REVIEW ARTICLE

POST-COVID SUICIDE: FORENSIC SCIENCE ANALYSIS

DOI: 10.36740/WLek202208216

Kateryna V. Latysh[1,2]
[1]YAROSLAV MUDRYI NATIONAL LAW UNIVERSITY, KHARKIV, UKRAINE
[2]VILNIUS UNIVERSITY, VILNIUS, LITHUANIA

ABSTRACT

The aim: The article draws attention to the raise of suicide incidents after COVID-19 and proposes special knowledge to use in some forensic examinations for patients with COVID-19 and after as a measure of suicide preventing.

Materials and methods: Scientific researches and comparative analyzes of criminal cases marked as a suicide were done based on statistics method. 415 suicide cases were fixed in Ukraine in 2020, and other persons' influence for suicide committing was revealed only in 61cases. In 2021, the tendency has increased, and only during the first four months (from January till April) there were 213 suicide cases.

Conclusions: There are so many cases of suicide after COVID-19 caused by mental and neurological disorders due to the coronavirus effects on human brain and psyche, not only at hospitals but at home as well. The virus can disrupt nervous system work both directly and indirectly, activating the immune system excessively (the so-called cytokine storm). Complex forensic medical and psychological examination may be appointed to determine the mental state of persons after COVID-19. There are two ways to solve the problem with the help of special knowledge and forensic science. On the one hand, investigate person's predisposition for suicide after covid to prevent a suicide. On the other hand, if you had failed and the person committed a suicide use the information received to prevent other persons' suicides.

KEY WORDS: post-COVID state; forensic examination; special knowledge; forensic expert; SARS-CoV-2

Wiad Lek. 2022;75(8 p2):2031-2035

INTRODUCTION

COVID appeared not so long ago, in 2019, and its consequences for health and organism of people haven't been investigated enough. A lot of researches have been devoted to coronavirus disease, but the post-covid state issues haven't been paid much attention to. Mental and psychological states of an individual which have had COVID have stayed among the most important unsolved problems, since non-isolated cases of suicide have been recorded after the coronavirus disease, which makes influence for lungs and can lead to hypoxia up to the level of brain damage. This is due to significant neuroimmune disorders caused by the illness.

THE AIM

The article draws attention to the raise of suicide incidents after COVID-19 and proposes special knowledge to use in some forensic examinations for patients with COVID-19 and after as a measure of suicide preventing. The purpose of the study is to resolve the issue of suicide after COVID-19 on the basis of multidisciplinary analyzes with forensic science and law methods.

MATERIALS AND METHODS

Scientific researches and comparative analyzes of criminal cases marked as a suicide were done based on statistics method. Each case of suicide is registered in The Unified register of pre-trial investigations. That is why the author uses the data of the Unified register of pre-trial investigations which are summarized in the reports with the compulsory Form 1, named "Unified report about criminal cases", based on investigations results and inserted to the register every month. Cases marked as suicides during 2020 and from January to April, 2021, are analyzed in this work. 415 suicide cases were fixed in Ukraine in 2020, and other persons' influence for suicide committing was revealed only in 61 cases. In 2021, the tendency has increased, and only during the first four months (from January till April) there were 213 suicide cases.

The methods of theoretical analysis and synthesis were used while studying the scientific papers by foreign and domestic researchers, court's decisions on cases of post-COVID suicide.

This article is also based on medical scientific research of the COVID-19 impact to mental and psychological health of a person. The historical method was used in the study of suicide reasons after flu pandemic and SARS outbreak in 1918 and 2003. And statistical and sociological methods were used to achieve the aim during analyzing the results of interviews of psychological forensic experts, doctors, and investigators.

The method of systematic analysis was used to determine the main tasks, several stages of providing forensic psychological examination and the groups of information sources for it.

