Letter to the Editor

Author Response to Letter

We thank Drs Imamura and Narang for their letter and their interest in our study.[1] They rightly note the challenges of estimating cardiac filling pressures and degree of fluid overload in children hospitalized with heart failure. Common features of fluid overload in adults, such as jugular venous distention, pedal edema and rales at the lung bases, are frequently not present in children. Congestion is often "hidden" on examination, and any attempt to gauge a response to diuretics is further complicated by children's limited ability to describe symptoms. As our study demonstrated, urine output is also not a reliable predictor of clinical outcome. Therefore, an accurate and noninvasive method of estimating congestion might be helpful in guiding the care of children with acute decompensated heart failure.

The fact that diuretic responsiveness was greater in patients with lower glomerular filtration rates in our study was not a complete surprise to us, especially because we excluded patients with chronic kidney disease. The most responsive patients were those with overt features of volume overload, consistent with the indirect relationship of glomerular filtration rates and central venous pressures in adults.[2] Further work is necessary to determine whether this relationship is also present in children with heart failure.

The doctors note that vasodilator therapy can be beneficial in the treatment of such patients. Although pure vasodilators, such as nitroprusside and nitroglycerin, are rarely used in pediatric heart failure, the phosphodiesterase inhibitor milrinone is commonly administered in the setting of poor perfusion but adequate blood pressure, usually to favorable effect.[3] Their recommended prescription of vasopressin antagonists in diuretic-resistant patients must be tempered by the failure of tolvaptan to provide symptomatic relief or impact length of stay despite its association with greater fluid loss.[4]

Our study underscores the gaps in our knowledge of congestion and fluid overload in children with heart failure. We hope it sheds new light on a complicated syndrome in a vulnerable population.

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