Received: 01 January 2022 | Revised: 10 March 2022 | Accepted: 15 March 2022
DOI: 10.22034/ecc.2022.332053.1342
Eurasian Chemical Communications SAMI

FULL PAPER

Chemical evaluation of gastrointestinal, coronary and pulmonary complications in patients admitted to the intensive care unit

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The aim of this study is to investigate coronary and pulmonary complications in patients admitted to the intensive care unit. Medicinal chemistry discusses the discovery, synthesis and evolution, identification and interpretation of the action method of bioactive compounds at the molecular level, and its emphasis is mainly on drugs. The history of the introduction of medicinal chemistry as the science of the first pharmacopoeia published in the 16th century and later centuries. A treasure trove of pharmaceutical agents rich in new drugs of plant and mineral origin were introduced. In the late 19th century, medicinal chemistry underwent a dramatic change with the discovery of Paul Ehrlich, who is called as the father of modern chemotherapy, in connection to the fact that chemical compounds exhibit selective toxicity against specific infectious agents. At the same time, Emile Fisher proposed the key-lock theory, which was a logical change in the action mechanism of drugs. However, it is not clear why coronary heart disease occurs in some people with Covid-19 disease. However, most experts agree that the long-term effects of Covid-19 are related capability to cause a widespread inflammatory response in the body. This inflammation, which causes blood to clot in the blood vessels of the lungs, heart, brain, kidneys, and even the legs, can damage blood vessels, leading to ulceration and a wide range of long-term complications.

KEYWORDS

Kona; defense system; Covid-19; disease; respiratory problems.

Introduction

Lung involvement has been identified as a leading cause of death. Complications such as pulmonary fibrosis, secondary bacterial or fungal infections, heart involvement (myocarditis and pericarditis), and vascular complications such as pulmonary artery embolism have been reported frequently [1-3]. Various imaging techniques, especially chest CT scans, not only play an important role in the initial diagnosis of the disease, but are also widely used during the treatment process to follow up, diagnose, and treat possible secondary complications (Figure 1). Although the US Food [4] and Drug Administration (FDA) has approved the antiviral drug Remdesivir for the treatment of Covid-19, there is still no direct treatment that can cure the long-term symptoms of Covid-19 [5]. However, some studies have reported the opposite results, and it has been observed that some patients who were recovered from Covid-19 return to the doctor after a while with conditions such as shortness of breath and heart, lung, and other complications [6-8].

Many patients who have experienced a mild form of the disease may experience long-term Covid-19 and continue to have persistent symptoms of fatigue and respiratory problems for up to 60 days after the illness, and in some cases, coronary symptoms that last up to two months. However, coronary complications are not limited to these cases and are more widespread, and research is ongoing [9].

FIGURE 1 Drug design. New methods of drug design. Drug design training. Bioinformatics design of medicine [10]

At present, anticoagulants are used to prevent thrombosis and thus, inflammation in other parts of the body. Some experts also recommend that you get the flu shot to prevent re-infection of the lungs [11]. However, the best way to prevent coronary heart disease is to prevent Covid-19 disease; therefore, it is important to maintain social distance, wear a mask and do frequent arm fractures. Nutrition during corona is also essential: Eat foods rich in vitamin C and exercise regularly so that you can have a healthy and strong body (Figure 2), thus reducing your vulnerability to the virus [12].

Finally, the research shows that coronary heart disease can not only lead to the long-term experience of symptoms, but can also damage the lungs, heart and mental health in the long run. However, there is still controversy about who gets coronary heart disease the most, and the research is ongoing. The best way to prevent these complications is to prevent getting the virus. The recovery time from Covid-19 disease varies from person to person. Many people feel better in a few days or weeks, and most will be recovered within 12 weeks, but in some people, the symptoms may last longer [13-15].

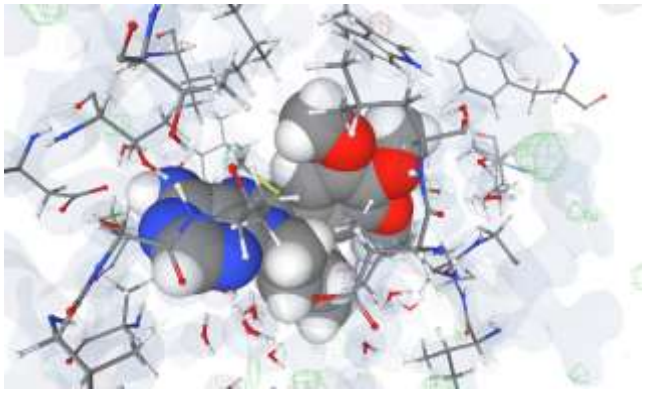

FIGURE 2 Computer-aided drug design reference biotechnology [16]

