

Novel psychopathological picture during the COVID-19 pandemic based on a first episode of psychotic depression

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Summary

The outbreak of the SARS-CoV-2 pandemic had a major impact on both physical and mental health. In this article we present a case of a patient with a first episode of severe depression with COVID-19-related psychotic features.

A 59-year-old man with no history of mental disorders was admitted to the inpatient psychiatric unit due to the symptoms of a severe depressive episode with psychotic features. Since March 2020, progressive deterioration of his mental health in the form of profound lowering of mood, anhedonia and lack of energy was observed. He was not infected nor exposed to infectious agents but presented delusions about being infected with SARS-CoV-2 and being a source of transmission to other people by using the toilet or going out. He suffered from Hashimoto disease and lymphoma diagnosed two months prior to the hospitalization with further diagnosis postponed due to the pandemic.

He was administered venlafaxine 150 mg per day and mirtazapine 45 mg per day with addition of olanzapine up to 20 mg and risperidone up to 6 mg per day. No side effects were reported. The patient made a full recovery with the exception of slightly blunted ability to feel pleasure, minor problems with concentration and occasional pessimistic thoughts.

The social distancing recommendations during the pandemic put a psychological strain related to alienation and negative emotions which in turn can favor development of depressive symptoms. Analysis of psychological mechanisms related to the pandemic and restrictions is significant for limiting the negative influence of global crisis on individual mental well-being.

In this case the impact of global anxiety and its consequential integration into the developing psychopathological symptoms is especially interesting. The circumstances surrounding an episode of affective disorder may shape its course and thought content.

Key words: delusions, SARS-CoV-2, depressive episode

Introduction

The outbreak of the SARS-CoV-2 pandemic had a major impact on both physical and mental health. The pandemic has already reached almost 200 millions of laboratory-confirmed cases globally including up to 3 millions in Poland alone, and so far resulted in over 4 million deaths worldwide (data on 29th of July, 2021) [1]. However, its impact on mental health is further amplified by the presence of regional restrictions to limit further transmission of the virus. Although the neurotropism of SARS-CoV-2 has already been confirmed, the occurrence of psychopathological symptoms does not typically result from the infection [2]. The recent reports indicate that major psychological distress associated with the pandemic and social isolation recommendations can lead to relapse in patients with history of previous mental disorders [3–5]. Moreover, a multi-center study conducted in Denmark shows that manifestation of pandemic-related symptoms in patients attending local mental health centers correlates with current COVID-19 incidence and restrictions [6]. However, there is also some evidence of newly-developed mental disorders as a result of SARS-CoV-2 emergence and spread [4, 7, 8–13].

As it turns out, COVID-19 infection is not a crucial risk factor of exhibiting psychopathological symptoms. Stress related to the pandemic and restrictions resulting from it led to significant increase in morbidity, with anxiety symptoms detected in up to half of participants of studies conducted in various regions [14–21]. A meta-analysis comprised of 28 studies indicates occurrence of PTSD, anxiety and depressive symptoms in 26% of participants in various populations during the SARS-CoV-2 pandemic [22].

In this article we present a case of a patient with a first episode of severe depression with COVID-19-related psychotic features despite that fact he was not diagnosed nor exposed to novel coronavirus whereas he was suffering from a lymphoma which diagnosis and treatment were postponed due to the pandemic. After the end of treatment, the patient consented to the publication of the case report

Case presentation

Medical history and mental state on admission

A 59-year-old man was admitted to the Inpatient Psychiatric and Psychogeriatric Unit due to the severe depressive episode with psychotic features. He had no history of previous mental disorders. He is married to a wife with whom he has good relations and they have no children. He has higher economic education and has been working as an accountant for over 30 years. There was no history of alcohol or drug abuse. There are no mental disorders, drug or alcohol abuse nor suicidal death in his family. He has been treated for hypothyroidism in the course of Hashimoto disease. Several months before the manifestation of psychiatric symptoms he was diagnosed with non-Hodgkin's lymphoma localized in neck area. The patient was consulted hema-

tologically. Further diagnosis and treatment were postponed due to the SARS-CoV-2 pandemic, as his condition did not require an urgent intervention. At the initial phase of the pandemic he was working as usual but limited his contacts with others adhering to the general restrictions. None of his family members, friends or co-workers has been diagnosed with SARS-CoV-2 infection and he was not quarantined. He did not exhibit any symptoms of an infectious disease.

