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POST COVID COMPLICATIONS IN PATIENTS WITHOUT CO MORBIDITIES – A PROSPECTIVE STUDY

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ABSTRACT

Coronavirus disease (Covid 19) is an infectious disease caused by the SARS CoV-2 virus. Most people infected with the virus will experience mild to moderate illness due to the injury to various organs and can be recovered with or without requiring special treatment. Post-corona virus (COVID-19) syndrome includes persistent viral infections and a new set of symptoms or an increase in chronic illness within a month after initial clinical and viral treatment with viral etiology. Covid 19 affects in different ways and it varies with people. Most common symptoms associated with Covid 19 are fever, cough, tiredness, ageusia and anorexia. Less common symptoms are sore throat, headache, pains, diarrhea, rash on skin, discoloration of fingers or toes and red or irritated eyes and severe symptoms are shortness of breath, loss of speech or mobility, chest pain. On average it takes 5-6 days from someone is infected with the virus for symptoms to show, however it can take up to 14 days. After infected with Covid the patients may suffer from Post Covid complications such as alopecia, joint pain, muscle weakness, fatigue, depression and other mental problems, difficulty in breathing, sleep disorder, chest pain, dizziness. Various use of medication to treat Covid 19 by the infected patients may persist some ADR which can be mild to severe. This study aimed to identify various complications caused by Covid-19 on organ wise and to find out ADR of drugs used for treatment of Covid-19. We conducted a prospective study on community by collecting data through google forms, by interviewing Covid-19 positive patients and by collection of data from hospital visits. Among the patients we analyzed, excluded patients with comorbidities and only included patients within age group 12-60 years. Study was conducted

for a duration of 6 months with statistical analysis methods including mean, mode and median using Microsoft excel sheet. We found various post-Covid complications which include Anosmia, Dysgeusia, cough, headache, dizziness, body pain and hair loss. We categorized the complications on organ ways. Sensory disorder was found be most prominent followed by respiratory disorder and CNS disorder. Most complicated disorders where seen with geriatrics. There were patients who were positive to Covid-19 and absent with any signs or symptoms. Limitation includes patients who were present with symptoms of Covid-19 and didn't took any test due to fear of isolation and hospitalization.

KEYWORDS:- Covid-19, Corona virus, complications, comorbidities, disorder, signs, symptoms, hospitalization, quarantine, ADR, systems.

INTRODUCTION

Corona virus disease 2019 is a contagious disease that is caused by severe acute respiratory syndrome coronavirus 2 (SARSCoV-2).In December 2019 the outbreak of Covid 19 was first reported in Wuhan, China and it spread all over the world. The SARSCoV-2 is a single, positive –strand RNA virus that causes severe respiratory syndrome in humans. It was emerged as a severe pandemic, claiming more than 0.8 million lives worldwide between December 2019 and August 2020. The corona virus can cause respiratory, gastro intestinal and central nervous system diseases in humans and animals and causing economical loss. The virus have the capacity to adapt to a new environment through mutations and modify the host tropism, thus the threats are constant and long term.[1]

Human to human transmission of Covid 19 occurs through common routes such as direct transmission, contact transmission and air borne transmissions. Cough, sneeze, droplet inhalation, contact with oral, nasal and eye mucous membranes are the common modes of spread.[2]

The covid 19 mainly effects the respiratory system. The most common symptoms of covid 19 were non- specific and it includes fever, cough and myalgia. Other minor symptoms were sore throat, ageusia, headache, chills, nausea or vomiting, fatigue, anosmia, diarrhea, shortness of breath, dyspnea viral pneumonia and conjuctival congestion. In severe cases, pneumonia, severe acute respiratory syndrome, heart failure, renal failure and even death may occur. The main cause of death related to Covid 19 is respiratory failure followed by septic shock, hemorrhage and heart failure.[3] And in some cases it is asymptomatic. The clinical

features varied from mild illness to fatal illness. The covid 19 was categorized into category A,B and C. In category A the patient is positive without signs and symptoms and undergoing home isolation. In category B the patient is positive with co morbidities like diabetes, blood pressure etc. If the oxygen saturation falls below 90 then the oxygen support is provided. And there is no hospitalization. In category C the patient is hospitalized with severe symptoms (respiratory failure, multi-organ dysfunction) and provided with ventilation care.

