental health with people displaying mental illness or seeking treatment called "crazy," or "not being all there", as if because of their mental health they are missing something (Larson, 2008; Corrigan, 2000). This kind of hurtful language is the projection of attitudes about mental health and illness (Marion, Whitty-Rogers, & Panagopoulos, 2013). The attitudes and language are found not only in the general population but also, at times, amongst health care professionals themselves (Hankir & Zaman, 2015; Marion, Whitty-Rogers, & Panagopoulos, 2013). While we have long talked about stigma related to variety of illnesses such as schizophrenia and bi-polar disorder, less often do we acknowledge that this stigma extends to people living with dementia (Alzheimer Society, n.d.) and even to the their caregivers and others associated with them (Werner & Heinik, 2008) . It can be argued that stigma is the greatest barrier to accessing and using mental health services (Sartorius, 2007) with many people not bothering to seek help because they feel marginalized by any kind of diagnosis (Gearing, et al., 2015; Corrigan P. , 2000; Vogel, Heimerdinger-Edwards, Hammer, & Hubbar, 2011).

In addition to exposure to stigma from others, people experiencing mental illness may also contribute to the stigma themselves. Internalized stigma, or self-stigma (Vogel, Heimerdinger-Edwards, Hammer, & Hubbard, 2011) may diminish one's self-esteem and confidence (Corrigan, 2004), impacting how one behaves in the world and whether and how one seeks help when struggling. Despite the educational campaigns to reduce prejudice and increase understanding of the often-genetic aspects to mental illness, stigma remains strong, often based on people's personal interactions with mental health challenges and what they see portrayed in the media, which often focuses on tragic events (Committee on the Science of

Changing Behavioral Health Social Norms; Board on Behavioral, Cognitive and Sensory Sciences; Division of Behavioral and Social Sciences and Education; National Academies of Science, Engieering, and Medicine, 2016). Sigma is fundamentally a social phenomenon rooted in social relationships and shaped by the culture and structure of society.

COVID and stigma

With the development of COVID -19 and the increased challenges to people's health and wellbeing, there has been a noticeable shift in the way people talk about mental health. Anecdotally, and in our local media (Morton, 2020; Crawford, 2020) and health services publications (e.g. CAMH, 2020), we can attest to an increased discussion of mental health and wellness as well as challenges to these since the start of COVID-19. In other words, some of the stigma has been reduced – at least for now. Anxiety and depression, as part and parcel of life in uncertain times, are now much more a part of everyday discourse. This is reflected locally and internationally. As early as the end of May, 2020 Statistics Canada (2020) reported the United Nations' concern about the adverse effects of social isolation on the population's mental health. People speak about exacerbating causes: being much more housebound, unable to access regular activities used to maintain social connection (family gatherings, clubs, concerts, dining out) enrichment (theatre, cinema) and deal with stress (physical activity, team sports, attending fitness venues). However, while this new isolation has become a much more "shared" phenomenon, experienced by most of the world to some extent, the impact of these shared experiences has been mitigated or exacerbated to some extent dependent upon economic status, living conditions, access to resources and even race, as these factors often become intertwined.

Covid-19 and access to mental health resources

Despite what appears to be an increased focus on the need for better mental health services and resources and more focus on normalizing this need (CAMH, 2020) these resources have actually become less accessible during times of COVID-19, and we wonder about the long term impact of the disappearance of these resources. The availability of many resources has drastically changed. Like many other individual day and group services, community based, subsidized programs are not available for people with dementia due to COVID restrictions – no Adult Day Programs, no in-facility respite, less in home respite and less available Home Care programs and services. This has put an increased stress on the primary caregiver who used to rely on these programs to provide respite to the caregiver. People with dementia have died at a disproportionately high rate during Covid-19 (Livingston, et al., 2020), their physical and mental health needs further challenged by decrease in supports for themselves and their caregivers. Further, with more people in need of mental health services, fewer are accessing the resources that are there (Canadian Mental Health Association, 2020), with increased protocols such as mask-wearing, reduced walk-in services, etc., some turning to drugs and alcohol to cope with their challenges, increasing co-morbidity of substance abuse and mental health challenges (Chiappini, Guirguis, John, Corkery, & Schifano, 2020). This has a domino effect, increasing the rate of homelessness in our locales as people are not managing to pay rent.

Indeed, many in-person services are no longer available, or if they are, only on a sporadic basis. If not able to avail themselves of services in person, individuals may be able to have a medical or counselling appointment on line – something not accessible to those who are not familiar with computers, or don't have one, and perhaps do not even have a home. Someone with dementia, in particular may have difficulty accessing online services. With a lack of understanding of how to connect, or use the technology, services are not just a phone call away! Organizations such as the Alzheimer Societies across Canada have had to learn how to deliver programs that were in person, to online services assisting people to get connected. Far fewer programs are available to people and when they are, they may not be just what people need. Anecdotally, one client shared her experience of receiving a diagnosis of Alzheimer disease from a neurologist over the phone with no follow up provided. Her story joins many who have identifiable illnesses and no available resources.

Conclusions

COVID-19 has highlighted the need for a different and expanded understanding of mental health and mental health services. This is a multi-faceted, complex issue. First, increased attention is being paid to mental health and wellness during Covid-19 as people who have not commented previously talk about their anxiety and depression, perhaps newly experienced, and exacerbated for those with pre-existing

conditions. Second, with the anxious uncertainty and fewer material resources that accompany COVID for many, there is a greater need for services that would assist people experiencing mental health challenges. Third, despite the reality that more services are needed, many of the resources that once were available have disappeared, at least temporarily. Fourth, people have become more creative in the ways that they offer and utilize resources, using zoom and telemedicine to share services. However, these resources are out of reach for many with cognitive challenges or any kind of financial and/or housing instability. In short, with fewer resources available, and changes in service delivery to largely on-line resources, the reduction in stigma has not meant better mental health care and services, but rather further marginalized some of the population.

The Canadian Association for Mental Health notes concerns about the impact of COVID-19 on the mental health of citizens and calls for a long- term national strategy to improve mental health care related to the pandemic and beyond (Canadian Association for Mental Health, 2020). This is not the first time such a strategy has been solicited; however, with the increased acknowledgement of the impact of the COVID-19 associated stressors on mental health for the general population, there has been much more social discourse about mental health. Clearly, an international strategy with a focus on prevention and good mental health as a part of our daily discourse is needed. It is beyond time to return as a global village to focus on the social determinants of mental health outlined by the World Health Organization in 2014 (World Health Organization, 2014). The WHO notes, "Mental health is integral to this conceptualization of wellbeing, because it enables people to do and be the things they have reason to value. Conversely, being and doing things one has reason to value contributes to mental health." (WHO, 2014, p. 13). This is not a luxury; it is about agency and empowerment of citizens – a necessity for our world's survival.

Conflict of interest

The authors declare that they have no conflict of interest.

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The Hippocratic account of Mental Health: Humors and Human Temperament

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Abstract

***Introduction**: A quintessential element of Hippocratic medicine is treatment of mental diseases which was based on a detailed examination of the symptoms as well as the study of human physiology and final outcome of the diseases which is based on humoral theory.*

***Purpose**: The aim of the work is to highlight the contribution of Hippocrates to the study of mental illness based on his theory of humors*

***Methodology**: Our study consists of interpretations of the original text of Hippocrates including extensive observations of anatomy and physiology of human body based on humoral theory. Then the information was evaluated on the basis of modern literature in order to establish their validity. A major limitation of the research is the lack of a systemic methodology to screen the Hippocratic corpus for relevant passages which actually requires interdisciplinary research in order to determine which aspects of Hippocratic medicine can be developed.*

***Results**: In Corpus Hippocraticum, it is highlighting that maintaining a relative proportion of humors in human body (apart from maintaining health) regulates the human temperament and its behavioral manifestations. Hippocrates, has included in his work observations not only on human physiology and diseases but also studies the environmental and geographical impact on them, thus setting the stage for holistic approaches*

***Conclusion**: Summarizing, Hippocratic medicine and particularly his observations on mental disorders provides a clear picture of the methodology used by Hippocrates which can be a guide for the adoption of good practices for contemporary scholars and clinicians on their everyday practice.*

Keywords

theory of humors, environment, temperament, eucrasia, Hippocrates.

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Introduction

Hippocrates was a Greek physician if the 5th century BC, who is often referred to as the "Father of Medicine". A descendant of a priests – physicians family himself, Hippocrates was a pioneer in the scientification of Medicine. Founding the Hippocratic School of Medicine, he established medicine as an art with a scientific approach, gradually distinguishing it from theurgy (Kleisiaris et al., 1995).

Medicine at the time of Hippocrates had close ties with philosophy. Hippocrates and his disciples emphasized on detecting etiological correlations through keen observation of patients and diseases. Apart from putting together the Hippocratic Oath, a standard of ethics, which is still relevant and in use today, the Hippocratic Corpus, a collective work of Hippocrates and his disciples is credited for promoting the systematic study of clinical medicine, summarizing the medical knowledge of previous schools, and establishing good practices for physicians (Kalachanis, 2011).

Among others, the Hippocratic Corpus includes an account of humors and human temperament, depicting the scientific perception of mental health at the time.

