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Letter to the Editor

# Letter to the Editor in Response to article: "Clinical considerations for patients with diabetes in times of COVID-19 epidemic (*Gupta et al.*)"

*Dear Sir*

It was very useful to see the review published in the journal on diabetes and COVID 19 infection [1]. In it you highlight that people with diabetes have a death rate perhaps around four times that of the background population, and I note that it has been suggested over 20–40% of deaths in China/Wuhan were in people with diabetes [2,3], Clearly it is important to understand why.

There will be some confounders here in the form of associations with other risk factors for dying with a Covid-19 infection, notably age and cardiovascular disease, but these cannot explain all the excess. We need to understand this better to mitigate the risk.

It is reported that most of the deaths are occurring in the context of pneumonitis [2,3], and in particularly onset of adult respiratory distress syndrome (ARDS), a condition in which excess fluid in the alveoli blocks gas exchange between air and blood.

People with diabetes, and many with cardiovascular disease (CVD) without diabetes, have a very permeable vasculature, identified since the 1980s as albumin lead through the kidneys (micro- and macro-albuminuria), but even prior to that as a late blush over the retina with intravenous fluorescence marker injection [4]. This leaky vasculature is associated with vascular inflammation, metabolic syndrome, and steatohepatitis, as well as CVD per se.

It would seem not too far a stretch, in the absence of further research as yet, to assume that prior enhancement of vascular permeability could account for the increased rate of ARDS and death in people with diabetes, particularly type 2 diabetes, and also some with CVD.

Aside from further research I would suggest that those already with albuminuria (a routine yearly test for people with diabetes), those with higher liver enzyme markers (ALT), and perhaps those with diabetes associated dyslipidaemia (low HDL cholesterol) should take particular steps to self-isolate.

It is unclear to me how fast vascular inflammation can be ameliorated by improved blood glucose control (nearly all glucose-lowering medications reduce microalbuminuria in time), but tight glucose control in infected persons with insulin would meanwhile seem sensible. Very poor glucose control is further known to interfere with leukocyte/lymphocyte function [5].

## References

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