A letter in response to impact of acetazolamide use in severe exacerbation of chronic obstructive pulmonary disease requiring invasive mechanical ventilation

Dear Editor,

I read with interest the article titled “Impact of acetazolamide use in severe exacerbation of chronic obstructive pulmonary disease requiring invasive mechanical ventilation” by Bahloul et al.,[1] where the authors have concluded that use of acetazolamide in mechanically ventilated chronic obstructive pulmonary disease (COPD) patients does not lead to decrease in the...
duration of mechanical ventilation. In this regard I would like to make the following observations. The authors had initiated 36 patients on acetazolamide who had pH > 7.42 with serum bicarbonate > 26 mmol/L which were the cases and 36 other matched patients were the controls. A close look at the baseline characteristics reveals that the serum bicarbonate and PaCO$_2$ were higher in the cases as compared to the controls and serum creatinine was higher in the controls as compared to the cases. These differences have important implications.

It is possible that the cases and controls represent predominantly two different spectrums of COPD—namely chronic bronchitis (blue bloaters who have a greater degree of hypercarbia) and emphysema (pink puffers who have lesser degree of hypercarbia). Or it may be so that the cases represented patients with more severely compromised lung function (and hence higher PaCO$_2$) as compared to the controls which may be difficult to corroborate as spirometric data were not collected in the present study. The third possibility may be that since the incidence of acute renal failure was same in the case and control groups; but the creatinine levels were higher in the control group, the control group might be having more number of patients with chronic kidney disease (a point which the authors have not clarified). In chronic kidney patients, the ability to generate bicarbonate and hence to compensate for hypercarbia may be compromised. These factors lead one to believe that the case and control groups were radically different even though they were ‘matched’ by the authors. To gauge the utility of acetazolamide on such two groups which are so grossly dissimilar, might have a bearing on the result and make it prone to biases. What would have been probably more rational is to compare the efficacy of acetazolamide within the case group or within the control group. Incidentally in a similar study 26 mechanically ventilated COPD were treated with acetazolamide by Faisy et al., and were compared to a historical control who were matched with respect to both their serum bicarbonate and pH levels.

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