REVIEW AND DISCUSSION

Since December 2019, the world has been affected by gradual (and sometimes abrupt) changes in public life related to the SARS-Cov-2 virus pandemic and the introduction of state measures to stop its spread. This situation also affects those who are prone to suicide [1]. So there is a group of scientists who associate suicide because of COVID-19 not with medical reasons but with social problems caused by it, such as financial strain, lockdown, quarantine, unemployment or loss of economic independence, disability. At the same time, as one of the researches shows, the subjects noted low rates of fatigue and depression, which indicates a belief into a positive end to the situation. The factor analysis indicated the stages of experiencing quarantine: shock and anxiety, euphoria and elation, acceptance and humility [2]. Nevertheless, I agree that social factors have also huge impact on suicidal behavior. For example, social disengagement played a role in the suicide rate increasing during the 2003 SARS epidemic in Hong Kong. One-third of SARS-related suicide victims experienced social isolation during the SARS outbreak [3]. There are evidences that deaths by suicide increased both after the 1918 flu pandemic and the 2003 SARS outbreak. We are already watching this with frontline workers [4].

Except social factors there is an infodemic which can also lead to mental illness and suicide [5]. An infodemic is too much information including false or misleading information in digital and physical environments during a disease outbreak. It causes confusion and risk-taking behaviors that can harm health [6].

COVID-19 is clinically characterized by a presentation ranging from the common cold to severe respiratory disease and death. Human-to-human transmission occurs mainly through the respiratory tract, by droplets, respiratory secretions, and direct contact [7]. Many patients who have had coronavirus complain of memory impairment, increased fatigue, and decreased mental productivity later. These are the long-term consequences of neuronal death.

Studies indicate that the COVID-19 pandemic is associated with distress, anxiety, fear of contagion, depression and insomnia in the general population and among healthcare professionals. Stress-related psychiatric conditions including mood and substance use disorders are associated with suicidal behavior [8].

The membranes, vessels, and parenchyma of the brain may be involved in the pathological process of COVID-19. The cellular reactions arising under the influence of a viral agent that has penetrated the blood-brain barrier (BBB) into the central nervous system (CNS), depending on the state of the T- and B-cell immunity of the patient, can be asymptomatic, monosymptomatic, or cause clinical manifestations of meningitis, encephalitis, encephalopathy. The defeat of the cranial, peripheral nerves, skeletal muscles is manifested by mono-ipolyneuropathies, muscle fatigue, myalgia, rhabdomyolysis [9]. The risk for an unfavourable course of SARS-CoV-2 pneumonia rises with age and comorbidities [10]. There is high probability that symptoms of psychiatric, neurological and physical illnesses, as well as inflammatory damage to the brain in individuals with post-COVID syndrome increase suicidal ideation and behavior in this patient population [11]. A new report by The Well Being Trust found that 75,000 additional people could die from what they called "deaths of despair," (which include suicide and substance use) because of COVID-19 [12].

COVID-19 differs from other flu strains with consequences of the illness in the form of mental and psychological disorders. At the same time, suicidal moods are not mentioned in the list of this disease symptoms as haven't been studied enough.

There are so many suicides among people who have had COVID. This may be the result of non-infectious inflammation focies in the cerebral cortex arising due to coronavirus disease. All death cases with suicide are registered as a crime at first but with the mark of a suicide. Then it is being investigated and, on the basis of the investigation results, a decision is made to close the criminal case if it is a suicide or the case will be investigated further if there are suspicions or doubts. According to my research, as it was mentioned above, 415 such cases were recorded in 2020. In the course of the investigations, a significant crime impact of another person for committing a suicide was determined only in 61 cases. Then such a negative tendency has increased, and 213 cases were recorded and marked as «a suicide» only during four months of 2021.

As my research shows, there are many similar forensic characteristics in post-COVID suicide cases. Most often, suicide is committed in the hospital or at home. Person decides to jump out of the window of the hospital where he is being treated, or to do it later at home. For example, there were three suicides in Kiev hospitals when two men aged 68 and 42 and a 60-year-old woman jumped out of the window while being treated for COVID. Suicide rates among nurses were always very high [13] and have been rising due to COVID-19. There were several cases of suicide among doctors. In Kharkiv, a 40-year-old pediatrician who was undergoing oxygen therapy in the hospital due to the fact that he could not breathe on his own, jumped out of the window of the house a month after being discharged from the hospital. In the Dnieper region, a 45-year-old anesthesiologist shot himself with a traumatic weapon. There appear regular reports of suicides committed by doctors and nurses in Europe and the United States [14], not only in Ukraine.

