

SYSTEMATIC REVIEW UNIT

Objectives:

- Critically evaluate a systematic review and meta-analysis including assessment for credibility (i.e., risk of bias)
- Learn how to rate the quality or certainty in the summary estimates of effect using GRADE methodology
- Understand how to apply results of a systematic review and meta-analysis to the management of real patients

Assignment:

Please consider the attached manuscript reporting the results of a systematic review and meta-analysis from the Journal of the American Medical Association when completing the attached worksheet. This review examined the effect of vasopressin plus catecholamine infusion as compared with catecholamine alone in critically ill patients with shock. The focus was on adverse events, specifically rates of atrial fibrillation.

Clinical Scenario:

A 56 year old female presents to the emergency department at your hospital complaining of shortness of breath and feeling unwell. Initial vital signs reveal an elevated heart rate, low oxygen saturations and a low blood pressure. Intravenous fluids are initiated, broad spectrum antibiotics are administered and blood tests are ordered. Chest x-ray reveals pneumonia. The patient's blood pressure does not improve after 2 Litres of intravenous fluid and their serum lactate comes back elevated at 4.5 mmol/L (normal is <2 mmol/L). You decide to start a norepinephrine infusion through a newly placed central venous catheter which is titrated to 0.5mcg/kg/min in order to achieve a mean arterial pressure above 65mmHg. Your colleague asks you if, in addition norepinephrine, there is any benefit to starting a vasopressin infusion in this with shock.

Enclosed Materials:

1. McIntyre WF, Um KJ, Alhazzani W, Lengyel A, Hajjar L, Gordon AC, Lamontagne F, Healey J, Whitlock R, Belley-Côté. Association of vasopressin plus catecholamine vasopressors vs catecholamine alone with atrial fibrillation in patients with distributive shock. JAMA 2018;319(18):1889-1900.
2. Guyatt G, Drummond R, *Users' Guides to the Medical Literature: A Manual for Evidence Based Clinical Practice*, 3rd Edition (JAMA). New York, NY: The McGraw-Hill Companies, Inc, 2015. Chapter 19 – Summarizing the Evidence, 523 - 542.

3. Guyatt G, Drummond R, *Users' Guides to the Medical Literature: A Manual for Evidence Based Clinical Practice*, 3rd Edition (JAMA). New York, NY: The McGraw-Hill Companies, Inc, 2015. Chapter 22.4 – Grading Recommendations, 679 – 701.
4. Worksheet for the evaluation of an article on systematic reviews.