VISUAL STUDY LIBRARY · 2026 NGN NCLEX

Neurogenic Shock

NEURO · CARDIOVASCULAR · CRITICAL CARE

Diane's NGN NCLEX 2026 Visual Study Library

📚 **Content Sourcing Note:** Neurogenic shock is not covered in Diane's uploaded reference notes. This infographic is drawn from standard NGN NCLEX 2026 references including *Saunders Comprehensive Review (2026)*, *ATI Medical-Surgical Nursing*, *Lippincott Manual of Nursing Practice*, and current AANN/AACN critical care guidelines.

1 Definition & Overview

- **Neurogenic shock** is a type of **distributive shock** caused by sudden loss of **sympathetic nervous system tone**, most commonly from **spinal cord injury (SCI) at or above T6**.
- The loss of sympathetic outflow → **massive vasodilation + unopposed parasympathetic tone** → severe hypotension AND bradycardia (a unique combo).
- **Why it matters:** It is the only major shock state where the patient is **WARM, DRY, and BRADYCARDIC** — a high-yield NCLEX differentiator and a true clinical emergency.

⚠️ **Do NOT confuse with SPINAL shock (temporary loss of reflexes below SCI). Neurogenic shock is a hemodynamic/cardiovascular event.**

2 Pathophysiology (Simplified)

The sympathetic nervous system (SNS) exits the spinal cord from **T1–L2**. An injury at or above T6 cuts off SNS signaling to the heart and blood vessels, leaving the parasympathetic (vagus) system unopposed.

1. SCI at or above T6 (or severe brain injury, spinal anesthesia, autonomic blockade)

↓

2. Disruption of sympathetic outflow from spinal cord

↓

3. Unopposed parasympathetic (vagal) tone

↓

4. Massive peripheral vasodilation + venous pooling

↓

5. ↓ Venous return → ↓ Cardiac output + Bradycardia (no SNS to compensate)

↓

6. Profound HYPOTENSION + BRADYCARDIA + WARM, DRY SKIN → poor tissue perfusion

3 Signs & Symptoms

🎯 The Classic Triad (Hallmark)

📉

Hypotension

SBP < 90 mmHg
MAP < 65 mmHg

🐢

Bradycardia

HR < 60 bpm
UNIQUE to neurogenic

🔥

Warm, Dry, Flushed

Skin below injury level (vasodilation)

Early Signs

- Hypotension (sudden drop)
- Bradycardia
- Warm, pink, dry skin below injury
- Poikilothermia (can't regulate temp)
- Loss of motor/sensory function below SCI
- Priapism (males) — autonomic disruption

Late / Decompensation

- Profound hypotension unresponsive to fluids
- Altered LOC / confusion
- Respiratory failure (if SCI ≥ C3–C5)
- Hypothermia (no shivering response)
- Cardiac arrest
- Multi-organ failure

🚨 **RED FLAGS: HR < 40, SBP < 80, RR distress with high cervical injury, loss of consciousness, asystole. CALL RAPID RESPONSE.**

4 Priority Nursing Interventions (ABCs First)

A **Airway —** Maintain **cervical spine alignment** (in-line stabilization, c-collar, log-roll only). **Anticipate intubation** if injury at C3–C5 (phrenic nerve, diaphragm).

B **Breathing —** Monitor RR, SpO_2, ABGs. Administer O_2 to keep $SpO_2 \geq 94\%$. Watch for diaphragmatic fatigue and atelectasis. Be ready for mechanical ventilation.

C **Circulation —**

- **IV fluids** (NS or LR) — give **cautiously**; patient is not volume-depleted, just vasodilated. Over-resuscitation = pulmonary edema.
- **Vasopressors (PRIORITY):** Norepinephrine (first-line), phenylephrine, or dopamine to restore vascular tone.
- **Atropine 0.5–1 mg IV** for symptomatic bradycardia.
- Target **MAP ≥ 85–90 mmHg** for the first 7 days post-SCI to perfuse the cord.

S **Spine + Safety —** Strict immobilization, log-roll, neuro checks q1h. Methylprednisolone may be ordered (controversial — institution-dependent).

+ **Supportive —** Warm blankets (poikilothermia), Foley catheter (neurogenic bladder), NG tube (paralytic ileus risk), **SCDs + DVT prophylaxis** (huge risk in SCI), skin/pressure care, emotional support.

