

CLINICAL SYMPTOMATOLOGY OF COVID-19 PATIENT AFTER AN ABORTION

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ABSTRACT Introduction: WHO declared the outbreak a Public Health Emergency of International Concern in January 2020 and a pandemic in March 2020. Since then, it was realized that the virus that caused the outbreak for COVID -19, is known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). **Case Report:** The purpose of this research is to discover the association between obstetrical condition and symptomatology of COVID-19 and to present the treatment of a patient in self-isolation after the abortion. A patient who has had an abortion, after that was diagnosed with COVID-19. Blood analyses were performed after her abortion and during and after her contagion with the virus. Analyses of d-dimmers were monitored continuously. Every symptom was carefully observed, using clinical, paraclinical, digital methods and pulls oximeter. The patient was prescribed vitamins, supplements antibiotics and immunomodulators. Patients with previous comorbidities, loss of blood, abortions, have weakened immune system. That is why they are more susceptible to infections. One of them is the coronavirus or SARS-CoV-2. Some aspects of the virus remain a mystery for medical experts. It takes a multidisciplinary approach and everyday treatment so that the patient can have elimination of the symptoms before the vaccine can be applied worldwide. **Conclusion:** Women who have abortions, give stillbirth sometimes can experience difficulties regarding their immune system. It is systemically and psychologically a hard moment for them an entire family. Thus the more they are prone to become specifically ill they need more time to recover.

KEYWORDS abortion, immune system, COVID-19

Background

Female patients in their reproductive period experience different pregnancy situations and complications. Sometimes pregnancy needs to be terminated, making pregnancy loss one of the most common obstetrical complications. Etiological factors most commonly related can be genetic, hormonal, metabolic, uterine malformations, infections, environmental, occupational and personal habits, thrombophilia, or immune disorders. [1-4]

An abortion can be performed by removing or expulsion of an embryo or fetus. Then abortion without intervention can

also occur as a miscarriage or "spontaneous abortion" in approximately 30% to 40% of pregnancies. [5,6] When deliberate steps are taken to end a pregnancy, it is called an induced abortion, or less frequently "induced miscarriage". The unmodified word abortion generally refers to an induced abortion. [7,8]

Abortion is medically referred to as a therapeutic abortion when it is performed to save the life of the pregnant woman, to prevent harm to the woman's physical or mental health, to terminate a pregnancy where indications are that the child will have a significantly increased chance of mortality or morbidity.

Every abortion itself has consequences. One of them is the intervention itself; whether it occurred spontaneously or medically, it leaves consequences on the woman immune system. That by losing blood, the physical and mental breakdown, can contribute to the weakening of the woman's immune system. The body needs time to repair itself.

On January 12 2020, the World Health Organization (WHO) confirmed that a novel coronavirus was the cause of a respiratory

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illness. It caused many uncertainties as to how contagious the virus is. In a cluster of people in Wuhan City, Hubei Province, China, which was reported to the WHO on 31st of December 2019 it was reported that it was transmitted by frozen food, or by bats. [9,10]

It is found that the case-fatality ratio for COVID-19 has been much lower than SARS of 2003, but the transmission has been significantly higher, with a significant total death toll. [11, 12, 13]

People with medical conditions such as chronic diseases, diabetes, obesity, weakened immune system are at a high risk of being infected and thus of having symptomatology that the virus itself brings. Also, gynaecological patients, such as those after an abortion, already have an altered immune system, thus being more susceptible to the infection itself and coronavirus.

Case report

The purpose of this research is to present a female patient after having an abortion, how her immune system copes with the COVID-19 infection. The patient was monitored for six months. The experiences could be useful for further treatment and research of isolated patients.

For the research, a 37 years old female patient was examined, monitored and carefully followed up for six months. The patient was in her 10 weeks of pregnancy when it was discovered that the embryo is not developing properly and has no heart-beat. The patient had to go the abortion procedure, which was stressful for her and the entire family. In the history of medical diseases, the patient had not other medical conditions or comorbidities. The only obstacle during her pregnancy was her being obese and having increased cholesterol levels. Having problems with bleeding from the uterus, and in order to maintain her pregnancy, the patient needed to take high doses of hormonal therapy. The patient needed to slow down her activities and take plenty of rest. Having been exposed to intense hormonal therapy (Didrogesterona á 10 mg), increasing the doses daily, being driven to bed has worsened her weight problems, initiating tachycardia and body pain. However, the embryo could not be saved. She underwent an abortion procedure indicated medicamentously, which was the reason for prolonged bleeding (more than two weeks period) and her additional blood lost. After her abortion blood analysis was done, she suffered slight anaemia, her erythrocytes level was 3.8, and her d-dimmers were in normal borders. Her entire psychosomatic health was affected. After a period of time, the patient had to continue her work. Being a dentist by profession, she contacted patients every day, treating their oral health problems.