COVID-19 can be a catalyst for both somatic and mental illnesses which can lead to a suicide. It may be so because coronavirus infection affects, in particular, the vessels of the human central nervous system. Persons who had pneumonia with pulmonary hypertension and COVID-19 usually have hypoxia (lack of oxygen). The most sensitive to lack of oxygen organ is our brain. Breathing problems caused by coronavirus can sometimes damage brain tissue. If a brain does not receive enough oxygen for too long, this affects the number of neurons and neural connections.

Psychological forensic experts point out in their interviews that people after COVID-19 mostly make suicidal attempts by impulse, but some of them make such an attempt

with preparation: they choose a method and a time. This thought is in their minds and it works when «a trigger», such as an open window, the absence of anyone at home, an open safe with a weapon etc. appears. It is interpreted as a sign and the person acts impulsively.

Such a situation is spread especially among people for whom it is the first episode of depression, when they have not yet had the experience of getting out of this state. If a depressed patient chooses to commit suicide, he will most likely do so. Relatives and friends cannot see the line between bad mood and depression. And even if they try to help, their methods don't work.

When being discharged, it is important for a person to be examined by an expert-psychologist in order to establish the presence of a suicidal type of accentuation.

Because of a prolonged state of severe depression, the presence of such a suicidal type of accentuation can cause suicidal risk and contribute to the decision to commit a suicide. At the moment preceding the suicide, the person may be in an affectively constricted state of consciousness. The motive for suicidal behavior can be the formation of posthumous sympathy for oneself, arousing compassion and remorse in others.

There are two types of depressive disorders: clinical and reactive. The first one suggests that the patient is initially predisposed to depression, for example, due to poor heredity, the next one – that mental disorders arose as a reaction to a certain situation. It is very important also for staff members who are working outside their normal practice, with an obvious initial poor understanding of COVID-19 pandemic, especially in view of inevitable bad outcomes. Support was provided by a previously established wellbeing group consisting of senior clinicians and restorative practice nurses. In addition, quiet rooms were created to allow for rest and mindfulness, away from clinical areas [15].

For early detection of mental disorders with anxiety and depress, it is recommended to use screening of general mental health according to the SRQ-20 self-questionnaire, anxiety – according to the GAD-7 scale and depression according to the PHQ-9 questionnaire, weekly after hospitalization and before discharge [16].

The use of clinical scales such as the Hamilton Depression Scale (HAM-D), the Hamilton Anxiety Scale (HAM-A), and the Positive and Negative Symptoms Scale (PANSS) involves further diagnosis. While self-testing is recommended via mobile phones, and doctors can conduct interviews and questionnaires in person or online [17]. If it is necessary, patients may be referred to a psychiatrist.

The extent of help for COVID-19 patients with mental health disorders depends on the level of their severity. It can be just self-management with breathing relaxation exercises and mindfulness. In more complicated cases, depending on the existing psychopathology – a combination of psychotherapy and psychopharmacotherapy is recommended, given the age and comorbid pathologies [18].

Criminal case are registered for each fact of suicide, within which a complex post-mortem medical and psychological forensic science may be conducted to determine the mental state of persons with somatic diseases. It should be borne in mind the significant impact of all chronic diseases on the mental state of the individual.

Posthumous forensic psychological examination is an option in absentia and traditionally belongs to the most complicated types of examinations (forensic science), because it is carried out only on the basis of studying the materials of the criminal case and various materials characterizing the identity of the deceased, without his personal examination.

The subject of this forensic psychological examination are individual features of the mental activity of the suicide: characterization of the mental state of the suicide on the eve of suicide (disclosure of its structural and dynamic features and type), elucidation of the state of his consciousness and the content of experiences in the suicide.

Basing on the obtained data, the expert psychologist also assesses the semantic and individual psychological risk factors for suicide.

A complex psychological and psychiatric examination may also be appointed. The subject of such forensic examinations are retrospective assessment of a person's condition for the period of committing various legal acts. Particular complication of such forensic examination is connected with impossibility of inspection of the person.

To sum up, it is important to conduct a complex posthumous forensic medical and psychological examination of a person who has had COVID-19, it may help to develop scientific and methodological recommendations for preventing suicide later on.

Investigating the materials of the case about the personality and mental state, the experts solve three main tasks: 1) Whether the person who according to the investigative version (allegedly) committed suicide had a mental state that predisposed to suicide in the period preceding his death. So they establish the personality quality and emotional state of the deceased before death. 2) Can be the reason of such emotion state of deceased illness of COVID-19 or post COVID state? 3) What are the reasons for the growing of this condition?

