Acute Renal Failure in Tetanus: Correspondence

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To the Editor: We read the article ‘Acute renal failure in tetanus’ by Kaur et al. with interest [1]. The authors had reported acute kidney injury and myoglobinuria in a 10-y-old child with tetanus. We intend to highlight certain issues regarding the management of this child.

The child was administered very high doses of intravenous diazepam (50 mg/kg/d) which could have predisposed to potentially life-threatening propylene glycol toxicity [2]. Propylene glycol (1, 2-propanediol) is a solvent used in intravenous preparation of lorazepam and diazepam. The toxic effects range from hyperosmolality, hemolysis, rhabdomyolysis, cardiac arrhythmia, seizure, and coma [3]. In addition, development of lactic acidosis, hypotension, and multisystem organ dysfunction in propylene glycol toxicity often mimic the features of septic shock.

The normal range of serum creatinine in the 7–10 y age group is 0.22–0.6 mg/dL. The documented baseline serum creatinine level in this child was 0.9 mg/dL. This points to pre-existing renal dysfunction at the onset; however, whether the underlying cause was ongoing rhabdomyolysis or autonomic dysfunction is a matter of debate.

The child suffered sudden cardiac arrest on sixth day of hospitalization. The commonest cause of death in patients with severe tetanus on ventilator support is tetanus-associated autonomic dysfunction. Magnesium sulphate is useful for control of autonomic dysfunction in these patients. The muscle relaxation property of Magnesium sulphate controls spasms and cardiovascular manifestations (vasodilatation, lowering of heart rate, and reduction of systemic catecholamine release) and is responsible for ameliorating the ill

effects of autonomic dysfunction. A recent randomized controlled trial also reiterated that magnesium sulphate infusion effected a reduction in the requirement of other drugs to control muscle spasms and cardiovascular instability without reducing the need for mechanical ventilation in patients with severe tetanus [4].

While managing acute kidney injury due to rhabdomyolysis, infusion of large volume of intravenous fluids within the first 24 h is associated with improved outcomes [5]. Alkalinization of the urine is also practiced routinely, but evidence of significant clinical benefit is lacking. A current consensus statement suggests that sodium bicarbonate administration is neither necessary nor superior to normal saline diuresis in increasing urine pH [5].

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