The likelihood of long-term symptoms does not appear to be related to how the disease occurred when you first contracted the coronavirus, and people who have experienced mild Covid-19 may also have long-term symptoms. Common symptoms of long-term Covid-19 include:

• Fatigue and shortness of breath.
• Chest pain or tightness.
• Problems with memory and concentration (brain fog).
• Difficulty in sleeping (insomnia).
• Heart palpitations and dizziness.
• Tingling of the body.
• Joints' pain.
• Depression and anxiety.
• Tinnitus and earache.
• Diarrhea, stomach pain, loss of appetite.
• High body temperature, cough, headache, sore throat, and change in sense of smell or taste.
• Rash.

In this case, you need to be visited by a doctor for the necessary tests as well as treatment for you. Hair loss is also a coronary complication caused by telogen effluvium, and it is important to know that coronary hair loss is a treatable complication. Although hair loss is more common in severe cases of Covid-19, it can also be a mild coronary complication. According to the explanations given, this study has investigated the effects of Covid-19 on the body systems [17-19]. The method of work is first explained and then, the effects of Covid-19 on each system are discussed and finally, according to the provided explanations, a conclusion is made [20].

Working method

The present research is applied in terms of purpose and its research method is correlational that the required data will be collected by using a questionnaire and survey method. Research can be classified into experimental and non-experimental in terms of the researcher's control over research variables. In this research, the correlation between two or more variables is studied and the researcher will be able to use this method to examine the relationship between several variables simultaneously with one variable and also the possibility of examining the relationship between independent variables and each other. Examining the effect of each variable on the dependent variable with the aim of correlating that independent variable with the other independent variables is provided [20]. Therefore, in this research in which one variable is a function of several variables that are jointly affected, the correlation research method is the best one. In the proposed research, the correlation between two or more variables is studied and the researcher will be able to use this method to examine the relationship between several variables simultaneously with one variable and also the possibility of examining the relationship between independent variables and each other. Examining the effect of each variable on the dependent variable with the aim of correlating that independent variable with other independent variables is provided [21]. Therefore, in this research in which one variable is a function of several variables that are jointly affected, the correlation research method is the best one. Accordingly, the method of the present study is "correlation".

Research Process

Lung ulcers

Reports suggest that one of the complications of coronary heart disease after recovery may be a lung ulcer. After recovery from severe coronary artery disease, some patients may experience lung damage, including partial or complete lung injury (pulmonary fibrosis), leading to severe functional limitations [22-24]. Gradually, scar tissue can destroy the lungs and make it difficult for oxygen to enter the bloodstream. Low oxygen levels can cause shortness of breath, especially during physical activity. Studies show that some people who

are recovered from Covid-19 disease experience long-term pulmonary complications. They may have persistent lung dysfunction and experience breathing problems and shortness of breath, as well. Poor lung function due to coronavirus infection can also adversely affect the other parts of the body, such as the heart, kidneys, and brain, and thus seriously endanger people's health [25-27].

Cardiac complications

Another coronary complication after recovery is heart problems. According to studies, some people who are recovered from Covid-19 may develop long-term heart damage and inflammation of the heart muscle months after the disease. Severe inflammation throughout the body during Covid-19 infection may exacerbate an irregular heartbeat in some people, and acute inflammation from a viral infection can worsen heart and kidney function [28].

Psychological complications

People who need special care are at more serious risk for psychological problems such as post-traumatic stress disorder (PTSD), anxiety and depression. Early reports from China and Europe showed that some patients with Covid-19 developed anxiety and depression [29-31].

In addition to mood disorders, people recovering from Covid-19 disease may have neurological symptoms such as dizziness, numbness, long-term loss of smell and taste, and cognitive changes, such as attention and memory problems and foggy coronary complications. So far, mutations of the corona have been observed around the world, one of which is the English corona. If your question is what the effects of English coronavirus are, it is necessary to say that this virus is more easily transmitted than other coronaviruses and is more likely to cause death; therefore, the effects of English coronary artery disease can be severe. The side effects of the corona vaccine are somewhat similar to the mild symptoms of the flu [32].

What are the complications of coronary artery disease in children?