Providing a posthumous forensic psychological examination on the fact of suicide includes the following stages:
- analysis of the materials of the criminal case;
- analysis of the individual psychological characteristics of a person on the basis of the documents in criminal case and the materials attached to it;
- investigative the situation preceding the suicide, personal significance of it, trauma, analysis of the last day of the victim;
- retrospective analysis of the dynamics of the mental state of the subject in the situation preceding the suicide, analysis of the psychophysiological state at the time of suicide.

The medical history, information about the mental state of the deceased, the circumstances of death, the cause of death, whether a person had central nervous system disorders, for example, such as traumatic brain injury, as well as materials characterizing the deceased, his social environment, having previously attempted suicide, con-

ditions of development, connections and relationships, data revealing individual psychological characteristics, the system of values, inclinations, interests are given for complex psychological forensic examination.

There are following groups of sources of the information necessary for an expert to make a forensic conclusion. Firstly, these are medical documentations from psychiatric, narcological and other dispensaries, especially in the period preceding the suicide immediately, the conclusions of previous examinations, for example, forensic medical. Then it should be known whether the person had tolerated COVID-19 and how the treatment proceeded. It is also necessary to collect the testimonies of various doctors having observed the deceased. The information about the disease course features is very important for the person's psychological state establishing.

Secondly, there are personal characteristics obtained from official requests (from the place of work, from the place of residence, if it is possible from the place of study). Protocols of investigative experiments, letters attached to the case, diaries, drawings, suicide notes, and other products of creativity are the next. Drawings, poetry, prose, etc. and a family history of suicide or psychiatric illness are of great importance.

Testimonies of witnesses (relatives, friends, colleagues, observers, others) are the last group. The testimony of witnesses should characterize: firstly, the individual psychological characteristics of the deceased (these personality properties are determined by the subject's attitude to various phenomena of the surrounding reality, for example, the attitude of the subject to the people around him, relatives with whom he maintains acquaintance, having previously attempted suicide; clarity in establishing interpersonal contacts, emotional reactions to troubles in the family, at work, emotional reaction, attitude to oneself, to health, to life plans, suicidal thoughts or behaviors etc.); secondly, the emotional state of the person.

From these sources, an expert can take four groups of data on the personality and mental state of the suicide: information about the features of the development of the person; stable, individual psychological characteristics which appear in various situations; features of self-awareness of a person; information about the current state of the victim in the period preceding the suicide. It should be noted that experts of psychology are currently experiencing great difficulties in the production of posthumous forensic psychological examinations. This is due to the following reasons: lack of sufficient practice in the conducting of posthumous examinations; the difficulty in the development of expert technologies for this type of expertise; the lack of special studies on the possible psychological states of persons after undergoing covid.

CONCLUSIONS

There are a lot of suicide cases after COVID-19 all around the world. The same situation was after the flu pandemic in 1918 and the SARS outbreak in 2003. That is why it is too important to investigate post-covid suicide cases especially through forensic science.

Proposal of this study is implementation in medical practice compulsory complex psychologists and psychiatric participation in discharging persons with neurological disorders due to hypoxemia, homeostasis, neurotropicity and neurovirulence SARS-CoV-2 (isolated violation of cranial nerves, focal and diffuse disorders of the central nervous system), «cytokine storm». Because mental illness can appear on the background of prolonged oxygen starvation. All chronic diseases huge impact on the person's mental state should be taken into consideration during all forensic examinations.

All these symptoms should be recorded into a medicine card and shown to forensic experts to do a conclusion whether such a person has or doesn't have a suicide risk. If there is no doubt about risk absence, the person can be discharged from hospital. It should be done using special knowledge both in medicine and psychology, and psychologists can be not only in hospital.

So it is very important to do complex medical and psychological forensic examinations for a person who has had COVID-19. Nevertheless, one can encounter problems, especially when conducting a posthumous forensic psychological examination with the research object lack.

