

MUCORMYCOSIS RISK MITIGATION IN THE COVID BATTLE

Relevant for: Developmental Issues | Topic: Health & Sanitation and related issues

The [COVID-19 pandemic](#) continues to play havoc all over the world and India is no exception to this. While 70%-80% of those affected with COVID-19 recover without many side-effects, [about 20%-30% of patients affected with symptomatic COVID-19 might require hospitalisation](#) — here, a minority can get worse and require treatment in an intensive care unit (ICU). Ever since the COVID-19 pandemic was first described from Wuhan in China, it is quite clear that it is people with comorbidities such as being of an older age, obese, having uncontrolled diabetes, heart or respiratory diseases and malignancies, who fare badly.

The new fear after the treatment of COVID-19, especially in an ICU setting, is contracting a severe disease known as mucormycosis. This is a serious, but rare, fungal infection caused by a group of fungi known as mucormycetes. Mucormycosis usually affects people who have poor immunity, and those with uncontrolled diabetes have the highest risk of developing it. Other risk factors of mucormycosis include steroid treatment, those who have malignancies, HIV/AIDS and those who have been treated with medicines such as deferoxamine for iron overload conditions. When the COVID-19 infection takes a more serious turn, heavy doses of steroids are given to the patient as a life-saving measure. Unfortunately, this can precipitate new onset diabetes in those who do not have diabetes, or substantially raise blood glucose levels in those persons who already have diabetes. This sets the scene for the development of mucormycosis.

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Mucormycosis is of several types, of which the commonest is rhino-orbital-cerebral mucormycosis. This starts as a common cold or sinusitis, but soon spreads to the eyes producing redness of the eyes, and later bulging of the eyes known as proptosis. It may eventually lead to paralysis of some of the eye muscles, or even to blindness. It can also spread to the brain, and if this occurs, the prognosis is very grave. Other forms of mucormycosis include the pulmonary form in which the lungs are mainly involved and less common cutaneous mucormycosis or disseminated mucormycosis, where it spreads throughout the body. The last two are also associated with very poor prognosis.

A very high index suspicion of mucormycosis is needed by the clinician treating COVID-19 cases, particularly in the setting of diabetes and steroid use. If the condition is diagnosed early and aggressive treatment given, the prognosis is good. Antifungal drugs such as Amphotericin B are used, but they are quite toxic and also expensive. If the involvement is extensive, radical surgery may be needed as a lifesaving measure in some cases, including removal of the jaw or the eye.

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It is very important for those with diabetes to keep their sugar levels under very good control. The dose of antidiabetic drugs will have to be adjusted and, in most cases, insulin would be needed to keep the sugars under control throughout the day. If steroids have to be used, their judicious use is recommended. For e.g., steroids should be given only at the appropriate stage of the disease, in optimal doses, and for as short a period of time as possible. Meticulous hygiene and care of the equipment inside the ICU including oxygen tubes and ventilators should be done in order to reduce the risk of fungal and other infections. In the case of mucormycosis,

the adage 'prevention is better than cure' could not be more true. It is worth emphasising the point that steroids do not have any role in the prophylaxis or the prevention of COVID-19. Indeed, steroids reduce one's immunity and may actually increase the risk of developing COVID-19. Also, in the initial phase of viremia (medical term for viruses present in the bloodstream), the use of steroids can actually disseminate the virus widely, thereby worsening the COVID-19 infection. It is only when the cytokine storm is suspected, (which usually occurs in the second week of the COVID-19 infection) that steroids should be used, and that too with discretion.

I find that in many patients who were put on steroids for COVID-19, their blood glucose levels are not adequately monitored, leading to extremely, and often dangerously, high blood glucose levels. This can also precipitate diabetic ketoacidosis — a classic situation where the more dangerous forms of mucormycosis occur. Hence, those treating COVID-19 infection must pay equal importance to the control of diabetes.

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To those with diabetes, my advice to them would be to have a healthy diet which has a lot of vegetables and less cereals (rice or chapati) and include more protein in the form of bengal gram, green gram, black gram, or mushroom. They must also have an active and regular exercise programme. It is very important for them to have their medicines regularly and if the sugars are not under control, to switch over to insulin if needed, at least for a short period. All these measures will help to effect good control of diabetes which can reduce the risk of developing COVID-19 and also its dangerous side-effects including mucormycosis.

Finally, frequent monitoring of sugar levels should be done by using a hand-held, blood glucose meter. It is possible to wear a small sensor patch on the upper arm which can continuously monitor a person's blood glucose levels and thus keep it under good control throughout the day.

It is also very important to get oneself fully vaccinated. Vaccination will ensure that the risk of developing severe COVID-19, requiring hospitalisation and thus the risk of developing dangerous infections such as mucormycosis, can be drastically reduced.

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To reassure Indian Muslims, the PM needs to state that the govt. will not conduct an exercise like NRC

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