Many children with coronary heart disease may not show any symptoms, so they do not even need to have a coronary test in children, but if the child has severe coronary symptoms, serious care should be taken in addition to testing. Otherwise, coronary complications in children will be as serious as in adults. One of these complications is multisystem inflammatory syndrome in children, in which different parts of the body, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal tract become inflamed [21-23].

It can be very serious and fatal, but it can be cured if the child is treated early. It is important to watch for the following symptoms in your child and contact your doctor if you notice them.

1. Fever
2. Abdominal pain
3. Vomiting
4. Diarrhea
5. Neck pain
6. Skin rash
7. Bloody springs
8. Feeling too tired.

It should be noted that the child may not experience all of these symptoms. Also, if you notice the following symptoms in your child, you should seek emergency medical care immediately.

1. Difficulty in breathing [24].
2. Pain or pressure in the chest which does not go away.
3. Confusion.
4. Inability to wake up or stay awake.
5. Gray or blue skin and lips.
6. Severe abdominal pain.

Mood problems and fatigue: People with severe symptoms of Covid-19 are often forced

to undergo mechanical treatment in the intensive care unit of a hospital, such as ventilators. Surviving this experience can lead to post-traumatic stress disorder, depression and anxiety.

Because it is difficult to predict the long-term outcome of the new Covid-19 virus, scientists have studied the long-term effects of related viruses, such as the virus that causes acute respiratory syndrome (SARS) [25-27].

Many people who are recovered from SARS develop chronic fatigue syndrome, which is a complex disorder that worsens with physical or mental activity, and does not improve with rest. The same may be true of people who have had Covid-19. However, many of the long-term effects of Covid-19 and their significance are still unknown. The US Centers for Disease Control is continuing its research in this area, and with the release of new data, it is updating the clinical care of Covid-19 as well as the public health response to the disease [28].

Corona effects on the nervous system

Studies by researchers at College London show that Covid-19 neurological complications, including delirium, inflammation of the brain, stroke, a rare disease, acute diffuse inflammation of the brain, and nerve damage. According to Health News on Friday, Covid-19 indirectly affects many body organs, and researchers are always looking for the effects of the new corona virus on different parts of the body and effective ways to prevent damage to the virus. New studies indicate the virus has serious effects on the nervous system, which can include delirium, inflammation of the brain, stroke, rare ADEM disease, and nerve damage. Delirium is associated with general cognitive impairment and unconsciousness and can last for hours to days.

This condition is usually accompanied by symptoms such as hallucinations, delirium, anger and rage, anxiety and fear, disorientation, and lack of awareness of time and place. These studies also suggest the prevalence of a rare neurological disease called ADEM with coronary heart disease. There is an increase which can sometimes be deadly [29-31].

This condition stands for "Acute disseminated encephalomyelitis" and is called acute diffuse inflammation of the brain. This autoimmune disease attacks the brain and spinal cord, as well as the cells of the nervous system, damages the lining of neurons called myelin, and destroys the white matter of the brain.

The disease is usually caused by a viral infection. According to the study, some people with Covid-19 do not experience severe respiratory symptoms and develop a neurological disorder, because the immune system's response to the virus. Researchers have warned doctors about the neurological effects of patients; since early diagnosis is highly important in treatment [32].

The coronavirus (Covid-19) was reported in mid-December (December 24) in Wuhan, central China. The disease was initially referred to as pneumonia, but the Chinese National Health Commission on December 30, 2019 officially announced the virus outbreak in China.

The World Health Organization (WHO) Director-General, Tadros Adhanum, told a news conference on Wednesday, March 12, that although the term "pandemic" should not be used carelessly because of its sensitivity, the IAEA assessments identified the coronavirus as "global" and announced. According to the latest report of the World Health Organization, 11 million 957 thousand 477 people have been infected with this disease so far, 6 million 904 thousand and 4 people have improved and 546 thousand and 785 people have lost their lives. Many scientists around the world are looking to make a vaccine for this pandemic [33].

What are the gastrointestinal symptoms of Corona virus?

Covid-19 is caused by the coronavirus and respiratory disease, which is caused by a new form of coronavirus which was discovered in February 1998. Coronavirus is a family of viruses that cause various diseases such as cold, Middle East Respiratory Syndrome (MERS) and acute respiratory syndrome (SARS) in humans. Most people with coronary heart disease are either asymptomatic or have mild symptoms. People over the age of 65 and those with underlying diseases are more at risk of experiencing severe complications than others [34].

Coronary gastrointestinal symptoms

Some people with Covid-19 develop gastrointestinal symptoms with or without respiratory symptoms. Researchers at Stanford University recently found that one-third of patients with mild coronary heart disease had gastrointestinal symptoms. Another recent study published by researchers in Beijing, China, found that between 3 and 79 percent of people with Covid-19 experience gastrointestinal symptoms [35].

