

Vasopressor and Inotrope Use in Canadian Emergency Departments: Evidence Based Consensus Guidelines

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ABSTRACT

Patients may present to Emergency Departments (ED) in shock for various reasons. Emergency medicine physicians may require the use of vasopressors or inotropes to manage these patients. The Critical Care Practice Committee of the Canadian Association of

Emergency Physicians (C4) conducted an intensive literature search and guideline development process to help create an evidence based approach for use of these agents in the stabilization of shock.

Table 1. Summary of recommendations for the use of vasopressors and inotropes in the Emergency Department.

Strong Recommendations:

Cardiogenic shock patients in the ED should receive norepinephrine as the first-line vasopressor.
 Norepinephrine is the first line vasopressor for use in septic shock.
 Dobutamine should be used for septic shock with low cardiac output despite adequate volume resuscitation.
 Epinephrine infusion is the preferred agent for anaphylactic shock that does not respond to intramuscular or intravenous bolus epinephrine.
 In undifferentiated shock not responding to fluid resuscitation, norepinephrine should be the first line vasopressor.

Conditional Recommendations:

Cardiogenic shock patients in the ED should receive dobutamine if an inotrope is deemed necessary.
 Routine vasopressor use in hypovolemic shock is not recommended.
 Vasopressin may be indicated in hemorrhagic or hypovolemic shock if a vasopressor is deemed necessary.
 In obstructive shock not responding to indicated treatment, a systemically active vasopressor should be instituted.
 For patients with known or suspected hypertrophic obstructive cardiomyopathy (HOCM) or dynamic outflow obstruction, inotropic agents should be avoided. Judicious use of vasoconstrictive agents can be considered.
 Vasopressin should be considered in catecholamine refractory septic shock.
 Vasopressor choice in neurogenic shock is not clear. The agent should be determined by patient characteristics and response to treatment.
 Norepinephrine is the first line agent for the management of distributive shock due to hepatic failure.
 Vasopressor choice in distributive shock secondary to adrenal insufficiency not responding to steroid replacement is not clear. Patient response to chosen agents should guide therapy.

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Table 1. (Continued)

In undifferentiated shock, a second vasopressor should be added if a goal MAP > 70 mmHg is not being achieved.

Short term vasopressor infusions (<1-2 hours) or boluses via properly positioned and functioning peripheral intravenous catheters are unlikely to cause local complications.

Vasopressor infusions for prolonged periods (>2-6 hours) should preferentially be administered via central venous catheters.

Inotropes can be given via peripheral catheter (short term) or central venous catheters (prolonged period) with a similarly low incidence of local complications.

The administration of vasopressors via intra-osseous lines is safe in adults.