METHYLENE BLUE IN SEVERE REFRACTORY SEPTIC SHOCK: A CASE REPORT

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Sepsis is one of the major causes of morbidity and mortality in critically ill patients and is the most common cause of distributive shock in the intensive care unit (ICU). Treatment is directed at maintaining adequate mean arterial pressures using intravenous fluids and vasopressors. Methylene blue (MB) functions as selective inhibitor of guanylate cyclase, a mediator in nitric oxide vasodilation, and has been previously investigated as an alternative to catecholamine vasopressors in patients in refractory septic shock.

We describe a 68-year-old female who was in a previously good state of health who presented to the ICU with severe vasodilatory shock secondary to gram-negative urosepsis and acute renal failure requiring CRRT. On arrival she was progressively hypotensive down to 50s over 30s and tachycardic despite four liters of fluid resuscitation. She was initiated on broad spectrum antibiotics as well as norepinephrine infusion. Over the course of the day, she was requiring escalating doses of norepinephrine, epinephrine, and vasopressin with minimal effect on her blood pressure. Stress-dose steroids were administered for refractory shock with the patient remaining critically ill. Decision was made to start methylene blue. Two 50 mg boluses were given and then continuous infusion initiated at 0.5 mg/kg/hr with improvement in her hemodynamics and ability to wean catecholamine vasopressors.

Observational studies evaluating treatment with methylene blue have revealed improved hemodynamics and oxygen delivery with use. However, randomized trials evaluating its impact on mortality and long-term safety are sparse. One study reported increased risk of serotonin syndrome with methylene blue and concomitant SSRI use. Further research on methylene blue would be beneficial in establishing its utility as a treatment option for septic shock as well as other shock etiologies in critically ill patients.