Purpose

The purpose of this article is to summarize the Hippocratic account of mental health discussing humors and human temperament.

Methodology

We studied the Hippocratic Corpus focusing on temperament and mental health. We worked on the original text of Hippocrates and retrieved information from Aristotelian Corpus where there are extensive observations of anatomy and physiology of human body. The information extracted from the texts was subsequently evaluated on the basis of modern literature in order to establish their validity.

Results

Impact of the humors on human behavior

A basic concept of Hippocratic medicine was was the attempt to identify the causes of diseases in the physiology of the human body (Galen, Quod optimus medicus sit quoque philosophus, 54, 2-4) but also in the influence of harmful factors of the environment such as air, water and nutrtion (Kalachanis, 2011;). Hippocrates considers Medicine as a pure scientific discipline that aiming at treating illnesses thus setting the basis of modern Medicine (Kirsten et al. 2009) In order to understand the causes of illnesses he had to understand apart from the anatomy of human body he had to determine the basic elements from which is consisted. It is worth to mention that Hippocrates was taught Philosophy by Democritus (Soranus, Vita Hippocratis, 1) whose (along with Leucippus) major whose cosmological views referred to the atoms (not divisible) as the fundamental elements of the world (Simplicius De caelo 242, 18-21). In the same context Hippocrates claimed the existence of four fundamental elements or humors (χυμοί) which indeed correspond to the basic elements of the Universe as described in ancient philosophy. Each humors is secreted from a specific organ (Nemesius De natura homini 4, 8-12) and also differ from each other (Galen, In Hippocratis de natura hominis librum commentarii iii 15, 66, 1-3). When the proportion of the four humors as well as their mixing is the proper, a state similar to equilibrium and called by Aristotle eucrasia (De partibus animalium, 673b, 26) health in human body is maintained thus introducing a more mathematical approach of medicine (Eftichiadis 1995). In case the condition of the body deviates to the pathological one, a corresponding therapeutic intervention is required, depending of course on its nature (Galen, 17a 98, 25).

HUMOR	ELEMENT	ORGAN
YELLOW BILE	FIRE	LIVER
BLACK BILE	EARTH	SPLEEN
PHLEGM	WATER	BRAIN
BLOOD	AIR	HEART

Table 1: *Human behavior is not an effect that comes only from the mixture of the humors but includes also the place of residence, air, water and generally climatic conditions (See Hippocrates, De aëre aquis et locis,)*

Moreover, a basic attribute of the humors is that the predominance of everyone in man also creates a typology of characters (Table 1) (Kiersey 1998). Human behavior is not an effect that comes only from the mixture of the humors but includes also the place of residence, air, water and generally climatic conditions (See Hippocrates, De aëre aquis et locis,)

HUMOR	ORGAN	TEMPERAMENT	ATTRIBUTES OF CHARACTER
Blood	Heart	Sanguine	courageous, hopeful, playful, care-free
Yellow Bile	Liver	Choleric	ambitious, leader-like, restless, easily

			angered
Black Bile	Spleen	Melancholic	despondent, quiet, analytical, serious
Phlegm	Brain	Phlegmatic	calm, thoughtful, patient, peaceful

Table 2: Humors, organa and typology of human behavior

Galenus having interpreted the typology of human character makes some interesting observations thus saying that when the melancholic (black bile) humor exceeds then then the human character is malignant, indigestible and generally a repulsive case for all. On the other hand sanguine character (with blood exceeding) identified as the most forgiving and sweet character (Galenus, De constitutione artis medicae ad Patrophilum, 1, 280, 1-9).

Hippocrates' work includes a large number of case studies where he provides data on the symptoms, the treatment and the final outcome of the patients. Also apart from detailed observation he used methods of palpation, and auscultation in order to determine the patients condition (Rektor et al. 2013) and study in detail the symptoms. His experience in managing many medical cases also allowed him to observe environmental conditions such the place of residence that affect not only diseases but also human temperament diseases, thus observing that "Tribes living in countries rugged, elevated, and well-watered, and where the changes of the seasons are very great, are likely to have great variety of shapes among them, and to be naturally of an enterprising and warlike disposition; and such persons are apt to have no little of the savage and ferocious in their nature;" On the other hand, people living in low-lying places which are not properly ventilated and exposed into warm winds instead of cold, are not courageous and also are not capable of performing laborious enterprises (Hippocrates, De aëre aquis et locis 24, 4-10).

Humoral theory and mental disorders

Mental illnesses was of major interest for Hippocrates who was the first one to recognize their different types using a terminology which is used even in modern science such as Mania, Melancholy, Phrenitis, Insanity, Disobedience, Paranoia, Panic, Epilepsy and Hysteria (Kleisiaris et al. 2014). His methodology apart from managing case studies was to explain their causes to the physiology of the human body and at the same time to reject any divine intervention. A typical case is the issue of epilepsy which the people of his time called sacred, that is, they considered it as sent by God which the people of his time called sacred, that is, they considered it sent by God because of its strange symptoms. This tactic was established according to Hippocrates by various magicians and purists who, although they show reverence in reality, deceive people and to hide their ignorance about the causes of the disease they used God as an excuse. God also according to Hippocrates could never infect a body (Hippocrates, De morbo sacro, I, 2-24).

Currently, it is established that the onset of epilepsy is linked to a paroxysmal alteration of brain function. Excessive and hypersynchronous discharge of neurons in the brain results to an "epileptic seizure". "Epilepsy" is the condition of recurrent, unprovoked seizures. Epilepsy has numerous causes – genetic and environmental, intrinsic and extrinsic, but its onset indicates a pattern of brain dysfunction (Shorvon et al. 2011; Stafstrom & Carmant, 2015) as well as brain injuries and ischemic damages (Reid & Roberts, 2005).

Actually in ancient Greek literature there are many mentions that match the symptoms not only of epilepsy but of mental illnesses. Such a case is narrated by Herodotus about the Persian king Cambyses, who went mad thus killing his brother Smerdis, (Historiae, III, 30) and also committed many other atrocities and crimes. The cause for these actions was the sacred illness since he was born (Historiae, III, 33). Hippocrates although considers brain physiology as the cause for this disease (De morbo sacro, VI).

Apart from the explanation of epilepsy Hippocrates tries to explain melancholia which is directly related to black bile and people who suffer from this illness have symptoms of bad mood (Aphorismi VI, 23, line 2) as well as dangerous symptoms such as instillation of liquids inside the body (ἀποσκήψιες) and apoplexies (mania) while their lingual expression becomes more interperate (ἀκρατὴς) (Aphorismi VII, 40, 1). Also in a modern interpretation Hippocratic theory on melancholia is mentioned that patients with an excess of black bile may suffer from epilepsy, seizures and depression in epilepsy and depression. The clinical phenotype of black bile excess depends on the "direction" of the malady; if it bears upon the body, epilepsy, if upon the intelligence, depression". Hippocrates' claim that "epileptics become melancholics" resonates with contemporary knowledge, given that depression is the most frequent psychiatric comorbidity epilepsy (Rektor et al. 2013). Also Galen mentions several cases of phrenitis (φρενίτις) and insanity (παραφροσύνη) a disease similar to μανία (mania) which also interpreted as insanity (Sani et

al. 2017) or as a furious attitude, an acute mental condition in the absence of fever (Routh, 1988). These situations may result from yellow bile and black bile (Galenus, De locis affectis libri vi VIII, 178, 5-9 and In Hippocratis prorrheticum i commentaria XVI, 545)

Discussion

Despite its scientific methodology, Medicine at the era of Hippocrates lacked the technical means necessary to conduct research, investigate and establish diagnoses. The methodology of communicating science was also different taking into account the negative views of major intellectuals of the era such as Socrates on books. The Hippocratic account of temperament contributed to rationalizing mental health and illnesses. At that time, conditions such as epilepsy were considered as "sacred illnesses" indicating the popular belief in their divine causes and the – equally – popular disbelief in the ability of physicians to diagnose and treat them.

Nowadays, mental health is facing a wealth of controversies attributed to intrinsic and extrinsic factors of the field. Scholars of the field have pointed out the lack of funding, the gap between basic and translational research, the limited access to appropriate mental health care as well as the widespread stigma of mental illnesses in modern societies. Rationalizing mental illness and establishing a trust between specialized healthcare practitioners and the public is a challenge that contemporary scientists face (Wainberg et al., 2017).

It appears that this challenge is what medicine today has in common with Hippocratic medicine in terms of mental health. Although humors are no more relevant, the interaction between environmental factors and mental wellbeing is still puzzling scientists. Despite the fact that black bile is not the cause of depression, the comorbidity of depression with seizures or mania are quite relevant not only with regard to treatment but also with regard to prevention and early diagnosis.

Limitations of the study\Strengths of the study

The potential of this study is limited due to the lack of a systemic methodology to screen the Hippocratic corpus for relevant passages. In a broader sense, the fact that ancient texts might have been lost weakens our assessment of the Hippocratic account of mental health. On the other hand, the fact that native Greek speakers with backgrounds in Classics and Medicine share authorship enhances the comprehension and interpretation of these passages.