Progressive deterioration of his mental health was observed in March of 2020. He experienced sadness, lack of energy and interest, anhedonia. He reported insomnia in the form of shortened night sleep with early awakening, as well as lack of appetite and weight loss. Moreover, he was convinced that he could not cope with anything, he felt helpless and spent time idly. He also felt emotionally empty and believed his life had no value. With time he developed delusions of being severely ill and close to death. He became convinced that he was infected with SARS-CoV-2 and was spreading the virus to other people by using the toilet or going out. Additionally, he expected punishment and prison for being the source of the virus. Due to the severity of depressive symptoms clearly affecting the patient's daily functioning, including meeting basic life needs, in April 2020 he became unable to continue his professional work. Despite his lymphoma diagnosis, there were no somatic causes of his lack of energy, weight loss and malaise. His hematologist suggested a psychiatric consultation which resulted in the patient being referred to the psychiatric hospital. He had undergone a standard nasopharyngeal swab towards SARS-CoV-2 infection which came back negative.

At admission the patient was sitting at the edge of the bed with his head down looking miserable and gloomy, making sporadic eye contact. His speech was quiet and slow. He was fully conscious, oriented to person, place, time, and situation. Verbal contact with him was formal but not fully substantive. He was in deeply depressed mood and his affect was restricted to the depressed range, periodically anxious. Psychomotor activity was decreased and apathy, anhedonia and emotional emptiness were observed. He had coherent line of thoughts, pessimistic thoughts and exhibited apparent delusions of guilt and punishment as well as delusions of reference. He did not demonstrate looseness of associations or hallucinations. Sleep and appetite were reduced. His insight and judgment were poor and superficial. He scored 49 points in the Montgomery-Asberg Depression Rating Scale (MADRS) [23].

His physical examination and blood tests did not reveal any abnormalities. Thyroid hormones and TSH levels indicated euthyrosis (TSH 3.58 uIU/ml with a norm between 0.4–4; FT3 5.71 pmol/l with a norm between 2.76–6.45; and FT4 12.8 pmol/l with a norm between 11.4–22.5).

Clinical management

In the first days after admission high levels of psychotic anxiety were reported in the patient. He presented delusions of guilt and hypochondriac delusions, questioned

the negative result of SARS-CoV-2 test. He declared that due to the non-Hodgkin's lymphoma diagnosis he only had one year of life left despite the contrary information provided by his hematologist. On occasions he also presented delusions of persecution – he believed that his hospital stay was a result of an anonymous denunciation made by a paramedic due to the epidemic hazard he had posed and that his food and liquids at the ward may be poisoned, so that he limited his food intake. Despite the fact he lacked energy and his psychomotor activity was decreased, his insomnia persisted. He was administrated venlafaxine 150 mg per day and mirtazapine 45 mg per day with addition of olanzapine up to 20 mg per day, which were gradually augmented with risperidone up to 6 mg per day due to ongoing presence of delusions. He tolerated the treatment very well. Additionally, he was administered 25 micrograms of thyroxine supplementation a day according to his previous treatment.

As a result of the administered treatment, the patient gradually increased his activity, began to spend time with other patients, attended therapeutic classes and walks to the garden with a therapist. Moreover, a decreased focus on the pandemic or lymphoma-related health issues was observed.

After 5 weeks of the treatment, the patient presented significant improvements in his mental state allowing for discontinuation of olanzapine and reduction of risperidone down to 4 mg per day. No deterioration of his mental state was observed in response to the treatment modification.

