

LETTER

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# Reduced gastric acidity, proton pump inhibitors and increased severity of COVID-19 infections

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Dear Editor

There are now articles linking the use of proton pump inhibitors (PPIs) to an increased risk of more severe COVID-19 infections [1, 2]. As discussed in our research letter [3], this is not surprising because these viruses can be swallowed and may spread via the gastrointestinal tract as well as the respiratory tract. Gastric acid is a partial barrier which restricts the entry of SARS-CoV-2 viruses into the rest of the gastrointestinal tract. This acid barrier is removed by a single dose of a PPI, as it raises the gastric pH from its usual level of 1.5–3.5 to over 6.0. At this less acid pH, these viruses are not inactivated [3, 4]. This may be part of the reason young people and children rarely get a severe COVID-19 illness, as this age group usually has good gastric acidity.

For ventilated patients, as well as the PPI risk, continuous nasogastric feeding regimes may present a risk of a more severe COVID-19 illness. For patients on these continuous regimes, the gastric pH will be around 4.0 or 5.0. At this pH, SARS-CoV-2 viruses will not be inactivated [3, 4]. In contrast, intermittent nasogastric feeding will allow the gastric pH to fall to <2.0 between periods of feeding. At this more acid pH level, the viruses could be inactivated.

During the present pandemic, it would be useful if a risk–benefit assessment could be carried out for patients on PPIs. A histamine-2 receptor antagonist (sometimes specified as famotidine) has been mentioned as a possible

alternative but further review is needed [2, 5]. In addition, maintaining gastric acidity in ventilated COVID-19 patients by intermittent nasogastric feeding, could be considered where possible.

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