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American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

Correspondence

Methylene blue for refractory anaphylaxis—is it a magic bullet? ☆☆☆

To the Editor,

The case report by Bauer et al is indeed interesting [1]. Rapid reversal of marked respiratory distress following methylene blue (MB) administration in a normotensive patient is of recent information. However, few aspects of the report require contemplation.

Epinephrine-resistant anaphylaxis is a strong stimulus to search for possible alternative therapies. The available evidences, although largely anecdotal, are compelling and supportive on the usefulness of MB to such patients who are in a state of severe anaphylaxis with vasodilatory shock and not responding to catecholamine therapy [2]. At the same time, we should recall the side effects, dosing, and patient safety while using MB and stress all these in health science education and training.

Methylene blue has become an important therapeutic agent with diverse applications in clinical practice, but it is not a benign drug in view of side effects. Few serious side effects reported with MB are cardiac arrhythmias, coronary vasospasm, increased pulmonary hypertension, anaphylaxis [3], worsening of gas exchange, hemolytic anemia, hyperbilirubinemia, and altered regional outputs to the mesenteric or renal vasculature. In addition, MB is now recognized as a potent monoamine oxidase inhibitor. Hence, it has to be avoided in patients on serotonergic medications so as to prevent life-threatening serotonin toxicity. Another inconvenience with the use of MB is that the recipient has to be screened for G-6-P-D deficiency before administering MB. Interference by the dye may produce spurious results, or it complicates the laboratory procedure [4].

Apart from this, there is no standardized dosing. Most cases reported have received a dose of 1.5 to 2 mg/kg of MB based on the dosing used to treat methemoglobinemia. In addition, dosing regimens and protocols have to be clearly defined before widespread use MB. The authors [1] had stated that patient improved remarkably within 6 minutes of commencing MB infusion, based on the pharmacodynamics and pharmacokinetics of MB, it is likely that MB might have taken more time to act [5]. With the existing gap in our understanding, there is a need for more scientific evidence to support

the usage of MB for severe bronchospasm in a normotensive patient. Overall, MB is not always blue and, hence, needs caution [6].

Acknowledgments

We thank Dr K. Arthanari, MS, for his logistic support.

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<http://dx.doi.org/10.1016/j.ajem.2013.03.032>

References

- [1] Bauer CS, Vadas P, Kelly KJ. Methylene blue for the treatment of refractory anaphylaxis without hypotension. *Am J Emerg Med* 2013;31:264.e3–5.
- [2] Weissgerber AJ. Methylene blue for refractory hypotension: a case report. *AANA J* 2008;76:271–4.
- [3] Dewachter P, Mouton-Faivre C, Trechot P, Llieu JC, Mertes PM. Severe anaphylactic shock with methylene blue instillation. *Anesth Analg* 2005;101:149–50.
- [4] Gourelain H, Buneaux F, Borron SW, Gouget B, Levillain P. Interference of methylene blue with co-oximetry of hemoglobin derivatives. *Clin Chem* 1997;43:1078–80.
- [5] Peter C, Hongwan D, Kupfer A, Lauterburg BH. Pharmacokinetics and organ distribution of intravenous and oral methylene blue. *Eur J Clin Pharmacol* 2000;56:247–50.
- [6] Andritsos MJ. Con: methylene blue should not be used routinely for vasoplegia perioperatively. *J Cardiothorac Vasc Anesth* 2011;25:739–43.

☆ Financial support: Nil.

☆☆ Conflict of interest: Nil.