Diarrhea

Diarrhea is common in people with Covid-19. A study published in the American Journal of Gastroenterology looked at 206 mild cases of Covid-19. The researchers found that 48 cases had only gastrointestinal symptoms and 69 ones had both gastrointestinal and respiratory symptoms. Diarrhea was the first sign of the disease in 19.4% of the 117 people with gastrointestinal upset.

Vomit

Research in Beijing has found that vomiting is much more common in children with Covid-19 than in adults. The researchers analyzed all clinical studies of Covid-19 and case reports related to gastrointestinal problems which were published between December 2019 and February 2020. They found that 3.6 to 15.9 percent of adults vomited, compared to 6.5 to 66.7 percent of children.

Anorexia

Many people with Covid-19 develop anorexia, which is often accompanied by other gastrointestinal symptoms. According to the same study conducted in Beijing, about 39.9 to 50.2% of people suffer from anorexia.

Other gastrointestinal symptoms

People with Covid-19 have reported a number of other gastrointestinal symptoms. According to a study conducted in Beijing, 1 to 29.4% of people suffer from nausea, 2.2 to 6% suffer from abdominal pain and 4 to 13.7% suffer from gastrointestinal bleeding.

Is it possible to have diarrhea without fever?

Some people may develop diarrhea without the same symptoms as the flu. Diarrhea can be the first sign of coronary heart disease. In some cases, flu-like symptoms may appear after diarrhea. Some people may have only gastrointestinal symptoms without other more common symptoms.

What is the relationship between Covid-19 and gastrointestinal symptoms?

The study indicates that the Covid-19 causative virus can enter the gastrointestinal tract through surface receptors specific for the angiotensin-converting enzyme (ACE 2). The number of receptors for this enzyme in the gastrointestinal tract is 100 times higher than in the airways.

What to do if a person already has digestive disorders? People with gastrointestinal disorders such as inflammatory bowel disease (IBD) are at higher risk for certain viral infections. However, research has not yet found evidence that people with IBD are more

likely to have coronary heart disease than healthy people. A few information is growing rapidly about Corona. As our knowledge of the disease increases, we may conclude that IBD increases the risk of developing the coronavirus. Some medications used to treat IBD may suppress a person's immune system. The International Organization for the Study of Inflammatory Bowel Disease has published a list of recommendations for the coronavirus and how to manage IBD. However, there are differing opinions among other experts about the published guidelines. If you have IBD and your coronavirus test is positive, talk to your doctor about whether or not to take certain medications.

What to do if you have gastrointestinal symptoms? Gastrointestinal symptoms such as diarrhea, anorexia or nausea can have many causes other than Covid-19. Having any of these symptoms does not mean that you are definitely Covid-19, however these can be early warning signs. You can treat the gastrointestinal symptoms of Covid-19 by consuming the right amount of water, avoiding foods that upset the gastrointestinal tract, and getting enough rest.

Signs and effects of corona on skin and hair

Unfortunately, it has been shown so far that the effects of corona can be significantly different, and the corona virus leaves its mark from the toes to the scalp and does not leave the infected person easily after recovery. Some symptoms of coronary artery disease on the skin and hair appear as soon as the virus enters the body, and others appear later and even after the disease is over. Researchers are investigating why these symptoms originate. The body shows such reactions after being infected with the virus. Is it the immune system's reaction to the infection or are hormones involved?

Signs and effects of corona on skin and hair

Here are some common symptoms:

- Small red bumps.
- Small red bumps or multiple flat red spots on different parts of the body.
- One of the side effects of coronary heart disease is whitening of the eyes.
- One of the side effects of coronary heart disease is redness of the eyes. When the virus enters the eye, it may cause redness or other eye symptoms.
- Small swellings were reddish in color.
- Small, red, painful swellings on the hands, heels, and toes which are sometimes blistered and itchy.