The clinical diagnosis of Covid 19 is based on epidemiological history, clinical manifestation (RT-PCR, CT scan, Rapid antigen test) and confirmed by variety of laboratory detection methods. Reverse transcriptase real –time polymerase chain reaction Probe- based RT- qPCR has been considered as the gold standard method for SARS CoV-2 detection.

Different types of complications occur during post- viral infection phases and it affects multiple body systems. The lungs are the main organ affected by Covid 19, cardiovascular complications and neurological complications also occur. The cardiovascular complication included an increase in heart rates, increased palpitations, elevation in blood pressure ,myocardial infarction, chest tightness, chest pain, myocardial edema, pulmonary hypertension and cardiac arrhythmia. The Covid 19 survivors were presented with multiple symptoms include stress, depression, anxiety, memory problems, insomnia and sleeping disorder. The gastrointestinal tract complications include nausea, vomiting, diarrhea and acute liver injury. Urinary complications occurred in COVID 19 survivors who had no kidney injury prior to the infection. Some other miscellaneous complications are headache, fever, weight loss, alopecia, sore throat and loss of smell and taste were reported after recovery. Lung abnormalities, neurological complications and exercise intolerance are frequently identified complications among COVID 19 survivors.[4]

The incubation period for covid 19 infection is typically 1-14 days and extend upto 24 days. The conditions of most Covid 19 patients are mild but they can become severe, especially among elderly people.[5]

The management and treatment of SARS CoV-2 is extremely challenging due to asymptomatic presentations and high infective nature of virus. The prime approach for the management of disease is provide essential requirements of life support like oxygen saturation and blood pressure and treating secondary diseases like other microbial infections and the organ failure. The use of opioids suggested as a safe and effective palliative care

intervention for patients with breathlessness and pain. Attempts to develop vaccines against human corona virus infection have been initiated but it has been limited due to viral sequence multiplicity. The broad spectrum antiviral agent , remdesivir which have been found to be highly effective for the treatment of SARS CoV-2. Remdesivir in combination with chloroquine has also been found to be beneficial for SARS CoV-2 treatment.[6] The hydroxychloroquine and azithromycin were earlier claimed as potentially effective drugs against SARS CoV-2 infection. The class of drugs such as corticosteroids have greatest interest in the Covid 19 treatment.[7]

The treatment phases of covid 19 are classified as phase 1, phase 2, phase 3. In phase 1 is identified by upper respiratory symptoms most commonly cough, malaise and headache. Sore throat, arthralgia, chills, nausea and vomiting and loss of taste and smell also occur in some patients. The patient shows no to mild symptoms. The goal during the phase is to support the immune system and to provide symptomatic management. Phase 2 is called pulmonary phase. In this phase the virus proceeds to infect the lungs triggering the innate immune response. The patients develop pneumonia, dyspnea and decreased oxygen levels. During this stage most of the patients require hospitalization. Prevent the viral entry by providing antiviral therapy. Phase 3 is called as hyper inflammatory phase. During this phase inflammation extends beyond the lungs into a systematic hyper inflammatory syndrome. The patients develop a range of complications include ARDS, sepsis and multi organ failure.[8)]

Preventing the spread of the virus by respiratory droplets, close contact, and disinfecting surfaces and to provide supportive care to the patients. During COVID-19, social distancing has emerged as an effective measure to prevent the spread of infections. Frequent and proper hand hygiene is one of the most important methods used to prevent infection with the COVID-19 virus. We should wash our hands often with soap and water for at least 20 s, and after contact with a person who is sick.[9]

Face mask are help to reduce viral transmission from both the source and target of infection. They reduce the exhalation of respiratory particles by an infected person and reduce the inhalation of these particles by a susceptible host. Vitamin D and vitamin C have been studied as potential immunomodulatory agents to prevent infection with SARS-CoV-2.[10]

METHODOLOGY

Study design

The research data on the topic of interest was collected by prospective study. It is a type of longitudinal study where researchers will follow and observe a group of subjects over a period of time to gather information and record the development of outcomes.

Study Setting and Study population

Our site of study was community set up. The five members of our group collect more than 150 data from different populations. We conducted study in a population includes campus and hostel of Jamia salafiya pharmacy college pulikkal, Government hospital ponnani, Beach hospital - Calicut, Manjeri medical college. And we also collected data from Asha workers in our community, nurses and doctors.