Conclusions

Revisiting the Hippocratic account of mental health can be a source of inspiration and good practices for contemporary scholars and clinicians. Such good practices include but are not limited to empathetic communication with patients, thorough history taking and communication of patients' narratives with colleagues. Future studies may identify such practices and investigate their feasibility and efficacy in contemporary mental health facilities.

Conflict of interest

The authors declare no conflict of interest with regard to this study.

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The Modern-Day Feminine Beauty Ideal, Mental Health, and Jungian Archetypes

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Abstract

Introduction: *It can be argued that beauty is not only an aesthetic value, but it is also a social capital which is supported by the global beauty industry. Advertising kindly offers all kinds of ways to acquire and maintain beauty and youth that require large investments. Recent studies demonstrate that physical attractiveness guided by modern sociocultural standards is associated with a higher level of psychological well-being, social ease, assertiveness, and confidence. What is behind this pursuit of ideal beauty and eternal youth: the life-long struggle for survival, selfless love for beauty, or something else that lurks in the depths of the human unconscious?*

Purpose: *The aim of the paper is to analyze the modern-day feminine beauty ideal through the lens of Jungian archetypes.*

Methodology: *An extensive literary review of relevant articles for the period 2000-2020 was performed using PubMed and Google databases, with the following key words: "Feminine beauty ideal, body image, beauty and youth, mental health problems, C.G. Jung, archetypes of collective unconsciousness". Along with it, the author used Jung's theory of archetypes, integrative anthropological approach, and hermeneutical methodology.*

Results and Discussion: *Advertising and the beauty industry have a huge impact on women and their self-image. Exposure to visual media depicting idealized faces and bodies causes a negative or distorted self-image. The new globalized and homogenized beauty ideal emphasizes youth and slimness. Over the past few decades, the emphasis on this ideal has been accompanied by an increase in the level of dissatisfaction with their bodies among both women and men. Though face and body image concerns are not a mental health condition in themselves, they have a negative impact on women's mental health being associated with body dysmorphic disorder, social anxiety disorder, obsessive-compulsive disorder, panic disorder, depression, eating disorders, psychological distress, low self-esteem, self-harm, suicidal feelings. These trends are of real concern.*

The interiorization of the modern standards of female beauty as the image of a young girl impedes the psychological development of women and causes disintegration disabling the interconnection of all elements of the psyche and giving rise to deep contradictions. This unattainable ideal is embodied in the Jungian archetype of the Kore. Without maturity transformations, the image of the Kore, which is so attractive to the modern world, indicates an undeveloped part of the personality. Her inability to grow up and become mature has dangerous consequences. Women "restrain their forward movement" becoming an ideal object of manipulation. Thus, they easily internalize someone's ideas about what the world should be and about their "right" place in it losing the ability to think critically and giving away power over their lives.

Conclusion: *Overcoming the psychological threshold of growing up, achieving deep experience and inner growth, a woman discovers another aspect of the Kore, ceases to be an object of manipulation and accepts reality as it is, while her beauty becomes multifaceted and reflects all aspects of her true personality.*

Keywords

Beauty, youth, feminine beauty ideal, body image, mental health, C.G. Jung, the Kore archetype.

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Introduction

An American writer, journalist and social activist N. Wolf in her book "The Beauty Myth" debunks age-old notions of beauty as an objective and universal value. She claims that beauty is nothing more than a myth created as a means of keeping women in subjection and denies the evolutionary meaning of beauty. Nowadays, the beauty myth is associated with the institutions of power that represent the male world and is used in a counteroffensive against females: "Beauty is a currency system like the gold standard. Like any economy, it is determined by politics, and in the modern age in the West it is the last, best belief system that keeps male dominance intact. In assigning value to women in a vertical hierarchy according to a culturally imposed physical standard, it is an expression of power relations in which women must unnaturally compete for resources that men have appropriated for themselves" (Wolf, 2002, p. 12). Beauty is seen as a mere commodity. According to N. Wolf, beauty is a fiction used by multibillion-dollar industries that create images of beauty and trade them like opium for women. Beauty takes women out of the structures of power returning them to where men prefer to see them.

The other voices are also heard in the beauty discourse. For example, a Harvard psychologist and researcher N. Etkoff in her book "Survival of the Prettiest: The Science of Beauty" (2000) argues that beauty is neither a myth, not a social construct as the representatives of the feminist movement believe, but beauty is a complex phenomenon that deeply rooted in human nature. In her opinion, this phenomenon was biologically beneficial for the preservation of homo sapiens and has eventually become an aesthetic preference. Thus, the desire for a young beauty is due to our genetic heritage.

Recent studies demonstrate that physical attractiveness guided by modern sociocultural standards is associated with a higher level of psychological well-being, social ease, assertiveness, and confidence (Datta Gupta, Etkoff & Jaeger, 2016; Feingold, 1992; Mobius & Rosenblat, 2006).

It can be argued that beauty is not only an aesthetic value, but it is also a social capital which is supported by the global beauty industry. Advertising kindly offers all kinds of ways to acquire and maintain beauty and youth that require large investments. What is behind this pursuit of ideal beauty and eternal youth: the life-long struggle for survival, selfless love for beauty, or something else that lurks in the depths of the human unconscious?

Purpose

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Results and Discussion

In pursuit of beauty and youth, women are ready to expose themselves to the most painful and risky procedures and purchase a thousand jars that promise to return or maintain these beauty and youth. In the contemporary world, more and more people do not want to grow old. And there is nothing new under the sun: for millennia, sages have tried to create the elixir of life or the pill of immortality. However, the combination of social, medical, cultural, and economic factors led to a surge of interest in the fight against aging in the 20th century. Maintaining the health and vitality of men, as well as the fertility and attractiveness of women became a priority after the First World War (Stark, 2020) and is especially evident today.

According to a 2017 survey, 31% of American consumers spend between $ 26 and $ 50 per month on cosmetics and personal care products, while 18% of respondents spend more than $ 100 per month. The United States is home to the world's largest cosmetics and personal

care market. In 2019, its value was estimated at approximately $ 93.35 billion up from $ 80.7 billion in 2015. Most of this market value is in the hair and skin care segments (Average amount consumers spend, 2019). Other studies show that the average woman in the US spends about $ 313 a month on her looks. This is up to $ 3,756 per year or $ 225,360 over a lifetime (McLintock, 2020). One of the reasons women spend huge amounts of money on personal care (along with skin needs and an obsession with cosmetics) is due to social pressure.

The situation is just as serious in the beauty market of the Far East. For example, in South Korea physical beauty is associated with superiority, as far as South Korea is a country of hyper-competition for limited resources. Beautiful appearance creates a competitive advantage that helps in finding a job, choosing a partner, achieving a higher social and financial status (Luxen & Van De Vijver, 2006). Male dominance in the East Asia region amplifies this phenomenon. Gender discrimination in South Korea has led to the objectification of women's bodies and desire to maximize social competitive advantage through risky appearance management such as cosmetic surgery (Lim, 2004). A person who has a "culturally appropriate" face and body is more likely to access social resources. This leads to the fact that women who do not meet these standards consider themselves inferior, suffer from stress, prejudice, and inequality (Kim & Lee, 2018; Strahan et al., 2006).

Thus, unrealistic beauty standards have a huge impact on women and their self-image. Exposure to visual media depicting idealized faces and bodies causes a negative or distorted self-image (Grabe, Ward & Hyde, 2011). The new globalized and homogenized beauty ideal emphasizes youth and slimness. Over the past few decades, the emphasis on this ideal has been accompanied by an increase in the level of dissatisfaction with their bodies among both women and men (Tiggemann, 2004).

Though face and body image concerns are not a mental health condition in themselves (Mair, 2019), they have a negative impact on women's mental health being associated with body dysmorphic disorder, social anxiety disorder, obsessive-compulsive disorder, panic disorder (Aderka et al., 2014), depression, eating disorders, psychological distress, low self-esteem, self-harm (Black, 2019; Octan, 2017), suicidal feelings. For instance, "one in eight adults in the UK have experienced suicidal thoughts or feelings because of concerns about their body image" (Mental Health Foundation, 2019). This situation is becoming even more dangerous today, when the COVID-19 pandemic has affected those struggling with BDD (The Covid-19 Pandemic, 2020).

A philosopher and essayist S. Neiman in her book "Why Grow Up?: Subversive Thoughts for an Infantile Age" (2015) argues that the orientation of the modern society on youth as the main value is a disturbing symptom, since normal growing up is perceived as a decline. By focusing on consumption rather than satisfaction with work, relationships, life in general, the world creates a society of eternal adolescents. This is convenient for the establishment, which, by satisfying the material needs of people, distracts them from something else, something deeper and more important for the development of a human and humankind. The cult of youth promotes control over people who choose youth and beauty as a main life goal mainly because of the need imposed by society to meet established standards for successful social functioning.

Although evolutionary biologists argue that there are evolutionary reasons for using the images of women of the most reproductive age and men at the peak of their physical activity in advertising, S. Neiman states that the goal of humanity is not to maximize reproduction, no matter what they talk about genes. Evolutionary arguments fail to explain the enormous social emphasis on youth. Debunking the misconceptions about childhood as a state of bliss and adulthood as an evidence of painful experience, S. Neiman emphasizes that the state of maturity is an ideal that is difficult to achieve, but one must strive for it (2015).

