Response to Methylene Blue Does Not Have to Be Considered Only as Rescue Therapy for Distributive Shock

David H. Jang • Lewis S. Nelson • Robert S. Hoffman

Published online: 1 October 2013
© American College of Medical Toxicology 2013

We thank Professor Evora for his fine work in this area and his comments on the use of methylene blue for distributive shock [1]. While we appreciate his enthusiasm for recommending more routine use of methylene blue for distributive shock, we respectfully disagree with early methylene blue use based on the current level of evidence.

It is important to distinguish the various etiologies of distributive shock that may be encountered, including anaphylaxis, sepsis, and certain cardiovascular drug poisonings. If one carefully reviews the literature, the level of evidence for the use of methylene blue differs depending on the etiology of distributive shock. The author advocates more routine use of methylene blue for distributive shock based predominantly on personal experience. We feel that it is somewhat premature to recommend a treatment based solely on case reports and uncontrolled clinical evidence, when standard time-tested therapies are usually adequate. Ideally, such recommendations should be based on a higher level of evidence such as randomized control trials or case-controlled studies.

We are also concerned that Professor Evora minimizes the risks associated with the use of methylene blue. Methylene blue may cause hemolytic anemia, emesis, and discoloration

of bodily fluids. There are also reports of methylene blue interacting with other serotonergic agents to precipitate serotonin toxicity. This is described in an FDA safety announcement that was issued in July 2011 [2]. It is interesting to note that the author mentions this possibility in one of his own letters but fails to mention this in his current response [3]. While in his previous letter, he states that serotonin syndrome is uncommon, it is not as benign as suggested and is associated with serious morbidity and mortality [4].

While we strongly believe there is a role for methylene blue in select cases of drug-induced cardiovascular collapse, we are reluctant to recommend its early use given the very limited level of evidence at this time and the potential adverse effects. We encourage Professor Evora and other readers to develop trials that systematically collect data to help address these issues.

References

1. Jang DH, Nelson LS, Hoffman RS. (2013) Methylene blue for distributive shock: a potential new use of an old antidote. *J Med Toxicol*. In Press.
2. <http://www.fda.gov/Drugs/DrugSafety/ucm263190.htm>. Accessed 24 Aug 2013.
3. Evora PR (2013) Methylene blue, serotonergic syndrome, and heart transplant. *J Thorac Cardiovasc Surg* 145(3):897
4. Ng BK, Cameron AJ (2010) The role of methylene blue in serotonin syndrome: a systematic review. *Psychosomatics* 51(3):194–200

D. H. Jang (✉) • L. S. Nelson • R. S. Hoffman
New York University School of Medicine, New York, NY, USA
e-mail: Jangd01@nyumc.org