REFERENCES

1. Batyrgareieva V.S., Kalinina A.V., Babenko A.M. Suicide as an indicator of the public mental health in Ukraine (including period of COVID-19) Wiad. Lek. 2020;73(12): 2743-2751. doi: 10.36740/WLek202012208.
2. Pogorilska N.I., Synelnykov R.Y., Palamar B.I. et al. Features of psychological experiences in severe quarantine during the COVID-19 Pandemic: the role of tolerance for uncertainty. Wiad. Lek. 2021;74(6): 1312-1316. doi: 10.36740/WLek202106104.
3. Sher L. The impact of the COVID-19 pandemic on suicide rates. QJM. 2020;113(10):707-712. doi: 10.1093/qjmed/hcaa202.
4. Dolgin R. The Impact Of Covid-19 On Suicide Rates. https://www.psycom.net/covid-19-suicide-rates [date access 20.04. 2022]
5. Shevchuk V.M. Suchasni problemy kryminalistyky v umovax epidemichnyx zagroz ta informacijnyx vplyviv. Informacijne zabezpechennya rozsliduvannya zlochyniv: materialy VII Mizhnarodnogo kruglogo stolu (m. Odesa, 5 chervnya 2020r.) Nacionalnyj universytet «Odeska yurydychna akademiya». Odesa: Vydavnychyj dim «Gelvetyka». 2020, 152. (In Ukrainian).
6. Infodemic. https://www.who.int/health-topics/infodemic#tab=tab_1 [date access 20.04. 2022]
7. Konturek P.Ch., Harsch I.A. What does a gastroenterologist need to know in the time of SARS-CoV-2 pandemia? Wiad. Lek.2020;73(4): 625-628. doi: 10.36740/WLek202004101.
8. Sher L. The impact of the COVID-19 pandemic on suicide rates. QJM. 2020;113(10):707-712. doi: 10.1093/qjmed/hcaa202.
9. Belopasov V.V., Yashu YA., Samojlova E.M., Baklaushev V.P. Porazhenie nervnoj sistemy pri COVID-19. Klinicheskaya praktika. 2020;11(2):60–80. doi: 10.17816/clinpract34851.
10. Harsch I.A., Skiba M., Lopatta E., Konturek P.C. Hydroxychloroquine is no miracle cure for COVID-19 infection – imaging and clinical course in an elderly female. Wiad. Lek. 2020;73(7). doi: 10.36740/WLek202007149.
11. Sher L. Post-COVID syndrome and suicide risk. QJM. 2021;114(2):95-98. doi: 10.1093/qjmed/hcab007.

12. Dolgin R. The Impact Of Covid-19 On Suicide Rates. https://www.psycom.net/covid-19-suicide-rates [date access 20.04. 2022]
13. The suicide crisis in nursing. https://www.independentnurse.co.uk/professional-article/the-suicide-crisis-in-nursing/223994/ [date access 20.04. 2022]
14. As global COVID-19 deaths top 4 million, a suicide in Peru. https://apnews.com/article/joe-biden-peru-europe-coronavirus-pandemic-health-3da770e3dfbeaf8738c0e68643a2994b [date access 20.04. 2022]
15. Torlin'ski T., Rakasz L., Wysota B. et al. An interdisciplinary approach to the management of critically ill patients during COVID-19 pandemic; an experience of a university hospital in England. Wiad. Lek. 2020;73(7): 1576-1579. doi: 10.36740/WLek202007147.
16. Wang C., Pan R., Wan X. et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID- 19) epidemic among the general population in China. International Journal of Environmental Research and Public Health. 2020;17(5): 1729.
17. Qan M.Y., Ye D.M., Dong W. et al. Changes of coping behavior, cognitive evaluation and emotional state of SARS in Peking people in different periods. Chinese Mental Health Journal. 2003;8: 515-520.
18. Xiao H., Zhang Y., Kong D. et al. Social Capital and Sleep Quality in Individuals Who Self-Isolated for 14 Days During the Coronavirus Disease 2019 (COVID-19) Outbreak in January 2020 in China. Medical Science Monitor. 2020;26. doi: 10.12659/ MSM.923921.

Acknowledgment: of received funding by Vilnius University.

ORCID and contributionship:
Kateryna V. Latysh: 0000-0002-9110-116X [A,B,D-F]

Conflict of interest:
The Author declare no conflict of interest.

CORRESPONDING AUTHOR
Kateryna V. Latysh
Yaroslav Mudryi National Law University
77 Pushkinska st., 61002 Kharkiv, Ukraine
tel: +380989000531
e-mail: latysh78@gmail.com

Received: 12.05.2021
Accepted: 04.05.2022

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article