These ideas resonate so closely with C.G. Jung's theory of the archetypes of the collective unconscious and the individuation process. Within the frame of Jungian terms, individuation means the process of achieving self-realization by bringing the individual and collective unconscious into conscious – this is the coherence of all components of the personality that unites them into the one unified integral system. C.G. Jung considered the reintegration of the personality to be a necessary condition for solving spiritual, social, ethical, and political problems of humanity. Social health depends on the health of individuals. As a psychiatrist and psychoanalyst, C.G. Jung found that his patients over the age of thirty-five were faced with the problem of reintegration with a wider spiritual reality (2017). According to the psychoanalyst, such a situation indicates that reintegration is the basis for the integrity of the psyche.

The interiorization of the modern standards of female beauty as the image of a young girl (who will never reach the age of 35) impedes the psychological development of women and leads

to disintegration disabling the interconnection of all elements of the psyche and giving rise to deep contradictions. In the Jungian pantheon of archetypes, the young girl is personified by the Kore (1980). This is one of the most mysterious archetypal figures. C.G. Jung describes the Kore as an image of female innocence. The Kore belongs to the structure of the unconscious and is a part of the "impersonal psyche" common to all people. The Kore archetype has its psychological counterpart in the archetypes of the Anima and the Self: "When observed in the products of a woman's unconscious, it is an image of the supraordinate personality or self. In a man, the Kore is an aspect of the anima and partakes in all the symbolism attached to his inner personality" (Sharp, 1991). Like all psychic figures, this archetype is capable of doubling; its inseparable opposite is the archetypal Mother, with whom the Kore is equal in significance, but different in function.

Being inseparably linked with the figure of Demeter, her mother, Kore/Persephone draws socially accepted gender roles for the young women, especially in traditional cultures. "In the normal development of girls one can see the imagery of the daughter archetype unfolding in the plays, dreams and heroines which small girls may indulge in – from the early pink princess fantasy, playing with Barbie dolls, or listening to the story of the Swedish Pippi Longstocking. In the analysis of adults, images of the daughter archetype will often mediate aspects of the Self which should be made conscious and integrated in the female personality to serve the female individuation process. In so far they would tend to support the differentiation from both traditional gender roles and from identification with the anima projections from men, they support the development of ego consciousness and its growing autonomy. The differentiation between the Mother archetype and the Daughter archetype is very important for women, just like the differentiation of the anima from the mother archetype is for men" (Skogemann, undated).

Given his practical observations, C.G. Jung concludes that the Kore often appears in women in the form of an unknown young girl or nymph, maenad. The types of supraordinate personality that C.G. Jung defines as a total person are personified by Demeter and Hecate. The chthonic and nocturnal character of Hecate, which correlates with Demeter, and the fate of the Kore (Persephone) are closely related and correspond to the Triple Goddess of neo-paganism, in particular Wicca (Graves, 2013). Goddess-Maiden (Cora/Persephone) is the new waxing moon, Goddess-Mother (Demeter) is the full moon, and Goddess-Crone (Hecate) is the waning moon. In the lunar cycle, these three hypostases are inextricably linked and are constantly transforming one into another (Danylova, 2020; Graves, 2013). Outside the context of eternal change, the image of the Kore is perceived differently. Youth and beauty must be preserved at any cost – such is the demand of society. This suggests that Kore will never want to transform into Demeter, and a woman, who should already be led by Demeter, will in every possible way resist the transition to the image of Hecate and cling to the image of Kore with all her might.

The tremendous striving to follow the standards of beauty imposed by society impedes the psychological development of women and leads to disintegration, which disrupts the interconnection of all elements of the psychological system and creates deep contradictions. Without maturity transformations, the image of the Kore, which is so attractive to the modern world, indicates an undeveloped part of the personality. In this regard, C.G. Jung notes: "…maidens are always doomed to die, because their exclusive domination of the feminine psyche hinders the individuation process, that is, the maturation of personality" (1980, p.190). An inability to grow up and become mature leads to dangerous consequences: "The maiden's helplessness exposes her to all sorts of dangers, for instance of being devoured by reptiles or ritually slaughtered like a beast of sacrifice. Often they are bloody, cruel, and even obscene orgies to which the innocent child falls victim" (Jung, 1980, p. 178).

Being psychologically fixated at the level of a young girl, a woman slows down her inner growth and cannot live a full life being limited to the only one role. As long as a woman is young and attractive, she may be satisfied with this role, especially if she is ready to obey the men's world because of the seeming benefits it can bring, as well as the respite from responsibility it promises (Beauvoir, 2011).

This fixation does not allow a woman to develop her potential and enjoy life as it is. She feels the consequences of this fixation on the Kore archetype in the second half of her life, when the charm of youth evaporates and cannot be maintained by any means. This is where a deep psychological crisis comes in: "…as long as a woman is content to be a femme à homme, she has no feminine individuality. She is empty and merely glitters – a welcome vessel for masculine projections. Woman as a personality, however, is a very different thing: here illusion no longer works. So that when the question of personality arises, which is as a rule the painful

fact of the second half of life, the childish form of the self disappears too" (Jung, 1980, p. 191).

In the myth, Kore/Persephone is a part of the Demeter-Kore dyad, which can symbolize wisdom and naivety respectively. By focusing on the only one side of this complex figure of the psyche, women "restrain their forward movement" becoming an ideal object of manipulation. Thus, they easily internalize someone's ideas about what the world should be and about their "right" place in it losing the ability to think critically. Being "squeezed" into the tight stereotypes of gender representations covered with an aesthetic veil and grounded by evolutionary expediency, they unconsciously give away power over their lives.

This state of the eternal girl is also supported by the men's unconscious. For him, the female figure of the Anima is not a supraordinate personality. In the products of a man's unconscious activity, Anima is manifested as the Maiden and the Mother; therefore, a man's individual interpretation always reduces this figure to his own mother or another real woman. Anima is bipolar and can appear both positive and negative. According to C.G. Jung, to the young boy, the image of the Anima manifests itself in his mother, and the same is true for infantile men: "An infantile man generally has a maternal anima; an adult man, the figure of a younger woman. The senile man finds compensation in a very young girl, or even a child" (1980, p. 192).

Due to the ambivalence of the Anima archetype, its projection can be both positive and negative, but anyhow this image is numinous that causes fear and awe associated with females (Danylova, 2015). Therefore, the projection of the Anima as a young, less experienced girl seems to a man to be safer than the image of a loving but at the same time all-consuming Mother. Evolutionary biologists associate such psychological reactions with the level of hormones and fertility of a woman without taking into account the mechanisms that dominate in the depths of our psyche. "We see the images of the Kore everywhere. Advertising loves "feminine innocence". Males and females alike get stuck on the image of the beautiful and fair girl. In Jung's terms this would reflect a regressive movement backward toward youth, rather than participation in psychic growth and transformation that leads to maturity and wisdom" (Jenna Lilla, 2013).

Limitations of the study\Strengths of the study:

This study has limitations as well as strengths. Lack of extensive research does not allow us to draw unambiguous conclusions. However, this theoretical study may provide an avenue for more complex, interdisciplinary research in mental health issues and ways to overcome them.

Conclusions

Overcoming the psychological threshold of growing up, achieving deep experience and inner growth, a woman can discover another aspect of Persephone/ Kore described by the psychiatrist and Jungian analyst J.S. Bolen. This is the Mistress of the Underworld with a great spiritual experience, who has lost her fear of ageing and death (Bolen, 2014). Realizing her indissoluble connection with Demeter and Hecate, this woman ceases to be an object of manipulation, accepts reality as it is, feels comfortable and confident in her own skin, while her beauty becomes multifaceted and reflects all aspects of her true personality.

Conflict of interest

The author declares no conflict of interests with regard to this study.

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The role of metformin hydrochloride in complex therapy of disorders of carbohydrate metabolism in patients with paranoid schizophrenia treated with atypical antipsychotics

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Abstract

Introduction. *According to the literature, mortality among patients with schizophrenia is 1.5 -2 times higher than in the healthy population. One explanation for this is the complication of neuroleptic therapy, which, according to various authors, occurs in 2 to 100% of cases.*

Purpose. *We aimed to study some indicators of carbohydrate metabolism disorders in patients with paranoid schizophrenia who have been taking neuroleptics for a long time, to correct the established changes by adding metformin hydrochloride to the standard regimen and to monitor its effectiveness.*

Methodology. *The study was conducted based on Municipal non-commercial enterprise "Precarpathian regional clinical center of mental health of Ivano-Frankivsk regional council. This study included patients diagnosed with paranoid schizophrenia according to the criteria of ICD-10 (F20.0). As a result of our studies in 63 patients, we found a violation of carbohydrate metabolism, which accounted for 52% of all examined. Among them, 55 patients with prediabetes: 12 (19.04%) patients with impaired glucose tolerance (IGT), 43 (68%) with impaired fasting glycemia (IFG), and 8 patients (12.7%) with type 2 diabetes mellitus (T2D). Subsequently, all these 63 patients were prescribed corrective therapy with a drug from the group of biguanides - metformin hydrochloride at a dose from 500 to 1000 mg/day: in violation of IFG at a dose of 500 mg/day; in case of IGT - 850 mg/day; in the case of T2D- 1000 mg/day. All studies were performed before and after 3 months of metformin correction. These included fasting glucose, postprandial hyperglycemia (PPG) (two hours after a meal), glycosylated hemoglobin (HbAlc), immunoreactive insulin (IRI), and, if necessary, an oral glucose tolerance test (OGTT). Fasting plasma glucose (FPG) was measured by the glucose oxidase method. HbAlc values were determined by ion-exchange high-performance liquid chromatography (HPLC). The determination of the IRI level was performed by enzyme-linked immunosorbent assay (ELISA)*