Data collection tool

Data are collected by interviewing the covid patients after collecting their consent. Interview methods that we use are person to person interview and telephonic interview. We also collected data through online survey (google form) and hospital visit. The collected variables are patient demographics (name, age, sex), post complications of covid 19 patients in organ ways, ADR of medication used to treat covid 19 and various signs and symptoms suffered by covid patients .We systematically reviewed the available literature in PubMed, Google scholar, Science directs up to 2022. The search terms we used are corona virus, post covid complications, ADR, comorbidities. A manual search was also performed.

Inclusion criteria

Age group: 12 -60 Years.

Exclusion criteria

Persons with age below 12 and above 60 years

Persons with comorbidities

RESULT AND DISCUSSION

Post covid complications organ wise:

1. Sensory system

1.1 Olfactory (Sense of smell) dysfunction

Olfactory dysfunction or loss of sense of smell was the most common symptom quantitatively among patients with covid. Doctors used to recommend covid test in such

cases to confirm the disease. It used to last for an average of 6 to 7 days where no drug is used to treat them. The exact way in which covid causes paromia is still unknown.

1.2 Gustation (Sense of taste) dysfuntion

Patients experienced difficulties like altered eating; loss of pleasure in food; weight gain or loss; appetite loss.

1.3 Vision impairment

Vision impairment is a rare complication which is noted less than 0.1% of sample used.

- A 45 year old female patient was presented with night blindness after corona virus infection, where the exact cause of disease was unknown and suspected to be due to corona infection.
- A 29 Year old healthy, not obese female patient was presented with severe headache, nausea, dizziness and significant visual blurring on the second day due to SARS CoV 2 infection. On ophthalmological examination diagnosed bilateral optic disc edema. The patient was treated with acetazolamide 500 BID and had partial improvement of symptoms.

2. The skeletal system

2.1 Ostalgia

2.2 Arthralgia

Arthralgia is an uncommon but distinct manifestation of Covid 19 infection.

3. The muscular system

3.1 Myalgia

Myalgia is a common symptoms with viral infections such as Covid 19 and may be longer in duration.

- A 40 year old male patient with incidental positive covid 19 test obtained prior to eye surgery. He did not have any respiratory syndrome. In the following 2-3 weeks, weakness and swelling was developed and requiring hospitalization. MR imaging of the upper and lower extremities was performed. Subcutaneous soft tissue edema is noted. The patient was diagnosed with post infectious inflammatory necrotizing myositis and oral discharge.

3.2 Muscle spasm

3.3 Muscle spasm

4. The respiratory system

4.1 Cough

After contracting covid, many people have reported symptoms of cough that can last for months after recovery from the virus.

4.2 Rhinitis

Allergic rhinitis including asthma, has been defined as risk factors for a poor outcome in covid 19.

4.3 Dyspnea

Dyspnea is one of the most important hallmarks of covid 19 infection. It typically sets in between the 4^{th} and 8^{th} day of illness, although it can be as much as 10 days after the onset of symptoms.

4.4 Sore throat

A sore throat can be an early symptom of covid 19. Sore throat seems to occur in about 12-14% of people with covid.

4.5 Pulmonary embolism

Pulmonary emboli has been reported in frequently in COVID 19 and are often noted in patients with COVID 19 without other standard risk factors

- A 40 year old male patient with COVID-19 suddenly developed shortness of breath and hypoxia. Early echocardiographic diagnosis of high-risk PE associated with right heart thrombus was performed. Systemic thrombolysis was performed with excellent clinical and hemodynamic response.

4.6 Pneumonia

Most people who get COVID 19 have mild or moderate symptoms like coughing, fever, and shortness of breath. But some who catch COVID-19 gets severe pneumonia in both lungs. People who get pneumonia may also have a condition called ARDS. It is a disease causing breathing problems.

- A 60-year-old female patient admitted with suspected pneumonia. She had a history of hypertension. Drug history includes angiotensin receptor inhibitor (candesartan cilexetil 8 mg twice daily). There is no history of smoking but of occasional drinking of alcohol. She

reported fever, chills and coughing for 7 days and a change in her sense of taste.She provided with subcutaneous antithrombotic prophylaxis (enoxaparin 40 mg once daily).