Psychological examination

During the psychological examination performed on the 13th of July, the patient was auto and allo-oriented. Psychometric testing of cognitive functioning measured with the Montreal Cognitive Assessment Scale (MoCA) [24, 25] showed a general absence of cognitive impairment (26/30 points). He correctly performed the tasks assessing the efficiency of eye-hand coordination, naming and abstract thinking. His efficiency in terms of the attention was within normal range and did not show any impairment of linguistic functions. However, long-term episodic memory deficits were observed at recall despite the overall score of cognitive functioning maintained within normal range. In the task assessing the ability to restore the memorized auditory material after the delay, the patient remembered one out of five previously learned words.

Clinical evaluation and diagnostics conducted with the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD) detected no diagnostic criteria of personality disorders [26].

After 6 weeks of treatment, the patient had a low or average severity of psychopathological symptoms measured with the SCL-90 Questionnaire (Table 1) [27, 28].

Table 1. Results obtained on the SCL-90 questionnaire after treatment

Symptoms	Raw score (converted score)	Interpretation
Somatization	0 (0)	low
Obsessive-Compulsive	11 (1.1)	average
Interpersonal Sensitivity	10 (1.1)	average
Depression	11 (0.8)	low
Anxiety	5 (0.5)	low
Hostility	4 (0.7)	average
Phobic Anxiety	1 (0.1)	low
Paranoid Ideation	3 (0.5)	low
Psychoticism	8 (0.8)	average

MRI of the brain revealed single, minor ischemic lesions and ruled out metastases or malignant infiltrations, which could underlie a depressive disorder due to a general medical condition.

Considering the whole clinical picture, the diagnosis of major depressive episode with psychotic symptoms was made. Due to the endogenous character of the disorder, the prognosis includes potential relapses and therefore, long-term treatment. The patient had reached a full recovery with the exception of slightly blunted ability to feel pleasure, minor problems with concentration and occasional pessimistic thoughts which at this point were associated with the diagnosis of lymphoma and anxiety regarding further somatic treatment. At his discharge the patient scored 3 points on the MADRS and was discharged with a recommendation to attend the outpatient psychiatric clinic for further treatment.

At the first follow-up after 2 months since the discharge, the achieved recovery was stable, however, slight sedation and psychomotor retardation were observed. Further reduction of risperidone down to 2 mg per day and mirtazapine to 30 mg per day was ordered and led to improvement of patient's daily activity. The patient was able to go back to work and his usual activities such as biking or playing cards with his friends.

After one year the patient confirmed that he still regularly takes his medication and visits a specialist at the outpatient clinic, which allows him to maintain his proper activity. During that time he did not develop any episodes of affective disorders.

Patient perspective

At the follow-up after 4 months, the patient was satisfied with complete reduction of his primary concerns. He did not report any symptoms of the disease nor side effects of the administered treatment. He regarded the disease as a reaction to excessive stress resulting from the onset of pandemic and did not consider prescribed drugs to

be vital in his recovery. However, he could not explain why his symptoms did not reappear with the increase of COVID-19 incidence reported in the country. Despite that he decided to continue regular treatment and adhere to the recommendations. Additionally, he emphasized kind reception of his episode by his family and friends, which had concerned him at the time of the discharge.

Discussion

The foreseen rise of mental health problems related to the ongoing pandemic, lockdowns and quarantines has been confirmed by the recent literature. However, evidence indicates that sole fact of being quarantined does not significantly influence mental well-being compared to the consequences related to following restrictions on a daily basis [29]. The cases of relapses of psychosis or affective disorders resulting from rigorous restrictions and social isolation have been described [3–5]. It is assumed that people with previous history of mental disorders may be susceptible to worsening of their mental state due to the emergence of a novel virus and associated uncertainty and anxiety. This phenomenon is associated with the weakened action of defense mechanisms and more sensitive mental structure of this population. On the other hand, the major stressors are known to facilitate expression of mental disorders such as psychosis or affective diseases, however, this typically happens in early-life.