In a period of a world pandemic, dentistry is one of the highest risk professions since the virus SARS-CoV-2 is air transmitted, it can be easily transmitted in the ambulance if doctors are not properly equipped and protected. From anamnesis' data, the dentist had entire equipment, special masks and protective visor. As from the history of the disease, it was uncertain whether she caught the infection in the ambulance, in the marketplace, or someplace else.

At that period of time, there was no quarantine, besides the outcome of the virus; the worldwide politics was a continuation of the processes of life, normally like before the world pandemic.

Since the patient's immune system had been weakened, she easily had developed symptomatology. Her subjective symp-

tomatology had been confirmed objectively by her medical doctor.

The patient has had various symptoms beginning from strong headaches, brain dizziness, and forgetfulness.

Because of her contact with people who tested positive on coronavirus, she performed her first test, which came out to be negative.

On the day she made the test, she started to feel tiredness and dizziness. One of the first symptoms that the patient felt were laryngitis, sore throat, stuffed nose, earache and presence of diarrhoea. The fourth day from the beginning of the symptomatology, the patient developed temperature from 37.2°C. The fifth day the patient had temperature 38.0°C. Then she began to cough and on the medical exam had yellowish very thick sputum. The patient subjectively felt chest tightness, chest pain difficulty breathing which was objectively confirmed.

That is when it was suspected she might be positive on the coronavirus and was advised to take another test.

The patient x-rays diagnosis showed radiographic shades and shadows lining typically for patients with COVID-19. Because of the temperature, the patient was given paracetamol. For her condition and affection of the lungs, she was prescribed probiotics and azithromycin for 6 days.

The sixth day the patient had swollen salivary glands, with aftous lesions in her mouth. She experienced pain in her teeth and redness and swelling of the gums. For the entire period, the patient describes having vivid nightmares and awakening with sweating in the night. On the seventh day, she experienced a sharp pain in her gaster, then in her kidneys. These pains were accompanied by severe tachycardia, making the patient tired with constant fatigue.

The entire period the patient experienced diarrhoea, her therapist thought she might be having gastrointestinal problems and stomach virus.

Her PCR test results came after the 9 days from the first symptoms when it came out to be positive. Because of the diarrhoea and the first test, the second test for coronavirus test was performed later after the symptoms. Her smell and taste were impaired, until the tenth day when she felt intense saltiness of foods that are not usually salty.

Because of the entire symptomatology, she felt tiredness, muscle pain, joint pain, tremor, being driven to bed most of the time.

She experiences falling off her eyelashes, eye infections, swollen eyes with redness. She also experienced tonsils infection, pain in her throat. Also, her ears were painful, and she needed warm bandages around her ears which eased her symptoms.

She experienced flu-like symptoms like sneezing coughing, shaking. She started taking vitamins and supplements. For the pain in the gaster, she has prescribed famotidine.

Her therapist prescribed vitamin D of 4000, i.e., then vitamin C 3000 mg, Zn 50 mg.

She was also prescribed Se, vitamin B12, B6, a complex of B vitamins, multivitamins, immunomodulator (Isoprinosine 500 á mg), Omega 3 pills and for prevention of coagulation of blood, Aspirin protects á 100 mg.

However, all of these medications influenced her digestive symptoms leaving her constantly with stomach pain and diarrhoea. She was taking probiotics and enterofuril as well. Most of the time, she was driven to bed; however, her medical doctor decided she could be treated at home, being self-isolated.

The self-isolation, being mostly into one room, influences the mental health of the patient, leaving her questioning who she

had been in contact with, giving her a feeling of isolation and depression.

Many fluids, healthy foods, vegetables, fruits were added in her everyday life. As the days passed, she felt gradually better and better. The patient was in constant communication with her medical doctor. She has been in contact with 8 members from her first unusual symptoms. Her family, who she has been in contact with, all tested negative. From the day she had her symptoms, and from the day she tested positive, she was in quarantine with treatment at home.

Analyses made during and after the treatment have shown that her blood analysis is in the normal borders. Her d-dimers were also in normal margins <140 (normal ranges from 1-196 ng/ml).