5. The cardiovascular system

The effect of corona virus on cardiovascular system may e due to following reasons like coronavirus attaches to angiotensin converting enzyme 2(ACE 2) receptors of heart cell

5.1 Palpitation

Palpitation is a common symptom often poses clinical challenges due to its wide differential diagnosis. It is fount in some cases that thyroid dysfunction occurs after the dissolution and contributes palpitation symptoms.

5.2 Hypertension

There is a possibility that having high blood pressure might put at greater risk for severe illness and death with covid 19.

5.3 Angina

The coronary micro vascular ischemia could be the mechanism of persistent chest pain that have recovered from COVID 19

- A 26 Year old female admitted to the emergency department due to swelling in bilateral sublingual and submandibular region. She had past medication history of antibiotics and analgesics for dental problems. Based on the clinical findings she was diagnosed to have Ludwig's angina. Antibiotic therapy was initiated with Cefotaxime 1 gm intravenously thrice a day. The patient shown signs of upper respiratory infection and was shifted to infection ward. The patient tested for Covid 19. Enoxaparin 40 mg subcutaneously once daily started to prevent intravascular thrombosis. On the third day, patient had 90% oxygen saturation fall and did not improve with oxygen support. Oral favipiravir800 mg, and Etofylline +Theophylline Iv administration. Salbutamol inhalation started on third day.

6. Integumentary system

6.1 Alopecia

Mild alopecia is a common post covid complications in both males and female. Approximately 20 % of patients with covid 19 develop alopecia a few months after the acute infection phase. it is reversible and expected to improve without any treatment.

6.2 Rashes

Covid 19 rash can appear as itchy patches or wheals that resembles hives. According to the survey

- A 77 year old women was admitted in a hospital due to neck lymph nodal enlargement, fever, cough, morbilliform on the trunk. After hospitalization she developed rashes on her legs. Nasopharyngeal swab test for covid 19 was positive and no signs of pneumonia were found. Antiviral therapy by using lopinavir/ritonavir and hydroxychloroquine and subcutaneous low molecular weight heparin was started. Further improvement skin lesions was appeared.

7. Digestive system

7.1 Nausea and Vomiting

- 56 year old man had diarrhea, nausea, vomiting and abdominal pain for 1 week. abdominal CT scan shows small bowel obstruction As well as fluid accumulation in the bowel and colon. The pain worsen in him And taken to operating room for 2 days and it is found that Small bowel was dilated and the obstruction was not seen. Abdominal x Ray shows normal on 9th day and he balanced his diet along with consuming clear liquid diet and discharged after 13 days as he is recovered.

7.2 Loss of appetite

After covid 19 people suffer from reduced appetite. They have been put on medications and they are given a diet of protein rich food.

7.3 Constipation

Constipation is not a typical symptom of covid 19 but covid 19 may lead to constipation for some people either directly or indirectly. Some drugs used to treat covid 19 may also leads to constipation and increased stress and anxiety may increase constipation in patients with irritable bowel syndrome.

7.4 Diarrhea

Corona virus may cause gastrointestinal problems such as diarrhea , vomiting and abdominal pain.

- 75 year old man having an impaired immune system suffered from various symptoms like loss of appetite, bloating, fatigue and diarrhea and undergo treatment for this in 2 days but he did not have fever but he is hypoxic and have cough on the 4th day. He was given doxocyline,oseltamivir, ceftriaxone and he was isolated along with oxygen supply. He was Covid positive hence he was hospitalized and at the first day of hospitalization ,he

requires a high amount of oxygen as his CRP and WBC was increasedeven though He was given with ritonavir, lopinavir ,antibiotics such as vancomycin,meropenem. After 15 days he has been fully recovered.

8. Central nervous system

8.1 Anxiety and Depression

There was a acute increase in mental health symptoms at the pandemic onset. Covid 19 also results in a number of psychological disorders.

A 36 Year old healthy women with no personnel or family history of mental illness admitted with new onset psychosis after diagnosis of Covid 19. Her psychotic symptoms treated with antipsychotics and benzodiazepines and further treated with Covid 19 symptoms.

9. Other common complications

9.1 Sleep disorder

Post covid 19 sleep disturbances were commonly reported in their recovery period. This sleep deficits had an impact on the physical and mental aspects of quality of life.

9.2 Dizzines/Fatigue

After Covid 19 recovery some patients had complications like fatigue. They feel weak , gets tired very soon after simple routine task, feel sleepy and find difficult in focusing or concentrating.