Raw	Study	Year	Proportion	Wight 98%	Weight %
1	Wang *et al.*	2021	0.85	[0.39–1.02]	6.02
2	Kragholm *et al.*	2021	0.83	[0.42–1.01]	5.92
3	Papadopoulos *et al.*	2021	0.74	[0.55–1.02]	5.65
4	Team	2020	0.91	[0.48–1.08]	6.03
Heterogenelty t^2=0.00, I^2= 0.00, H^2=1.00			0.98	[0.20–1.08]	
Test of θ= θ, Q (4) =3.99, P= 0.66			0.98	[0.20–1.08]	
1	Hafeez *et al.*	2020	0.68	[0.52–1.06]	6.02
2	Wang *et al.*	2020	0.74	[0.31–1.08]	5.92
3	Guan *et al.*	2020	0.89	[0.19–1.01]	5.65
4	Zhang *et al.*	2020	0.90	[0.29–1.02]	6.03
Heterogenelty t^2=0.00, I^2= 0.00, H^2=1.00			0.98	[0.20–1.06]	
Test of θ= θ, Q (4) =4.44, P= 0.71					
1	Piva *et al.*	2020	0.92	[0.39–1.06]	5.03

2	Zhang *et al.*	2020	0.87	[0.54–1.02]	6.02
3	Haghighi *et al.*	2020	0.88	[0.63–1.01]	5.57
4	Jebril	2019	0.60	[0.25–1.08]	6.13
Heterogenelty t^2=0.02, I^2= 0.00, H^2=1.00			0.95	[0.22–1.07]	
Test of θ= θ, Q (4) =5.55, P= 0.74					
1	Chen *et al.*	2019	0.84	[0.27–1.08]	6.08
2	Yuan *et al.*	2019	0.76	[0.36–1.06]	5.82
3	Cheng *et al.*	2019	0.69	[0.28–1.05]	5.85
4	Hafeez *et al.*	2020	0.82	[0.34–1.02]	6.09
Heterogenelty t^2=0.01, I^2= 0.00, H^2=1.00			0.0.95	[0.29–1.06]	
Test of θ= θ, Q (4) =3.49, P= 0.80					

FIGURE 3 Forest diagram of high-level CRP in information

Hives

Hives or inflamed spots that itch and come in different sizes and can sometimes cover a wide area. The hives may go away in a few minutes or hours and appear in another area. Finally, after ten days, they will be completely cured.

Fluid-filled blisters may be a corona effect on the skin!

Juicy small blisters are fluid-filled blisters which may appear on the hands early in the illness or at any time.

Bruising and blue skin

Due to the blockage of blood vessels when the immune system is activated against the virus, there is a possibility of bruising and blue skin.

Hair loss may be a complication of coronary heart disease.

Hair loss is a major concern for coronary heart disease patients. During this period, the vitamins and iron needed by the body to pass the hair loss stage should be provided properly and anxiety and stress in this regard should be avoided as much as possible [44-46]. For men with genetically inherited hair loss and baldness, this may be the beginning of an unpleasant stage in the development of this condition. It is better for people who have male pattern baldness and hair loss to take care of their immune system more than the others, because this pattern is one of the autoimmunity problems.

Skin reactions due to overactive immune system

Some skin reactions, such as swelling, inflammation, and discoloration of the skin due to the corona, are due to an overactive immune system, not the presence of a virus. Studies have shown that people with these skin lesions have often burning, itching, and pain.

Recommended treatments to reduce coronary effects on skin and hair:

Therapies recommended by doctors include the following: Wash and keep the skin clean, use vegetable and medicinal oils if you are not allergic, do not expose to direct sunlight, take the necessary vitamins and supplements, take care of your skin against detergents, use a moisturizing cream regularly. Have the adequate rest and sleep.

Conclusion

Symptoms such as fatigue, shortness of breath, coughing, joint pain, chest pain, muscle aches or headaches, rapid or rapid heartbeat, loss of smell or taste, memory problems, concentration or report drowsiness, rash or hair loss. Also, the organs (heart and arteries, lungs, brain, etc.) of the improved body may be

damaged. Many of the long-term effects of Covid-19 are still unknown, and future clinical trials will shed light on many problems. Current evidence on the rate of transmission, severity, and immunity to omicron is highly inconclusive. However, preliminary data from South Africa suggest that the Omicron corona may be able to grow significantly relative to the delta. According to mathematical models, omicrons are expected to cause more than half of all coronary infections in the EU in the next few months.

Conflict of interest

The author declares that there is no conflict of interest regarding the publication of this article.

Acknowledgements

We would like to thank all the people who helped in preparing and compiling the article and collecting the available data.

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How to cite this article: Seyfollah Rezaei, Bahman Naghipour, Mansour Rezaei, Maryam Dadashzadeh, Sahar Sadeghi*. Chemical evaluation of gastrointestinal, coronary and pulmonary complications in patients admitted to the intensive care unit. *Eurasian Chemical Communications*, 2022, 4(6), 557-566. **Link:** http://www.echemcom.com/article_147212.html