After her isolation, she made an antibody test. Her parameters for IgM were 0.368 AU/ml (normal range are <1.00 AU/ml). And her IgG parameters were 0.098 AU/ml (normal range are <1.00 AU/ml). For determining the parameters, Chemiluminescent immunoassay (CLIA) method was used at the Center for Immune, Molecular and Genetic Investigations (CIMGI).

As the days continued, the patient slowly felt better and better. On a daily basis, she was taking vitamins and supplements that together with the antibiotic have contributed to easing of the symptoms and slowly improving her health. After 20 days from her positive test, she performed another PCR test which came out to be negative. She started going to work. She tried to return to her normal life processes; however, she complained of tiredness, especially during and after work. Her condition improved daily, although the fatigue, tiredness and need for rest persisted.

One month after returning to work, the patient made another test for antibodies. Her parameters for IgM were 0.506 AU/ml (normal range are <1.00 AU/ml). Moreover, her IgG parameters were 2.421 AU/ml (normal range are <1.00 AU/ml). One week after that, her husband also performed a test for antibodies for COVID-19. His results were for IgM 1.060 AU/ml (normal range are <1.00 AU/ml). Moreover, his IgG parameters were 5.020 AU/ml (normal range are <1.00 AU/ml).

Discussion

For patients, many conditions and treatments can weaken a person's immune system (making them "immunocompromised"). Some of these include cancer, bone marrow transplant, solid organ transplant, stem cells for cancer treatment, genetic immune deficiencies, HIV. Use of oral or intravenous corticosteroids or other medicines called immunosuppressants that lower the body's ability to fight infections (e.g., mycophenolate, sirolimus, cyclosporine, tacrolimus, etanercept, rituximab). [13]

Persons with weakened immune systems are at higher risk of getting severely sick from SARS-CoV-2, the virus that causes COVID-19. They may also remain infectious for a longer period of time than others with COVID-19, but it cannot be confirmed this until we learn more about this new virus. [13]

Also, female patients with the altered or weakened immune system or have suffered abortion, blood loss or given stillbirth are in a risky category. Their immune system is already immunocompromised by their gynaecological condition. Thus they can easily get infected, can have difficulties in coping with the coronavirus, and even sometimes need hospitalization.

There is no Food and Drug Administration (FDA)-approved treatment for COVID-19. A vaccine has been invented to prevent COVID-19. However, the vaccine is not available worldwide

yet. Treatment is currently aimed at relieving symptoms, and for hospitalized patients, supporting vital organ function during severe illness.

COVID-19 is a deadly disease. Many people lost their lives in the battle for immunity, oxygen, finances or unknown reasons. It was firstly announced that in the province of Wuhan in China an outbreak occurred if a new virus transmitted by bats. The doctor, who first discovered a new virus, was not believed to until he lost his life. Since the first reports of novel pneumonia (COVID-19) in Wuhan, Hubei province, China, there has been considerable discussion on the origin of the causative virus, SARS-CoV-2 (also referred to HCoV-19). Infections with SARS-CoV-2 are now widespread, and as of March 11 2020, 121,564 cases have been confirmed in more than 110 countries, with 4,373 deaths. On the end of 2020, there are 86,7 millions of persons with coronavirus, 1,87 million deaths and 61,5 million recovered. [14-18]

Andersen et al. have stated SARS-CoV-2 to be the seventh coronavirus known to infect humans, SARS-CoV, MERS-CoV and SARS-CoV-2 can cause severe disease HKU1, NL63, OC43 and 229E are associated with mild symptoms. They review what can be deduced about the origin of SARS-CoV-2 from a comparative analysis of genomic data. They also offer a perspective on the notable features of the SARS-CoV-2 genome and discuss scenarios by which they could have arisen. Their analyses show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus. [19]

A comparison of alpha- and beta coronaviruses has been researched, which identifies two notable genomic features of SARS-CoV-2: (i) based on structural studies and biochemical experiments. SARS-CoV-2 appears to be optimized for binding to the human receptor ACE2; and (ii) the spike protein of SARS-CoV-2 has a functional polybasic (furin) cleavage site at the S1-S2 boundary through the insertion of 12 nucleotides, which additionally led to the predicted acquisition of three O-linked glycans around the site. [20-24]

In this study patient in her reproductive period was diagnosed, followed and monitored for six months. The patient has had severe blood loss due to her abortion. Her immune system has already been weakened, which is one of the main reasons for her fast infection with coronavirus 2 (SARS-CoV-2). The patient is also a doctor - dentist, which exposes her to a high risk of infection, besides wearing protective equipment. As a dentist, she has had multiple contacts with patients and colleagues, where later it was discovered that they were also positive. [25]

She has suffered from many issues, including severe pain. She has had systemic symptoms, including brain problems, gastrointestinal problems, cardiovascular symptoms, flu-like symptoms. She suffered from an eye infection, ear, nose, throat infection and has complained from oral problems such as gum and teeth pain. Also, she has had pains in her muscles, joints, tiredness, fatigue, nausea and needs to rest. She was diagnosed with clinical, paraclinical and digital methods.