Results and Discussion. *The results of the research showed that 52% of all surveyed found disorders of carbohydrate metabolism. They were prescribed corrective therapy with a drug from the group of biguanides - metformin hydrochloride at a dose of 500 to 1000 mg/day. As a result of the research, we found that in all groups of examined patients revealed a positive dynamics of carbohydrate metabolism under the influence of this drug. A significantly higher therapeutic effect of the treatment of carbohydrate metabolism disorders with metformin was found in patients receiving the latter in combination with haloperidol. The combination of metformin with risperidone and quetiapine showed a slightly lower clinical effect.*

Conclusion. *Our own clinical experience gives grounds to recommend metformin hydrochloride as a medium for the correction of carbohydrate metabolism disorders in patients with a paranoid form of schizophrenia in the treatment of this category of patients with neuroleptics.*

Keywords

carbohydrate metabolism, paranoid schizophrenia, atypical neuroleptics, metformin

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Introduction

According to the literature, mortality among patients with schizophrenia is 1.5 -2 times higher than in the healthy population (1,2,3). One explanation for this is the complication of neuroleptic therapy, which, according to various authors, occurs in 2 to 100% of cases (IHME, 2018; Maruta et al., 2015).

Patients with schizophrenia, which is comorbid, need special attention somatic pathology, in particular metabolic disorders, which often go unnoticed by clinicians. Concomitant metabolic disorders in schizophrenia not only increase mortality but also create serious problems, in particular, in providing psychopharmacological care to this group of patients. According to scientific data, patients with paranoid schizophrenia comorbid with diabetes in 45% of cases in the first place put the treatment of somatic pathology, neglecting the treatment of the underlying disease, the other 40% - on the contrary - leave concomitant metabolic disorders without adequate correction (Jungsun, 2019; Romash, 2016, a).

The emergence of a new generation of antipsychotic pharmacotherapy, the so-called atypical antipsychotics (AA), largely devoid of the disadvantages of classical neuroleptics, has certainly been an important step forward in the treatment of patients with schizophrenia (Siskind et al., 2016). Several studies have confirmed the hypothesis of greater efficacy and safety of AA. Also, comparative studies have identified additional features of their clinical action: the ability to reduce secondary and possibly primary negative symptoms, reduce the severity of cognitive impairment, reduce comorbid affective symptoms, some drugs lack or low hyperprolactinemia and effectiveness in some cases, resistant to traditional neuroleptics (Siskind et al., 2018; Freyberg et.al.,2017; Romash, 2016).

However, several large recent studies have questioned the unconditional superiority of AA over typical ones. This was due to the appearance of information about the presence of many metabolic side effects in AA, which lead to extremely serious consequences for physical health. According to the literature, the prevalence of metabolic syndrome (MS) in patients with schizophrenia is 37% -40%, which is higher than in the general population (Siskind et al., 2018; IHME, 2018; Maruta et al., 2015; Romash, 2016).

Although "new" - atypical antipsychotic drugs cause fewer neurological side effects, they have a significant impact on the development of metabolic processes (Romash et al., 2016). In our recent studies were showed that neurological complications occur significantly more often on the background of taking a typical neuroleptic haloperidol than risperidone or quetiapine. In turn, a comparison of the presented AN showed that risperidone has a statistically higher probability of developing neurological complications compared to quetiapine. These data are consistent with recent studies by Spielmans G.I. et all., Oh G.H., who showed that of the currently known and widely used neuroleptics, risperidone has the highest level of akathisia, from 7% to 50%, and the lowest incidence of akathisia is quetiapine (2 to 13%). The incidence of akathisia in quetiapine is significantly lower than that of risperidone from 2% to 13%. Complications from the functioning of the autonomic nervous system were also more common in patients of the haloperidol group. According to the data obtained, it should be noted that the use of atypical neuroleptics risperidone or quetiapine has a lower risk of developing late dyskinesia than with treatment with haloperidol. The study indicates the benefits of atypical antipsychotics mainly due to the lower severity of most neurological symptoms. Only some neurological symptoms in the examined patients were more common on the background of therapy with atypical antipsychotics. These results are consistent with the data of other authors who indicated a high probability of extrapyramidal side effects, including severe complications such as tardive dyskinesia, toxicoallergic reactions and neuroleptic malignant syndrome with haloperidol. Gardner M. D. and sang. Geddes J. R. et al. noted the development of tardive dyskinesia in patients treated with haloperidol for one year 17 times more often than with risperidone. However, according to S. Leucht et al., the advantage of

modern antipsychotics over drugs of previous generations is variable.

Therefore, in recent years, in addition to developing new drugs devoid of such side effects, more and more scientists from around the world have begun to look for rational concomitant corrective therapy. In particular, in their randomized 24-week double-blind, placebo-controlled study, Dan Siskind and co-authors studied the effect of concomitant metformin on weight change when clozapine was started. (Siskind et al., 2018) They demonstrated that co-initiation of metformin with the initiation of clozapine may reduce the burden of clozapine on cardiovascular and metabolic diseases.

Purpose

To investigate the effect of metformin corrective therapy on insulin resistance (IR) in patients with paranoid schizophrenia who had been taking neuroleptics for a long time.

Methodology

The study was conducted based on Municipal non-commercial enterprise "Precarpathian regional clinical center of mental health of Ivano-Frankivsk regional council. This study included patients diagnosed with paranoid schizophrenia according to the criteria of ICD-10 (F20.0). The study was approved by the Bioethics Committee of Ivano-Frankivsk National Medical University and conducted following the principles of the Helsinki Declaration of the World Medical Association (Helsinki 1964, 2000 ed.). Before the study, all patients signed voluntary informed consent.

As a result of our studies in 63 patients, we found a violation of carbohydrate metabolism, which accounted for 52% of all examined. Among them, 55 patients with prediabetes: 12 (19.04%) patients with impaired glucose tolerance (IGT), 43 (68%) with impaired fasting glycemia (IFG), and 8 patients (12.7%) with type 2 diabetes mellitus (T2D). Subsequently, all these 63 patients were prescribed corrective therapy with a drug from the group of biguanides - metformin hydrochloride at a dose from 500 to 1000 mg/day: in violation of IFG at a dose of 500 mg/day; in case of IGT - 850 mg/day; in the case of T2D- 1000 mg/day. The initial dose in all groups was 500 mg once daily with meals (breakfast or dinner), after 5-7 days, in the absence of gastrointestinal side effects, the dose was increased to 850-1000 mg after breakfast or dinner. In case of side effects, the dose was reduced to the previous one and increased again after 5-7 days. Depending on the main 3-month therapy of paranoid schizophrenia preceding this stage of the study, patients were divided as follows: the first (I) Group included 15 patients receiving the typical neuroleptic haloperidol, the second (II) Group - 22 patients receiving atypical neuroleptic (AN) risperidone, to Group III - 15 patients who received atypical neuroleptic quetiapine. The fourth (IV) Group was a control group, which included 11 patients with paranoid schizophrenia in remission who did not receive neuroleptic therapy during the last 6 months. The duration of corrective therapy in patients of the study groups was 3 months.

It should be noted that the drug for concomitant corrective therapy was selected taking into account its mechanisms of action: reduces insulin resistance at the level of peripheral tissues (fat, muscle), increases glucose utilization by anaerobic glycolysis, slows glucose absorption in the intestinal tract, stops gluconeogenesis insulin in the liver and numerical benefits: low risk of hypoglycemia, promotes normalization and weight loss (anorexigenic effect), improves lipid profile, reduces the risk of developing type 2 diabetes in patients with impaired glucose tolerance, has a potential cardioprotective effect myocardial infarction in patients with obesity and type 2 diabetes; a small number of contraindications: hepatic insufficiency, GFR <60 ml/min., creatinine >130 µmol/l in women and 120 µmol/l in men; and rare side effects: gastrointestinal phenomena. Also taken into account the experience of this drug by scientists such as Batista T., Henderson D. C. and Allison D. B. In addition, as proof of the safety of this drug is the fact that it can be used in children from 6 years. Therefore, it is important to mention the scientific study of Anagnostou E. et al. She used metformin hydrochloride to reduce weight in children with auricular disorders (aged 6 years) who were taking AA. In her study, metformin was more effective for weight loss with antipsychotics than placebo in this category of children (Anagnostou E. et al., 2016).

