

Tet spells with acute kidney injury

Sir,

Tet spells are associated with cyanotic congenital heart disease with reduced pulmonary blood flow such as tetralogy of Fallot, tricuspid atresia and in the transposition of the great arteries with pulmonary stenosis. It is characterized by worsening of the pulmonary oligemia and exacerbation of hypoxemia, therefore, the cyanosis worsens. Common complications associated with it include worsening acidosis, with neurologic deficit and rarely death. Acute renal failure to the best of my knowledge is a rarity though it may occur in hyperviscosity syndrome.^[1] Therefore, the case of a 4-year-old boy with pentalogy of Fallot who had been irregular with a follow-up visit and developed tet spells with acute renal failure is presented. He was diagnosed with pentalogy of Fallot at the age of 2-year after been seen severally in peripheral hospitals. He was not regular with clinic visits and developed hypercyanotic spells at home 18-h before presentation, he was not febrile and the episode suddenly occurred while playing with his elder sibling. This was aborted with use of intravenous fluid, parenteral morphine and intravenous sodium bicarbonate. However 24-h into admission, peri-orbital edema were noticed; there was no indication of fluid overload or heart failure. The electrolyte, urea and creatinine result revealed significantly elevated urea and creatinine the urea was 20 mmol/L (2.1–6.9 mmol/L); Na⁺ of 127 mmol/L (130–146 mmol/L); K⁺ of 4.8 mmol/L (3.0–5.6 mmol/L); Hco³ of 18 mmol/L (20–28 mmol/L); Cl⁻ of 89 mmol/L (94–108 mmol/L); and creatinine of 250 umol/L (30–111 umol/L). He was managed conservatively, and the renal function normalized by the 2nd week of admission and discharged by the 4th week of admission. Corrective surgery was done in 2014. Pentalogy of Fallot is a variant of tetralogy of Fallot-which was the most common cyanotic congenital heart disease reported in children attending our clinic.^[2]

The exact mechanism of tet spells is not completely understood; however, mechanisms postulated include: Increasing heart rate; increase in cardiac output with increasing venous return; effect of the respiratory center and Infundibular spasm.^[3] Therefore, fall in the systemic vascular resistance, increasing pulmonary vascular resistance/or increasing pulmonary/infundibular stenosis result in increased right to left shunting of more deoxygenated blood to the systemic circulation. Why acute renal failure occurred, was not clear; though vasoconstrictor-such as phenylephrine^[4] -therapy may be associated with significant reduction in tissue perfusion and in severe cases resulting in organ failure; but the index case had no such treatment. Chronic kidney disease has been reported in patients with cyanotic congenital disease attributed to the effect of hypoxia, hyperdynamic circulation and polycythemia^[5] but the index case had an acute injury which resolved completely afterward. Therefore, clinicians should look out for the possibility of an acute kidney insult occurring in tet spells.

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