9.3 Headache

Headache is a potential symptom of covid 19. Most patients with covid 19 reported that their headache improves within 2 weeks. However, in some cases it last for few weeks longer.

DISCUSSION

Alopecia is seen in both sexes but it more common in females. It is due to depletion in Vitamin B12 and Vitamin D levels, which are crucial for good hair health.Complications like Anosmia, Ageusia, cough, body weakness are familiar in all age groups. Severe complications common in geriatrics, which is due to poor pharmacokinetics.Many patients who diagnosed with covid 19, where absent with any signs or symptoms. Palpitation was noticeable in geriatrics.

In our study 15% of patients who were positive for covid-19, where absent with any signs or symptoms. Anxiety and stress were evident in the first phase of Covid-19 and most common in females. In our study 138 patients were home quarantined, in which 30 patients didn't use

any medication. Complications on respiratory system (60%) and sensory organs (62%) are most prominent. CNS disorder in 53.3%, Musculoskeletal disorder 33%, GIT disorder 20%, Integumentary disorder 14.6%, CVS Disorder 9.30%.

Online survey result

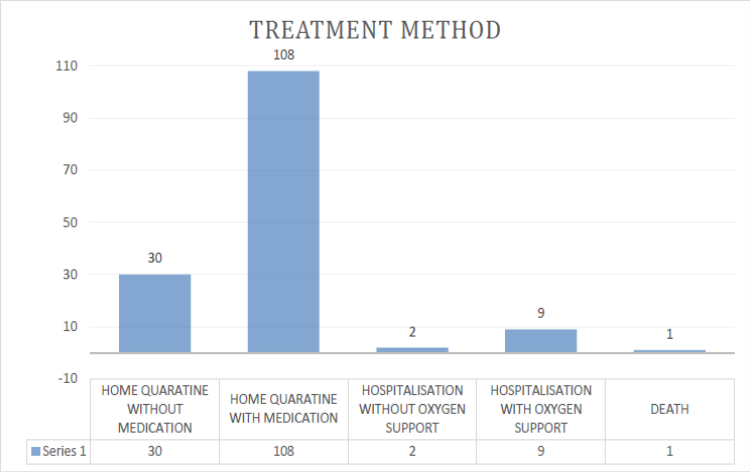


Figure 7: Treatment methods in study population.

In this figure we represent the result of our online survey where among 150 patients most of them were home quarantine with medication, say 108. 30 patients were home quarantine without medication, 9 patients were hospitalized with oxygen support, 2 patients were hospitalized without oxygen support and only 1 patient reported as dead.

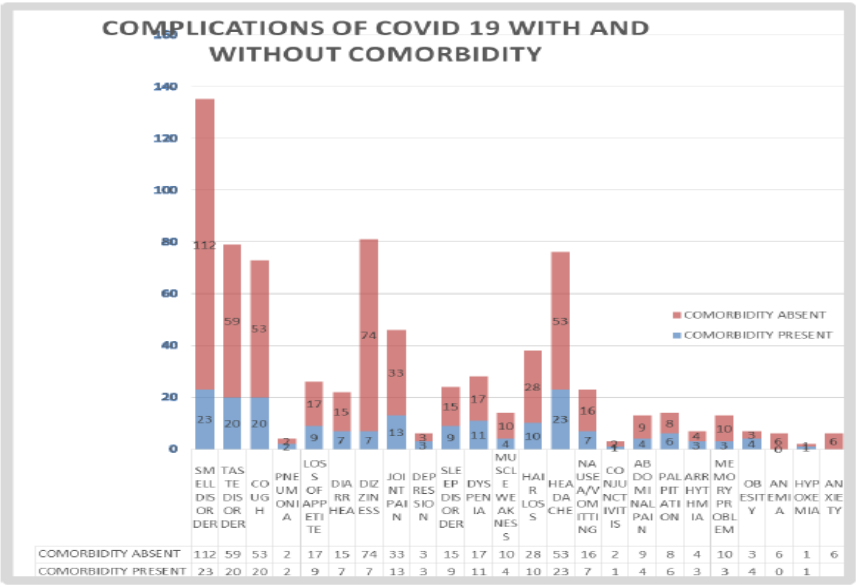
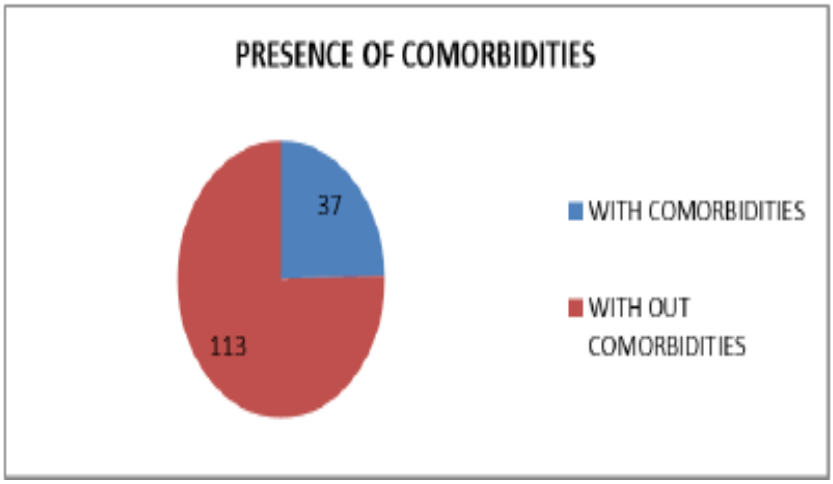