All studies were performed before and after 3 months of metformin correction. These included fasting glucose, postprandial hyperglycemia (PPG) (two hours after a meal), glycosylated hemoglobin (HbAlc), immunoreactive insulin (IRI), and, if necessary, an oral glucose tolerance test (OGTT). Fasting plasma glucose (FPG) was measured by the glucose oxidase method. HbAlc values were determined by ion-exchange high-performance liquid chromatography (HPLC). The determination of the IRI level was performed by enzyme-linked immunosorbent assay (ELISA).

We assessed carbohydrate metabolism according to the criteria of the International Diabetes Federation (IDF) -2005 classifications,

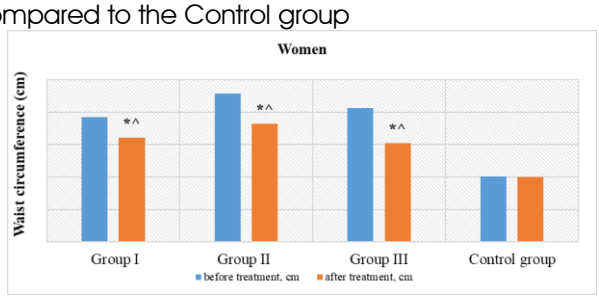
and the metabolic syndrome was diagnosed according to the IDF-2007 criteria submitted by the working group of authors in the Adapted Clinical Regulation to the Unified Clinical Secondary Protocol care for type 2 diabetes. (Order of the Ministry of Health of Ukraine № 1118 of 21. 12. 2012. "On approval and implementation of medical and technological documents for the standardization of medical care for type 2 diabetes").

Statistical processing of the obtained results was performed using the program "STATISTICA 7.0." And the package of statistical functions of the program "Microsoft Excel, 2016". The reliability of the obtained results was confirmed based on the calculation of the Student's ratio. The arithmetic mean (M) and its error (m) were used to describe the quantitative features, the mean values were presented as M ± m.

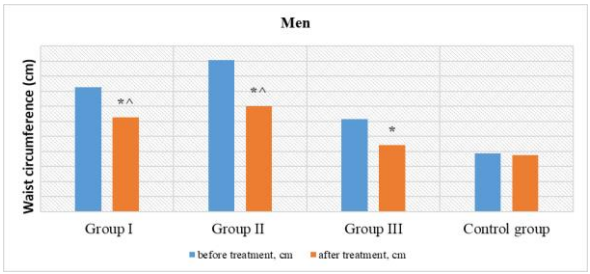
Results and Discussion

Corrective metformin therapy lasted 3 months. We evaluated the results of the initial and final data. Under the influence of corrective therapy, in all studied groups significantly decreased the rate of blood pressure (BP). Among men, this figure decreased by an average of 4.56%, reaching an average of 93.81 cm. Among women, BP decreased by 4.82%, reaching 86.49 cm.

Due to corrective therapy with metformin for 3 months, a significant decrease in body weight was found among patients of group I. Among the studied II and III groups there was a tendency to decrease body weight, but in comparison with the control group, it remains higher. We found a positive effect of biguanide therapy on body mass index (BMI): it decreased by 5.68% in Group I (haloperidol); by 3.79% - in Group II (risperidone) and by 2.29% - in Group III (quetiron). In groups II and III, BMI after 3 months of correction tended to decrease but remained probably higher compared to the Control group



1)a



1)b

Fig.1 a), 1b) Dynamics of changes in waist circumference under the influence of corrective therapy

Notes:

*1. * - (p <0.05) data are reliable for indicators before and after treatment.*

2. ^ - (p <0,05) data are reliable in comparison with the indices of the control group

As can be seen from the data in Fig.1 a), 1b), in all groups studied significantly decreased waist circumference (WC). Among men, this figure decreased by an average of 4.56%, reaching an average of 93.81 cm. Among women, WC decreased by 4.82%, reaching 86.49 cm

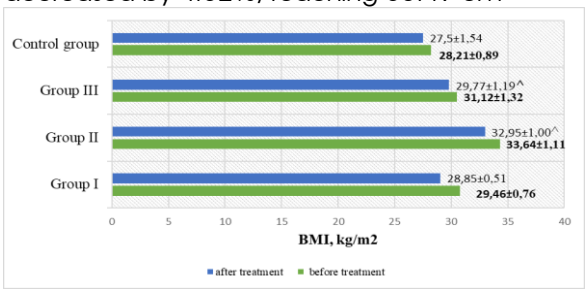


Fig.2 Dynamics of body weight in patients with paranoid schizophrenia before and after 3 months of correction with metformin hydrochloride.

Notes:

*1. * - (p <0.05) data are reliable for indicators before and after treatment.*

2. ^ - (p <0,05) data are reliable in comparison with the indices of the control group.

Due to corrective therapy with metformin for 3 months, we observe a probable decrease in body weight among patients of group I. Among the studied Groups II and III we see a tendency to decrease body weight, but in comparison with the control group, it is probably higher. We found a positive effect of biguanide therapy on BMI: this figure decreased by 5.68% in group I (haloperidol); by 3.79% - in Group II (risperidone) and by 2.29% - in Group III (quetiron). In Groups II and III, BMI after 3 months of correction tended to decrease but remained probably higher compared to the control group (Fig. 2).

Consider the dynamics of carbohydrate metabolism in patients with paranoid

schizophrenia who received corrective therapy with metformin. Fasting plasma glucose levels (Fig. 3) decreased by an average of 14.86%, reaching an average of 6.23 ± 1.76 mmol/l in all groups compared with the initial value of 7.40 ± 0.26 mmol/l, which is statistically significant.

In Group I, fasting blood glucose decreased from 7.01 ± 0.29 mmol/l to 6.35 ± 0.18 mmol/l after hypoglycemic therapy.

In Group II, glycemic parameters after corrective therapy had a significant decrease: from 8.44 ± 0.23 mmol/l to 6.02 ± 0.22 mmol/l (p <0.05).

In Group III, the indicators also had a positive downward trend. Postprandial glycemia decreased by an average of 27.35%, reaching an average of 7.03 ± 0.38 mmol/liter

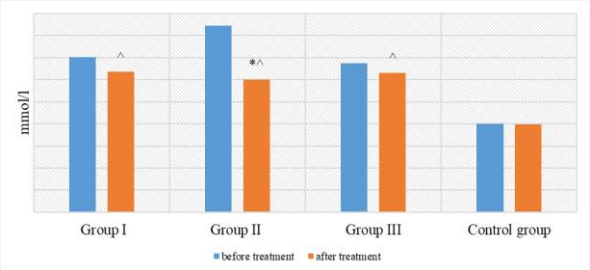


Fig. 3 Dynamics of fasting plasma glucose levels under the influence of corrective therapy with metformin.

Notes:

*1. * - (p <0.05) data are reliable for indicators before and after treatment.*

2. ^ - (p <0,05) data are reliable in relation to indicators in patients of the control group.

Statistically significant was the decrease of PPG in all study groups (Fig. 4)

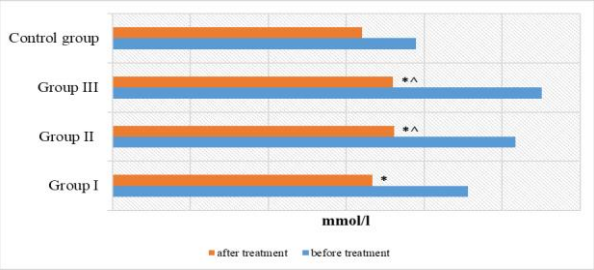


Fig. 4. Index of PPG in patients with paranoid schizophrenia before treatment and after 3 months of metformin correction.

Notes:

*1. * - (p <0.05) data are reliable for indicators before and after treatment.*

2. ^ - (p <0,05) data are reliable in relation to indicators in patients of the control group.

The appointment of antidiabetic therapy had a positive effect on the prognostic value of HbA1c. (Fig. 5.) This indicator decreased by an average of 16.01%: from 6.58 ± 0.11% to 5.12 ± 0.12% in Group I; from 7.1 ± 0.15% to 5.8 ± 0.25% in Group II (p <0.05). In Group III there was also a tendency to reduce this indicator from 6.6 ± 0.63% to 6.1 ± 0.63%.

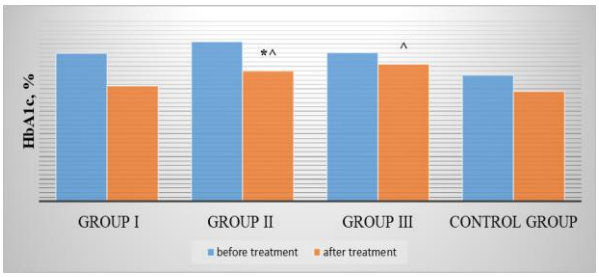


Fig. 5. Dynamics of glycosylated hemoglobin in patients with paranoid schizophrenia before treatment and after 3 months of metformin correction.

Notes:

*1. * - (p <0.05) data are reliable for indicators before and after treatment.*

2. ^ - (p <0,05) data are reliable in relation to indicators in patients of the control group.

