

Applicable area: **ICU**

These guidelines are intended for and to be used only by experienced critical care staff under direct supervision of HNELHN Intensive Care Specialists in designated HNE Intensive Care Area Clinical Stream units. The authors are not responsible for inappropriate use of these guidelines.

<b>ADULT</b>	<b>Vasopressin IV for septic shock</b>
<b>Authorised prescribers</b>	For discretionary use by ICU specialist or fellow only
<b>Indication for use</b>	<p>As adjunctive therapy for septic shock patients with escalating vasoconstrictor requirements despite adequate fluid resuscitation +/- corticosteroid therapy <sup>1-3</sup>.</p> <p>Timing of therapy remains controversial. Should vasopressin be started early in the course of sepsis or be delayed until the patient is refractory to high dose catecholamines? Limited reports suggest earlier commencement (i.e., hypotensive despite noradrenaline greater than or equal to 0.15 microgram/kg/min) may not be unreasonable <sup>3</sup>.</p>
<b>Background</b> <sup>2,4</sup>	<p>Arginine vasopressin is an endogenous hormone which causes vasoconstriction, water retention and urine concentration via stimulation of V<sub>1</sub> and V<sub>2</sub> receptors.</p> <p>Septic shock patients may have a relative vasopressin deficiency which may occur within 36 hours from the onset of septic shock <sup>3</sup>.</p> <p>The aim of adjunctive vasopressin therapy is to provide <i>physiological replacement doses</i> (0.01 to 0.04 Units/min) to reduce the requirements of other vasoconstrictors e.g., noradrenaline, whilst minimising the risks of ischaemia that are a concern with pharmacological doses (more than 0.04 Units/min) <sup>3</sup>.</p> <p>The recent Vasopressin in Septic Shock Trial (VASST) <sup>1</sup> did not demonstrate significant mortality benefits of vasopressin as an adjunct. However; subgroup analyses found a significantly lower mortality rate in patients with less severe septic shock (i.e., lower noradrenaline requirements); or those at risk of renal failure.</p> <p>There may be a clinical benefit from co-administration of vasopressin and corticosteroids in septic shock (in retrospective and post hoc analyses <sup>3</sup>).</p>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>• Vascular disease and ischaemic heart disease – risk of further ischaemia <sup>4</sup>.</li> <li>• Actual or potential cardiac dysfunction – vasopressin may decrease cardiac output and heart rate by increasing vagal tone and decreasing sympathetic tone and coronary blood flow <sup>3</sup>.</li> <li>• Some patients e.g., those with low body weight, may be more susceptible to significant ischaemia – reduce dose or discontinue as appropriate.</li> </ul>
<b>Dosage</b>	<p>Consider starting when noradrenaline dose equal to or greater than 0.15 microgram/kg/min</p> <p>Fixed dose 0.033 Units/min (= 5 mL/h, see “Preparation and Administration”)</p> <p>CRRT: Likely dialysed and ultrafiltered <sup>3</sup>.</p>
<b>Duration of therapy</b>	Wean off vasopressin when noradrenaline less than 0.15 microgram/kg/min.
<b>Stopping therapy</b>	Decrease by 0.4 Units/hour (= 1 mL/h) in at least 15 minute intervals

<b>Prescription</b>	Date 23/03	Medication (Print Generic Name) <b>Vasopressin 20 Units up to 50 mL sodium chloride 0.9%</b>	Date	
	Route <b>CVC</b>	Dose & Hourly Frequency <b>5 mL/hour</b>	PRN	Max dose/24 hrs
	Indication <b>Septic shock. See guidelines</b>	Pharmacy	Dose	
	Prescriber Signature <i>A. Doctor</i>	Print Name	Contact	Sign
<b>Preparation and administration</b>	IV continuous infusion: Central Venous Line			
	Dilute 20 Units up to 50 mL with sodium chloride 0.9%			
<b>Compatibilities</b>	See <a href="#">Australian Injectable Drugs Handbook via CIAP</a> or hard copy on the ward			
<b>Basis of guideline</b>	Adapted from Bourne R and Hutchinson P. Vasopressin therapy in septic shock guidelines for critical care, 2007. Sheffield Teaching Hospitals, UK. <ol style="list-style-type: none"> <li>Russell J, Walley K, Singer J, et al. Vasopressin versus norepinephrine infusion in patients with septic shock (VASST). <i>NEJM</i> 2008; 358: 877–887.</li> <li>Kampmeier T, Rehberg S, Westphal, M, et al. Vasopressin in sepsis and septic shock. <i>Minerva Anestesiologica</i> 2010; 76: 844–850.</li> <li>Bauer S and Lam S. Arginine vasopressin for the treatment of septic shock in adults (review). <i>Pharmacotherapy</i> 2010; 30: 1057–1071.</li> <li>MIMS online, 2010</li> </ol>			
<b>Groups consulted</b>	Staff specialists, senior medical trainees, nursing and pharmacists (or relevant directors of pharmacy) of the Intensive Care Area Clinical Stream			
<b>Keywords</b>	HNE Intensive Care Area Clinical Stream, ICU, vasopressin, septic shock, prescribing guideline			

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