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Letter to the Editor

COVID -19 outbreak – Diabetes aspect and perspective



COVID-19 pandemic is a new international public health concern, threatening the life of billions of people worldwide. India's health care system is also going through tough time due to COVID-19 outbreak. Most of the cases have flue like symptoms but elderly and co morbid individuals have higher risk of adverse outcome. Common causes of death in COVID-19 are pneumonia, acute respiratory distress syndrome (ARDS) and multi organ failure, out of which most common is pneumonia.¹

India has been known as the “world capital of diabetes” for long. COVID-19 infection and diabetes coexistence might cause concern in medical fraternity. Diabetes increases the risk of pneumonia in COVID-19 infected individual and it is an important risk factor for adverse outcome.² A study shows that diabetes mellitus worsens COVID-19 infections and is associated with increased pulmonary inflammation, macrophage infiltration.³

The problem with known diabetic patients is not increased risk of COVID 19 infections, but high chances of worst outcome in these patients if infected with COVID-19 virus. The patients with diabetes have much higher rate of serious complications and death than the patients without diabetes because of compromised immunity.

ACE inhibitor and Angiotensin II Receptor Blockers (ARBs) are the few of drugs used for the appropriate management of diabetic patients. COVID-19 virus utilizes ACE -2 receptor for binding to various tissue such as endothelium, kidney, lung etc. The patient already on ACE inhibitor or ARBs has upregulated expression of ACE -2 receptors. All these may lead to increased severity of COVID-19 infection in diabetic individuals.⁴ Moreover, genetic polymorphism of ACE receptor has been shown to be linked with diabetes and it might also facilitate COVID-19 infections. A single mutation in ACE receptor significantly increases the ability of COVID-19 virus to bind with human ACE receptor.⁴ On contrary to this, some researchers say that use of ACE inhibitor or ARBs prevents the binding of COVID-19 virus to ACE receptor and thus may prevent infection. Moreover, these scientists say that ACE inhibitor or ARBs could be used as treatment modality.⁵ All these are the lacunae in the existing knowledge of ACE inhibitor or ARBs use in diabetic individuals.

Still there are some golden rules for management of diabetic patients such as maintenance of hydration especially in this

current summer season, regular blood sugar monitoring, body temperature monitoring, monitoring ketone body in urine if patient is on insulin therapy, follows physician advice strictly, regular physical exercise. Apart from that diabetic individuals should be aware about warning sign especially in those individuals who have poor glycemic control. Avoid hypoglycemia as patient should keep biscuit, sugar candy with them, so that whenever they have sign and symptoms of hypoglycemia, they prevent this grave complication by consuming it. Diabetic individuals should be vaccinated against pneumonia and influenza. Appropriate attentions should be given to diet especially in terms of protein, vitamins and minerals.

References

1. Singhal T. A review of coronavirus disease-2019 (COVID-19). *Indian J Pediatr.* 2020 Mar 13:1–6.
2. Zhou J, Tan J. Diabetes patients with COVID-19 need better care. *Metab Clin Exp.* 2020 Mar 24;107.
3. Kulcsar KA, Coleman CM, Beck SE, Frieman MB. Comorbid diabetes results in immune dysregulation and enhanced disease severity following MERS-CoV infection. *JCI insight.* 2019 Oct 17;4(20).
4. Fang L, Karakiulakis G, Roth M. Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection? *Lancet Res Med.* 2020 Mar 11;8(4).
5. Cheng H, Wang Y, Wang GQ. Organ-protective effect of angiotensin-converting enzyme 2 and its effect on the prognosis of COVID-19. *J Med Virol.* 2020 Mar 27. <https://doi.org/10.1002/jmv.25785>.

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