No less important in the diagnostic value is the IRI indicator (Fig. 6). According to scientific data, this indicator is used to assess the degree of IR and functional activity of ß-cells of the pancreas. In our case, IRI decreased by an average of 26.96%: achieving a significant decrease compared to the baseline of 25.56 ± 0.70 μIU/ml to 13.40 ± 0.35 μIU/ml in patients of Group I (p <0, 05); from 28.85 ± 1.50 μIU / ml to 15.64 ± 0.33 μIU / ml - Group II (p <0.05); from 26.49 ± 0.69 μIU / ml to 14.56 ± 0.46 μIU / ml - Group III

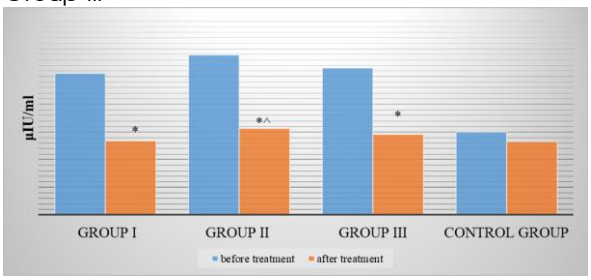


Fig. 6. Dynamics of IRI in patients with paranoid schizophrenia before treatment and after 3 months of metformin correction

Notes:

*1. * - (p <0.05) data are reliable for indicators before and after treatment.*

2. ^ - (p <0,05) data are reliable in relation to indicators in patients of the control group.

The value of the HOMA-IR index, which characterizes the IR, decreased by an average of 49.46%: from 7.96 ± 0.75 to 3.52 ± 0.55 in the group of patients taking haloperidol (p <0.05); from 10.82 ± 0.47 to 5.97 ± 0.5 - risperidone (p <0.05); from 7.95 ± 0.98 to 4.15 ± 0.98 - quetirone (p <0.05)

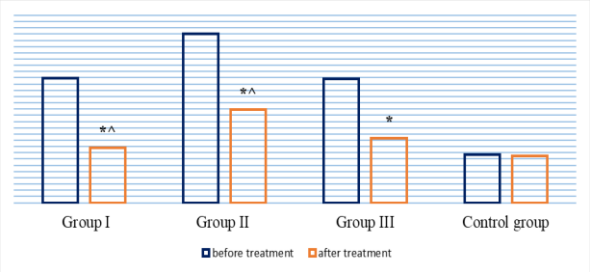


Fig. 7. Dynamics of the HOMA index in patients with paranoid schizophrenia before treatment and after 3 months of metformin correction

Notes:

*1. * - (p <0.05) data are reliable for indicators before and after treatment.*

2. ^ - (p <0,05) data are reliable in relation to indicators in patients of the control group.

Another, no less important, IP index - Caro. Under the influence of corrective therapy with metformin, this indicator increased in all three groups: in Group I by 74.04% reaching 0.47 ± 0.02 (p <0.05); in Group II by 31.03% and amounted to 0.38 ± 0.03. In Group III, the Caro index probably increased by 72% reaching an average of 0.43 ± 0.04 (p <0.05)

Conclusions

It was found that in all groups of examined patients revealed a positive dynamics of carbohydrate metabolism under the influence of metformin.

A significantly higher therapeutic effect of the treatment of carbohydrate metabolism disorders with metformin was found in patients receiving the latter in combination with haloperidol. The combination of metformin with risperidone and quetiapine showed a slightly lower clinical effect. Our own clinical experience gives grounds to recommend metformin hydrochloride as a medium for the correction of carbohydrate metabolism disorders in patients with a paranoid form of schizophrenia in the treatment of this category of patients with neuroleptics.

Conflict of interest

The author declares that he has no conflict of interests

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Types of parent-child relationship and indicators of neuropsychological development of preschool children

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Abstract

Introduction: *During the last 20 years, in Russia and in many EU countries, there has been significant change in the global social and cultural situation. Individualistic tendencies rose sharply and there is a widespread destruction of the sense of belonging. In this regard, the type of parent-child relationship is changing, which is one of the key dimension of the neuropsychological development of children. There is a logical question for psychologists, teachers and parents, what types of parent-child relationships are constructive, that is, they favor normal neuropsychological development of children of preschool age (6-7 years).*

Purpose: *The purpose of the present work is to investigate correlation between types of parent-child relationships and indicators of neuropsychological development of children, as well as identifying constructive types of parent-child relationships for the normal neuropsychological development of children.*

Methodology: *The study was conducted within the framework of the basic screening program (pre-school stage). The Order of the Ministry of health of the Russian Federation of 03.07.2000* ***№*** *241 On approval of the Medical card of the child for educational institutions (together with the Instruction on the procedure of an accounting form* ***№*** *026/u-2000 (The Medical card of the child for educational institutions of preschool, primary, basic, secondary (complete) general education, primary and secondary vocational education, orphanages and boarding schools). Determination of the correspondence of neuropsychological development to the child's age was carried out according to the following indicators: thinking and speech; attention and memory; positive emotions and social contacts; sensorimotor development. Types of parental relationship was studied using the methodology of the Questionnaire "Parental relationship" (QPR), A.Y. Varga, V.V. Stolin. The sample was formed from 94 respondents who were screened in the framework of the basic screening program (preschool stage) at the health Center of the MC "Gubernia" in Novosibirsk. The study of determination of the type of parent-child relationship of 47 respondents (mothers) was conducted and the neuropsychic development of 47 children of preschool age in the families (6-7 years) was evaluated.*

Results and Discussion: *The data obtained indicate that different types of parent-child relationship such as "Cooperation" and "Symbiosis" positively interrelated with different indicators (attention and memory; the development of positive emotions and the presence of significant experiences in children) of the child's neuropsychological development. Such types of parent-child relationship as "Infantilism" and "Acceptance-rejection" negatively interrelated with such indicators of child's neuropsychological development as attention and memory; thinking, speech and positive emotions and social contacts.*

Conclusion: *Children in groups with a more "constructive" parental relationship type have higher cognitive scores and fewer behavioral problems. The materials of the study can be used by child psychologists in the evaluation of neuropsychological development of the child. The Bank of diagnostic techniques that quickly allow diagnosing the state of neuropsychic development of the child in relation to the type of parental relations and thereby increasing the effectiveness of its correction through work with parents is of practical importance*

Keywords

Mental health, parent-child relations; neuropsychic development; preschool age; indicators of development.

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Introduction

"Each cultural and historical epoch gives rise to a certain set of life dominants which human community perceives as a norm, a way of life and a dominating world outlook. The modern era in this respect is a crisis one" (Shamshikova et al, 2011. p. 17). The crisis (socio-economic) manifests itself as a violation of the normal functioning of society as a result of a sharp aggravation of social contradictions and creating a threat to the resilience of both society and the individual in the environment (with the most vulnerable is the personality of a child of preschool age).

Over the past 20 years, there has been a sharp change in the system of value orientations, increased individualistic trends, there is a widespread destruction of a sense of belonging; new systems of interaction appear and space "without borders expands". In this regard, there is an urgent question of studying a "new social reality", which changes the content of growing up (development and socialization) of a child. "Specific data collected by scientists show that the change of historical situation has stimulated the qualitative mental, psychological and personality changes of a contemporary child" (Feldstein, 2011, p. 385).

The irrepressible penetration of modern means of communication and information technologies into the world of childhood; the emergence of new inflated social expectations and requirements in relation to the intellectual skills of a child; visible predominance of acceleration over amplification (enrichment of development); the change in the content and form of education at different stages of the educational process (Obukhova & Kotlyar, 2011) demand today the need for in-depth study of the normal (potential) neuropsychological development (NPD) of a child. "... this potential of preschool childhood could be realized, as was noted by A.V. Zaporozhets, only by taking into account the age-related psychophysiological characteristics and psychological specificity of this childhood stage" (Bolshunova & Ermolova, 2016, p. 377).

First, such consideration of the specifics of age should be carried out by parents in the organization of the system of activity of the child, its development and education. This requires that parents have certain role competencies and have sufficient motivation to maintain adequate parent-child relationships (Grusec & Danyliuk, 2019). However, modern parents are increasingly exhibiting "low level of parental motivation, poor command of communication skills in parents in regard with children, poor organization of child's leisure and daily schedule" (Feldstein, 2011, p. 386). Such parental characteristics are reflected in different types of parental relationship (which is the basis of the social situation of development) and determine specific configurations of the development of neuropsychic processes and personal formations of preschool children.

Taking into account the relevance of the revealed contradictions, we consider it important in the current socio-cultural conditions to study the normal neuropsychological development of the child and the causes of abnormalities in the neuropsychic development of children, where one of the determining role of the functioning of the personality of a preschooler is the type of parent-child relations.

Purpose

The purpose of the present work is to investigate correlation between types of parent-child relationships and indicators of neuropsychological development of children, as well as identifying constructive types of parent-child relationships for the normal neuropsychological development of children.

Methodology

We have formed a set of complementary empirical methods: questionnaires, testing (blank and projective), mathematical and statistical methods of data processing. The study was conducted within the framework of the basic screening program (pre-school stage). The Order of the Ministry of health of the Russian Federation of 03.07.2000 № 241 On approval of the Medical card of the child for educational institutions (together with the Instruction on the procedure of an accounting form № 026/u-2000 (The Medical card of the child for educational institutions of preschool, primary, basic, secondary (complete) general education, primary and secondary vocational education, orphanages and boarding schools) (2000). Determination of the correspondence of neuropsychological development to the child's age was carried out according to the following indicators: thinking and speech; attention and memory; positive emotions and social contacts; sensorimotor development.

