

Covid-19 and Diabetes – A Bad Combination

Khushboo Gupta

Abstract

Currently the whole world is going through a pandemic called COVID-19. It is not only affecting the people with the symptoms of corona only but also affecting the people with different other diseases. As we know hospitals are occupied at this time with the patients of Coronavirus only, therefore, the patients who are admitted suffering from other diseases are not getting that much facilities and treatment as they were getting earlier. One such most affected disease is diabetes. As diabetes is a chronic disease and the people suffering from diabetes are low in immunity and at greater risk of getting infected. In this article we have studied the risk associated in patients with diabetes, necessary preventive measures and how to overcome this grim situation by taking necessary safety measures. We would come to know from this study that COVID-19 can badly affect the people with diabetes and therefore it is necessary for them to stay home and stay safe. Otherwise it may lead to any chronic condition.

Keywords: COVID-19, Diabetes, Prevention, Chronic condition

INTRODUCTION

COVID-19

COVID -19 or Corona virus – 2019 is a pandemic disease worldwide nowadays. It has become contagious within days in more than 160 countries. It is caused by corona virus SARS-CoV-2 (Severe acute respiratory syndrome coronavirus-2). It is transmitted mainly through respiratory droplets between people. It also spreads through touch and the virus remains in environment from few hours to days depending on the surface it is affected. It is transmitted from nose and mouth. Virus is supposed to be killed in the environment by alcohol based solutions. However it is a mild disease in majority of cases (>80%) with the flu like symptoms and the patients affected can survive and recover at home. Approx. (>14%) cases are severe and (>5%) results in critical illness. Some people develop mild or no symptoms. Patients with some critical illness (like cardiovascular diseases) are more like to be infected with the COVID-19. In our review from several studies we have seen that patients with diabetes are at increased risk to be infected with the virus.

SYMPTOMS

The infection spreads within 1-14 days with or without symptoms.

Primary symptoms are **Fever, tiredness and dry cough**

Other symptoms include **headache** and the most severe complication is **difficulty in breathing** when the virus affects the lungs by causing significant inflammation.

REASONS FOR INCREASED RISK IN PEOPLE WITH DIABETES

As we know diabetes patients have low immune system in response to both infection and the cytokine profile (T-cell and macrophage activation). Low blood sugar levels and poor control over it results in viral infection and impairment of bacterial secondary infection in the lungs..

It was first seen in China that the people with poor glycemic control were infected with COVID-19.

Obesity is another risk factor for the severe infection and we know that patients with type 2 diabetes are mostly

obese. Because the persons with severe abdominal obesity have respiratory problems due to reduced ventilation of basal lung sections which results in increased ratio of pneumonia and decreased capacity of oxygen in blood. Also we know that obese people have an increased risk of asthma therefore, the patients with asthma are more prone to severe exacerbations and reduced response to several asthma medications.

Some studies have shown that COVID-19 may lead to cardiac injury with heart failure, which may result in stagnation of circulation. And as we know diabetic complications such as diabetic kidney disease and heart diseases are such complicated diseases which may increase the chances of COVID-19.

Diabetes is treated with ACE inhibitors and the coronavirus binds with target cells through ACE inhibitors which are expressed in epithelial cells of lungs and the intestine. Therefore, the patients treated with ACE inhibitors and angiotensin II receptor blockers, there is increased expression of ACE2 which could result in infection with COVID-19 and the increased risk of severe disease which may result in death.

Increased diabetes and inflammation both make it difficult for people with diabetes to recover from illnesses such as COVID-19. Persons with diabetes if develops symptoms of COVID-19 should consult the doctor as soon as possible.

DIAGNOSIS

We cannot test every person as we know as this time the resources does not exist and also it is not cost - effective. At present it takes 24 hours to get the results and the test kits are not available timely, therefore primarily the testing is done by measuring temperature and survey through questionnaire. Centers for Disease Control and Prevention recommends collecting and testing upper respiratory tract specimens (nasopharyngeal swab), contact the local healthcare department for updates and notify them of any patient where the suspicion of COVID-19 exists

Some tests helps us to make earlier, swifter and more-effective decisions. On 27 March 2020, Abbott announced

that the FDA has issued an Emergency Use Authorization (EUA) for the Abbott ID NOW™ COVID-19 test.