Regarding her condition, she was told to be treated at home, self-isolating her from her husband and two children. Multiple vitamins, supplement, painkillers and antibiotics were administered to the patient. Also, many fluids, vegetables and fruits were implemented in her diet.

In conversation with patients who have undergone chemotherapy and were infected with coronavirus, they have said that coronavirus leaves the same consequences. The patient studied in this article has experienced falling of her eye-

lashes, flu-like symptoms, multisystem pains which needed symptomatic treatment and need for plenty of rest.

Coronavirus leaves consequences on mental health on the entire planet. People cannot live isolated. The feeling of depression, isolation, and loneliness is very much present this entire year. The therapist must encourage their patients to overcome the disease and get well. The patients need support also from their family members.

The Coronavirus is known for one and a half year. It is said that it is developed in the laboratory. However, articles cited above states existed before, and now it has mutated. It still mutates, causing different manifestations in different people.

The patient had pulse oximeter at home, which enabled her to monitor her condition and consult with an expert and other people.

Dr Connolly has stated that if a person has a mild case of COVID-19 and is self-treating at home, an oximeter can be a helpful tool for checking oxygen levels so that low oxygen levels can be caught early. In general, the people who are theoretically more at risk for oxygen issues are those with pre-existing lung disease, heart disease and/or obesity, as well as active smokers. Besides, since "happy hypoxia" can be present in people who might otherwise be regarded as asymptomatic, a pulse oximeter can help ensure that this clinically silent early warning sign is not missed.

If patients have tested positive for COVID-19 and are concerned about any developing symptoms, they must be examined immediately by their health care provider. From a lung health standpoint, aside from the objective pulse oximeter measurements, dr. Connolly suggests to his patients that if they have any difficulty breathing, severe chest pain, uncontrollable coughing or altered lips or fingers, go to the Emergency Room. [26]

Regarding the patient's family in this research, they all tested negative on PCR (Polymerase chain reaction) test.

The patient's first test for antibody suggested she had not developed antibodies; however, the results interpreted by the immunologist were that innate immunity begins to develop before IgG itself. This means that cell immunity is being developed and can have some sort of immunity. However, it is still being researched why some people have antibodies and why others do not have them. Her second test showed an increased level of antibodies, showing that her organism managed to defend itself against the CORONA 19 virus.

However, the husband's patient has developed antibodies besides the negative test and asymptomatic. This is another aspect that people should be aware of this virus: they can have antibodies besides asymptomatic or have a mild, moderate or severe reaction towards the coronavirus.

All the symptoms that occur from the coronavirus cannot be compared to any other viruses. It is untypical and with different manifestations in different people. It is still being researched why some people do not have symptoms, why some have mild, moderate or severe symptoms. Sometimes even patients that test positive develop such strong reactions and are hospitalized, losing their lives without having previous comorbidities.

This research has been conducted according to the personal experience of the authors, that are doctors and patients as well.

Until vaccination can be available for all people, patients can be treated symptomatically at home, or with other methods intrahospital.

Conclusion

Patients with previous comorbidities, loss of blood, abortions, have weakened immune system. That is why they are more susceptible to infections. Some coronavirus aspects remain a mystery for the medical staff because even patients without previous comorbidities lose their lives. The treatment should take a multidisciplinary approach and everyday medical care so that the patient can have elimination of the symptomatology before the vaccine can be applied worldwide.

Women who have abortions, give stillbirth sometimes can experience more significant difficulties regarding their immune system. It is systemically and psychologically a hard moment for them and their entire family. Thus the more they are prone to becoming specifically ill and need more time to recover. That is why prevention needs to be respected by wearing masks, using disinfection methods and other equipment for protection. However, once the disease takes its course, patients that are treated at home need to be under constant monitoring and consultations with experts, so further complications or hospitalization to be avoided.

Many researchers need to follow different aspects to understand its manifestations. The COVID-19 will be eradicated from the planet so that people can get to live normally like they used to. The experiences presented above could help further treatments and research of the home isolated patients.

Conflict of interest

There are no conflicts of interest to declare by any of the authors of this study.

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