The following methods were used for diagnostic purposes:

1) The Questionnaire "Parental relationship" (QPR), A.Y. Varga, V.V. Stolin (1982) (DYa Raygorodsky, 1998); 2) The Orientation test of school maturity of Core-Yerseke, which is a modification of the test of A. Kern (1978); 3) Methods of learning ten words by A.R. Luria (1973); 4) Methods of "Nelepitsa (Nonsense)", the author is S.R. Nemov (1986); 5) The Interview – "A Magic world" , the author is D.V. Lubowski (1982); 6) The Test "Draw a family", the authors are V. Huls (1952), L. Corman (1964) A. I. Zakharova (1982) and others (I. Kniginoy, 1998). When analyzing the results of the study, statistical data processing methods were used: percentage distribution of the trait and the correlation analysis (nonparametric rs-Spearman criterion).

The sample was formed from 94 respondents who were screened in the framework of the basic screening program (preschool stage) at the health Center of the MC "Gubernia" in Novosibirsk. The study of determination of the type of parent-child relationship of 47 respondents (mothers) was conducted and the neuropsychic development of 47 children of preschool age in the families (6-7 years) was evaluated.

Results

With the help of the Bank of diagnostic tools formed by us, diagnostics of preschool children and their parents (only mothers took part in research) was consistently by all methods carried out. We received the following results:

- in terms of intellectual and sensorimotor development screened preschoolers were divided into three groups: ready for school 60% (28 children), the average level of readiness – 36% (17 children) and 4% of cases (2 children) require additional research to obtain more objective data;
- by indicators of thinking and speech: high level is revealed at 23% of cases (11 children), average level – 68% of cases (32 children), at 9% of cases (4 children) – low;
- according to the indicators of attention and memory: high level of development was revealed at 23% of the screened (11 children), the average level – 68% (31 children), low level was demonstrated by 9% of children (5 children);
- in terms of the degree of manifestation of positive emotions and social contacts: high degree is observed at 29% (14 children), an average - 60% (28 people), low – at 11% of cases (five children);
- in terms of the level of severity of needs, strong emotions at the screened children: highly formed at 21% (10 children), medium – 60% (28 children), low – 19% of cases (9 children).

In the study of the type of parental relationship (PR), it was found that in terms of the scale "Acceptance – rejection" (reflects the integral emotional attitude to the child) refers to 29% of the screened parents (14 people), to the PR "Cooperation" – 8% (4 parents), "Symbiosis" – 4% (2 parents), "Authoritarian hypersocialization" – 8% (4 parents), "Infantilism" was detected in 12% of cases (6 parents). In 20% of cases, the subjects were found to have a combination of types of PR scales "Acceptance – rejection and Infantilism" and "Cooperation and Symbiosis".

Thus, the most common types of PR were: a combination of scales: "Acceptance – rejection" and "Infantilism" – 20%; "Cooperation" and "Symbiosis" – 20% and "Acceptance – rejection" – 28%.

Next, we checked the relations between the indicators of neuropsychic development of children (according to the scales of questionnaires) and the type of parent-child relationship to the child. The results of the correlation analysis by indicators of neuropsychological development and scales of parental relationship showed the following: such types of parent-child relations as "Cooperation" and "Symbiosis" directly correlate with indicators of neuropsychological development: attention and memory ($p = 0, 001$), positive emotions ($p = 0, 001$), strong emotions ($p = 0, 04$); in addition to this type of PR "Symbiosis" has a negative relationship with the indicator of intellectual and

sensorimotor development (p = 0, 021). The type of parent-child relations "Acceptance-rejection" and "Infantilism" has an inverse relationship with the indicator of positive emotions (p = 0, 004), as well as the type – «Infantilism» has an inverse relationship with the indicators of attention and memory (p = 0, 01), strong emotions (p = 0, 008), and the type of PR "Acceptance-rejection" has feedback with indicators of thinking and speech (p = 0, 05).

Discussion

Based on the empirical data, we see the expediency of assessing the neuropsychic development of a child 6-7 years of age in relation to the definition of the type of parental relations. We proceed from the position that the type of parent-child relations is an integral characteristic of parental value orientations, attitudes, emotional attitude to the child (Varga, 2006; Filippova, 1999; Spivakovskaya, 2000; Holden, 1995; Shamshikova & Gorbatovskaja, 2020), and has one of the determining effects on the level and content of neuropsychological development of the child, determining its emotional, sensorimotor and intellectual development.

The data obtained indicate that the majority of the screened children demonstrate an average level of readiness for school, i.e. the development of fine motor skills of the hand and coordination of vision and hand movements necessary for mastering writing, are able to imitate the model and focus on one case without being distracted for some time. Also, a greater number of screened children (60-68%) have average indicators of development of arbitrary attention and short-term memory; average indicators of thinking and speech (children have elementary imaginative ideas about the world and about the logical connections and relations existing between some objects of this world: animals, their way of life, nature; demonstrate the ability to reason logically and express their thoughts grammatically correct), the average degree of positive emotions and social contacts (most children show positive experiences – emotions such as joy and interest, tenderness and friendliness towards their family members; realize and accept their place in the family structure; have multiple positive social contacts and adequate structure of sexual identification). In most children, an average level of severity of needs and strong emotions was found.

However, there were children who demonstrated a low level of the examined indicators: two children – boys – showed unreadiness for school; four children were diagnosed with a low level of development of thinking and speech (these children could hardly operate with ideas about objects, connections and relations between them); five children showed a low level of development of arbitrary attention and memory. These children also found problems in relations with others.

Also, children with a high level of severity of the examined traits (according to different indicators from 10 to 14 children) were identified. These children are distinguished by active mastery of the ways of practical and cognitive activity; positive emotional attitude to the environment in accordance with the values, ideals and norms of society. In their general structure of behavior, new forms of empathy and empathy to another person, so necessary for joint activity and communication, are shown.

According to D.B. Elkonin, preschool age revolves around an adult, as around its center, its functions, and its tasks. The adult acts in a generalized form, as a carrier of social functions in the system of social relations. The child is a member of society, it cannot live outside of society, its main need is to live together with other people, but this cannot be done in current socio-cultural conditions: the child's life takes place in conditions of indirect, not direct connection with the world (Elkonin, 1998; 2007). Parent plays the key role in this context.

The leadership style of the adult is important here. It should help to ensure that the child feels like a full participant in joint activities, has the opportunity to show initiative and independence in achieving the goal. Excessive regulation of the behavior of a preschool child, when he plays the role of a mechanical performer of individual orders of an adult, discourages the child, reduces his emotional tone, leaves indifferent to the results of the common cause (Obukhova, 2013).

Such types of parent-child relations as "Cooperation" (when the parent is interested in the affairs and plans of the child, tries to help him, and sympathizes; appreciates the intellectual and creative abilities of the child, feels a sense of pride for him; encourages initiative and independence of the child) and "Symbiosis" (when the parent feels with the child as a whole, tries to meet all the needs of the child, to protect him from the difficulties and troubles of life; worries for the child and seeks to devote him a lot of time) positively affect the development of such indicators of the level of neuro-mental development of the child, as attention and memory, the development of positive emotions and the presence of significant experiences in children.

Such type of parent-child relations as "Symbiosis" negatively affects the indicators of the

level of intellectual and sensorimotor development of the child in the family. Such type of PR as "Infantilism" (when parents seek to attribute the child personal and social failure; see a child younger than his real age is and consider his interests, hobbies, thoughts and feelings not serious; imagine a child unfit and unsuccessful) is having a negative impact on such indicators of the NPD children as attention and memory, positive emotions, meaningful experiences.

The type of PR "Acceptance-rejection" (where at high scores on this scale "rejection" is diagnosed, the parent perceives his child bad, unsuitable, unsuccessful; the parent considers that the child will not succeed in life because of low abilities, small mind, bad inclinations; the parent more often feels anger, frustration, irritation, resentment towards the child) is negatively associated with such indicators of NPD as thinking and speech, positive emotions and social contacts.

Conclusions

The data obtained indicate that different types of parent-child relationship such as "Cooperation" and "Symbiosis" positively interrelated with different indicators (attention and memory; the development of positive emotions and the presence of significant experiences in children) of the child's neuropsychological development. Such types of parent-child relationship as "Infantilism" and "Acceptance-rejection" negatively interrelated with such indicators of child's neuropsychological development as attention and memory; thinking, speech and positive emotions and social contacts.

As we can see, even before entering school there are differences in the cognitive, emotional and behavioral development of children, depending on the type of family relations. Children in groups with a more "constructive" parent-child type have higher cognitive scores and fewer behavioral problems. An important part of these differences between children can be explained by what parents "do" in terms of educational activities, such as parental attitudes and a style of upbringing children.

The materials of the study can be used by child psychologists in the evaluation of neuropsychological development of the child. The Bank of diagnostic techniques that quickly allow diagnosing the state of neuropsychic development of the child in relation to the type of family relations and thereby increasing the effectiveness of its correction through work with parents is of practical importance.

Conflict of interest

The authors declare no conflict of interests.

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