Figure 8

In this figure we represent complications of covid 19 patients with and without comorbidities. Here we considered disorders like ageusia, anosmia, cough, loss of appetite, joint pain, hair loss, sleep disorder, anxiety, depression etc. Among this sensory disorders like anosmia, ageusia are most commonly found. Anxiety is common seen in elderly patients.



Signs and Symptoms based on age

Table 1

Age	Signs and symptoms
12-20	Smell disorder, taste disorder, dyspnea, cough, loss of appetite, diarrhea, nausea/vomiting, headache, dizziness/fatigue, joint pain, hair loss, muscleweakness, constipation, palpitation, anemia
20-40	Smelldisorder, tastedisorder, dyspnea, cough, lossofappetite, diarrhea, nausea/vomiting, headache, dizziness/fatigue, jointpain, hairloss, sleepdisorder, muscleweakness, constipation, palpitation, anemia, memoryproblem, abdomenpain, anxiety, arrhythmia, obesity, shivering at night, back pain, breathing difficulty
40-60	depression, poliosis, smelldisorder, pneumonia, tastedisorder, dyspnea, cough, loss of appetite, diarrhea, nausea/vomiting, headache, dizziness/fatigue, joint pain, hairloss, sleepdisorder, muscleweakness, constipation, palpitation, anemia, memoryproblem, abdomenpain, anxiety, arrhythmia, obesity, pneumonia, depression, breathing difficulty

The above table shows the signs and symptoms of the Covid patients based on their age. Sensory and respiratory system disorders are most commonly seen in all age groups. Severe Covid symptoms like pneumonia are seen in the age group between 40-60.

Mode of Treatment and Medication used in covid 19 patients

Table 2

Mode of treatment	Number of patients	Medication used
Home quarantine without medication	28	Nil
Home quarantine with medication	101	Vitamin c tablets, dolo 650, asthalin syrup, azithromycin, penadol, ors, mixtureexpectorant, amoxicillin, nasaldrops, paracetamolsyrup, abflotab (acebrophylline), tasq dx cap (chlorpheniramine maleate), cough syrup, zincovittab (multivitamin), pantocid (pantoprazole), cetrizine, derinideinhaler (budesonide inhaler), aceclofenac, asthalinsyrup, deriphillin
Hospitalization without oxygen support	8	Lumia 60 k (cholecalciferol (vit d3)), omnacort 10 (prednisolone dispersible tablets), multivitamin, paracetamol, antifungal, benzodiazepines
Hospitalization with oxygen support	2	Dexamethasone, hydroxychloroquine, remdesiver, enoxaparin, flavithravil, azicip (azithromycin), iv antibiotic
Death	1	Nil

The above table shows that most of the patients are home quarantine with medication. The medications are given according to their signs and symptoms.