On the basis of these tests we decide the person who needs treatment with these three steps:

- i) who is infected and needs medical help
- ii) who has overcome the virus, and is no longer contagious and is able to go back to work and become productive immediately. For safety purposes, in this instance, the nasopharyngeal swab should be negative.
- iii) Family members exposed, may be infected and we must recommend application of all the preventive measures.

RADIOGRAPHY IMAGING

Hallmarks on imaging are bilateral and peripheral ground-glass and consolidative pulmonary opacities. An important percentage of patients may have symptoms but not display radiographic changes. If the condition worsens, repeating these studies is a must.

TREATMENT

Currently there is no treatment for the condition. Trials are currently undertaking with several drugs. Therefore, prevention is the only measure that can be taken at this time because it is a communicable disease.

Preventive measures for all:

1. Maintain at least 2 metres distance from those who do not live in your household.
2. Clean your hands often, especially when returning from a public place and after blowing your nose, sneezing or coughing. Use disposable tissues and discard them immediately.
3. Avoid touching your eyes, nose and mouth, especially with unwashed hands.
4. The most effective way to clean your hands is with soap and warm water for at least 20 seconds and all around your hands. Be sure your nails are clean.
5. Keep oral mucosa wet. Drink water frequently and lozenges may be helpful.
6. Don't share cell phones or tablets and ensure your own devices are clean.
7. If you are in a community where social restrictions exist, there is a good reason for this, and healthcare professionals should help educate the public regarding why those restrictions are in place.
8. If an individual in a workplace is diagnosed with the virus, all people that were in contact should enter into a period of quarantine but do not need to be tested.

Preventive measures for diabetics :

1. Monitor your sugar levels regularly

This is the most important step because daily monitoring of blood sugar level before and after meal is necessary at this time. This will help you to

maintain your blood glucose level and prevent from infection.

2. Keep a stock of necessary medicines

Keeping all the necessary stock of anti diabetic medicines and insulin is necessary at this time. Also the stock of medicines for diabetic complications and other emergency situations should be available.

3. Exercise regularly on daily basis

As we know exercise is good for every individual. Diabetic patients should do some stretching , yoga and walking. This is the best way to keep them healthy and fit.

4. Avoid high –calorie diets

Foods rich in carbohydrates and salts should be avoided. Intake of fruits should be increased. Some healthy supplements should be opted by them instead of fried and junk food.

5. Do not panic or stress out

As stress at this time is not beneficial for the patients with diabetes they should stay indoor and take the necessary precautions recommended by government at this time.

SUMMARY

As we have seen in the above reviews of some study that how bad can be a situation for the persons suffering from diabetes during this pandemic. It is necessary at this time that we should educate the people suffering from diabetes and tell them how dangerous it can be for them. We have to aware them about pros and cons of corona virus and how worse can be situation for them. Because Coronavirus is itself a chronic condition and if it occurs in people with diabetes than it can be a bad combination. As no vaccine is currently available for this disease therefore the patients with diabetes should stay indoor and should go outside only if it is very necessary.

They should be extra precautionous in this condition as compared to normal people. In future also they should take care of themselves the way they are taking right now till the vaccine is not discovered. Stay healthy stay safe.

REFERENCES

1. Sten Madsbad et al. "COVID-19 Infection in People with Diabetes" Department of Endocrinology, Denmark , 2020.
2. Yang J, Zheng Y, et al. "Prevalence of comorbidities in the novel Wuhan coronavirus (COVID-19) infection: a systematic review and meta-analysis. *Int J Infect Dis.* 2020.
3. Centers for Disease Control and Prevention. Evaluating and Testing Persons for Coronavirus Disease 2019 (COVID-19). 2020.
4. Gautret P, Lagier JC, et al. " Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial" *Int J Antimicrob Agents.* 2020.
5. Wang W, Chen H, et al. Fasting plasma glucose is an independent predictor for severity of H1N1 pneumonia. *BMC Infect Dis.* 2011.
6. Wan Y, Shang J, Graham R, et al. "Receptor recognition by the novel coronavirus from Wuhan: An analysis based on decade-long structural studies of SARS coronavirus" *J Virol.* 2020.