Social distancing recommendations especially impact psychological burden associated with the feeling of alienation and negative emotions. These, in turn, in positive feedback loop with anxiety symptoms can favor development of PTSD or depressive symptoms [30]. Individual traits, such as social cognitive bias or low efficiency of emotional regulation lead to increased affective response to the SARS-CoV-2 pandemic [31]. Loneliness poses another consequence of social distancing which significantly influences one's affective response [32].

Female sex, COVID-19 infection among family members, younger age, lower socioeconomic status, and previous history of physical diseases or mental disorders are listed as risk factors of decreased mental well-being in conditions of global pandemic [33–35]. Interestingly, none of those was present in the above-described case. The psychological traits observed in people susceptible to development of depressive or anxiety symptoms as a result of *coronaphobia* are high level of neuroticism, hypochondriasis and presence of reassurance-seeking behaviors [36]. Interestingly, a protective influence of age above 60 against development of anxiety or depressive symptoms during the pandemic was reported, which can be associated with more effective emotional regulation and stress tolerance in older people [37].

This case presents a middle-aged man with no history of affective and anxiety disorders nor personality traits which can predispose to development of depressive symptoms. No risk factors other than physical diseases were observed. It suggests the necessity to be vigilant while dealing with psychopathological symptoms related to

coronaphobia. The potential pathophysiological influence of hypothyroidism resulting from Hashimoto disease needs to be taken into account. Patients with endocrinological disorders are undoubtedly at risk of depressive disorders, which can be associated with potential inflammatory pathology of depression. The presented patient had been successfully treated for hypothyroidism for over 10 years. In this case, a subconscious reactive factor such as serious hematological disease – a lymphoma which treatment had been postponed – may be of relevance.

The pandemic and accompanying feeling of social endangerment acted as a trigger for development of severe depressive episode with psychotic features. The main message present both in society and media has been integrated as a part of the delusions, which primarily concerned current pandemic, and belief that the patient was a source of viral transmission.

It has been described that the sociodemographic background and surrounding can greatly impact the content of delusions [5, 38]. There is apparent evidence of thought content alteration, with one instance of COVID-19-related delusions replacing prior symptoms, as a result of the pandemic [13]. Despite having no significant exposure or risk of contracting the virus disease, our patient developed a system of delusions related to this topic instead of his potentially more severe health problem, a newly-diagnosed lymphoma.

This case illustrates development of a first depressive episode in conditions of relevant social stressor and furthermore, a response to combination pharmacological treatment. The preliminary findings suggest that novel cases of mental disorders developed during the SARS-CoV-2 pandemic tend to respond to the pharmacological intervention relatively quickly, while in this case a significant improvement was obtained during 5 weeks. Interestingly, the recovery correlated with the intensity of the pandemic news which our patient was exposed to before admission and at the ward. The term *infodemic* accurately describes both common and novel mental problems related to pandemic and puts special emphasis on potential management of such psychiatric consequences of pandemic by reducing the intensity or amount of exposure to the stressful stimuli [10]. Analysis of psychological mechanisms related to the pandemic and restrictions is significant for limiting the negative influence of global crisis on individual mental well-being [39–42]. On the other hand, a potential more direct causal influence of the virus on the occurrence of mental disorders is yet to be excluded [43].

Conclusions

The middle-aged people are susceptible to the development of depressive disorders although this period of life is considered to be protective for development of pandemic-related anxiety. Usually, it is possible to ascertain the significant personal events, although the connection between major life events and symptoms of psychiatric disorders is rarely direct. In this case, the impact of global anxiety related to SARS-

CoV-2 pandemic and its consequential integration into the developing symptoms of affective disorder in the form of major psychotic depression is especially significant. The circumstances surrounding a developing episode of mental disorder may shape its course and thought content. Therefore, the mental health professionals should consider the potential overflow of negative information as a key factor in occurrence of psychopathological symptoms in susceptible individuals. Conscious media output and its influence on mental health need to be taken into account as a part of health policy during the global crisis.

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