Dangers of very low blood pH

Sir,

In the paper "Interpretation of arterial blood gas", Sood *et al*.[1] have mentioned in the Section "Introduction", "Disorders of acid-base balance can create complications in many disease states, and occasionally the abnormality may be so severe as to become a life-threatening risk factor". However, they did not concretize the life-threatening abnormalities and also the potentially life-saving therapeutic interventions.

For the readers of *Indian Journal of Critical Care Medicine*, it would be perhaps interesting to know that the most dangerous abnormality is a very low blood pH (=very high concentration of hydrogen ions H^+). According to Edge *et al*.,[2] very low blood pH is the immediate cause of coma, regardless of the accompanying anion (acetoacetate, lactic, etc.). The glycolytic enzyme phosphofructokinase is pH dependent,[3] as its activity decreases with decreasing pH, and thus glucose utilization in brain cells is impaired.[4] Therefore, the clinical consequences of decreasing blood pH are drowsiness, stupor, coma, and death in coma.

Also, it is very important to note that by increasing the blood pH from a very low level, the comatose patient can recover to full alertness, e.g. Ahmad and Beckett[5] have reported successful therapy with infusions of sodium bicarbonate in a comatose patient with lactic acidosis and blood pH of 6.389. Also, in comatose patients with diabetic ketoacidosis, there is an increase in blood pH from very low levels due to infusion of alkalizing solutions, which is life saving, e.g. Wagner *et al*.[6] have reported zero lethality in the time period 1986–1997 with infusions of sodium bicarbonate.

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