Adr of medications used in treatment of covid 19

Table 3

Drugs	Adr of drugs used in covid 19 treatment
Chloroquine	Headache, nausea, loss of appetite, diarrhea, hair loss
Lopinavir	Weakness, diarrhea, weight loss, headache, sleep disorder, muscle pain, nausea and vomiting, loss of appetite, tiredness, dizziness
Azithromycin	Nausea, vomiting, diarrhea, abdominal pain, headache
Paracetamol	Breathing difficulty, nausea, loss of appetite
Hydroxychloroquine	Headache, dizziness, loss of appetite, nausea, diarrhea, vomiting, muscle weakness, hair loss, depression
Enoxaparin	breathing difficulty, anemia, fever
Azisipan	Nausea, vomiting, diarrhea, abdominal pain
Cholecalciferol (vit d3)	Breathing difficulty, weakness, weight loss, muscle pain, constipation, nausea, vomiting
Vitamin c tablets	Nausea, vomiting, diarrhea, insomnia, fatigue, headache
Salbutamol	Headache, nausea, sore throat

Amoxicillin	Abdominal pain, diarrhea, cough, dizziness, fever, headache, muscle pain, loss of appetite, breathing difficulty, sore throat, weight loss, sleeplessness
Acebrophylline	Nausea, vomiting, dizziness,
Pantoprazole	Headache, nausea, vomiting, diarrhea, abdominal pain, dizziness, joint pain
Cetrizine	Headache, nausea, diarrhea, dizziness
Budesonide inhaler	Abdominal pain, headache, nausea, vomiting, sore throat
Aceclofenac	Headache, nausea, vomiting, dizziness, abdominal pain, loss of appetite
Deriphillin	Headache, vomiting, abdominal pain, diarrhea, sleeping difficulty, anxiety, dizziness
Dexamethasone	Vomiting, headache, dizziness, insomnia, depression, anxiety, muscle weakness
Zincovit tab	Nausea, vomiting, diarrhea, sleeplessness, breathing difficulty
Chlorpheniramine maleate	Dizziness, headache, loss of appetite, nausea,
Remdesiver	Breathing difficulty, nausea, fever, headache
Iv antibiotic	Fever, pain, dizziness, breathing problem
Prednisolone dispersible tablets	Weight gain, weakness, dizziness, headache
Benzodiazepines	Memory problems, dizziness, muscle weakness, headache, constipation, nausea

This table shows ADR of medications used for the treatment of covid 19 which are similar to the complications seen during our survey.

CONCLUSION

Covid 19 is a pandemic which effects all over the world's population. Conditions associated with Covid 19 infection may be the result of injury to multiple organs, including the lungs, brain, blood vessels, skin, nerves, kidney and heart. Therefore the treatment of this disease continues even after the patients have been discharged. The major post covid complications affects the organ systems like Respiratory system, Muscular system, Skeletal system, Gastrointestinal system, cardiovascular system, Integumentary system Nervous system and Sensory system. Covid 19 is less complicated in patients without comorbidities when compared to patient with comorbidities, especially in case of geriatrics. Patients with comorbidities have long duration for recovery due to their poor pharmacokinetics like ADME, and chances of death is high in this category. Many of patients with covid 19 with no signs and symptoms. Complications on sensory system and respiratory system are most prominent. Loss of taste and smell is the most common signs and symptoms in commonly all age groups. Alopecia is seen in both sexes but it more common in females. It is due to

depletion in Vitamin B12 and Vitamin D levels, which are crucial for good hair health. The post covid hair loss happen as the body comes under stress, because of the long period that is takes to recover from the infection and all the medications. It happens after one and a half month or so after covid recovery. Pneumonia is one of the common covid complication in severe cases. It is diagnosed by CT findings. For the 15% of infected individuals are admitted to the hospital for a few days and require oxygen support. The additional symptoms of Covid pneumonia include shortness of breath, increased heart rate and low blood pressure and it may be leads to death. Most of the patients are tested with Covid positive and they undergone home quarantine with medications, some of them with out medications. But both are recovered from Covid 19. After Covid recovery most of patients have greater chances for new disease occurrence than previous health condition.

Limitations

- Post Covid symptoms were rare in our population as our study is time limited and size limited. Large scale study is hence required
- Patients were unaware about the medications used.
- Many patients did not even have any signs and symptoms of Covid.
- Some patients with primary contact had certain symptoms of Covid but they did not
- did any test as they had fear of isolation and hospitalization.
- Clinical presentation of the disease is highly variable hence exact assessment is difficult.

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