5 Pharmacology

Drug / Class	Mechanism	Key Side Effects	Nursing Considerations
Norepinephrine (Levophed) α + β agonist · 1st line	Vasoconstriction + mild ↑HR	Extravasation → tissue necrosis, dysrhythmias, HTN	Central line preferred · titrate to MAP ≥ 85 · monitor extremity perfusion · phentolamine for extravasation
Phenylephrine Pure α agonist	Pure vasoconstriction (no HR effect)	Reflex bradycardia, HTN	Useful when bradycardia is a concern · monitor BP closely
Dopamine Dose-dependent	Low: renal · Mid: ↑HR/contractility · High: vasoconstriction	Tachydysrhythmias, ischemia, N/V	Titrate q hour · central line · do NOT abruptly stop
Atropine Anticholinergic	Blocks vagal tone → ↑HR	Dry mouth, mydriasis, urinary retention, tachycardia	0.5–1 mg IV push for symptomatic bradycardia · keep at bedside
Methylprednisolone Corticosteroid (controversial)	↓ inflammation/edema at cord	Hyperglycemia, infection, GI bleed	Per institution protocol · monitor glucose · stress ulcer prophylaxis
Enoxaparin (Lovenox) LMWH	DVT prophylaxis	Bleeding, thrombocytopenia	SCI patients are at **extremely** high DVT/PE risk — start early

6 NCLEX Test Traps ⚠️

❌ **TRAP:** "Patient is in shock — they must be tachycardic."	✅ **RIGHT:** Neurogenic shock is the **only** shock with **bradycardia** (no SNS to compensate).
❌ **TRAP:** "Cold, clammy, pale = shock signs."	✅ **RIGHT:** Neurogenic skin is **warm, dry, flushed** below injury due to vasodilation.
❌ **TRAP:** "Aggressively bolus IV fluids."	✅ **RIGHT:** Patient is NOT hypovolemic — just vasodilated. Give fluids **cautiously**; PRIORITY is **vasopressors**.
❌ **TRAP:** "Neurogenic shock = spinal shock."	✅ **RIGHT:** Spinal shock = temporary loss of reflexes/flaccidity. Neurogenic shock = hemodynamic instability. Can co-exist.
❌ **TRAP:** "Treat bradycardia with epinephrine."	✅ **RIGHT:** Symptomatic bradycardia → **atropine** first. Then vasopressors for BP.
❌ **TRAP:** Confusing neurogenic with anaphylactic shock (both warm/distributive).	✅ **RIGHT:** Anaphylactic = warm + **tachycardic** + wheezing + urticaria. Neurogenic = warm + **bradycardic** + SCI history.

📊 Quick Shock Comparison

Shock Type	Skin	Heart Rate	BP	Distinct Feature
Hypovolemic	Cold, clammy, pale	↑ Tachy	↓	Blood/fluid loss
Cardiogenic	Cold, clammy, pale	↑ Tachy	↓	Pump failure, JVD, crackles
Neurogenic	**WARM, dry, pink**	**↓ BRADY**	**↓**	**SCI ≥ T6, only brady shock**
Septic	Warm early → cold late	↑ Tachy	↓	Fever, ↑WBC, infection
Anaphylactic	Warm, flushed, hives	↑ Tachy	↓	Wheezing, allergen exposure

7 Patient & Family Education

Acute / In-Hospital

- Explain why BP and HR are being monitored continuously.
- Reinforce the need for **strict immobilization** — no movement without staff.
- Educate on Foley, NG tube, SCDs, and IV lines.
- Encourage family presence — psychological adjustment to SCI is huge.

Long-Term (Post-SCI)

- **Autonomic dysreflexia** warning signs (severe HTN, pounding HA, flushing above injury) — sit up, find trigger (full bladder, fecal impaction).
- Bowel & bladder program adherence.
- Skin integrity — reposition q2h, pressure-relief cushions.
- DVT prevention — daily ROM, anticoagulation as prescribed.
- Temperature regulation — dress in layers, avoid extremes.
- Rehab, PT/OT, and mental health support.

8 Memory Boosters & Mnemonics

"WARM & SLOW"

The one-phrase neurogenic shock memory hook:

- **W** arm, dry, flushed skin
- **A** bsent sympathetic tone
- **R** educed BP (hypotension)
- **M** AP target ≥ 85
- **S** low pulse (bradycardia)
- **L** ost vasomotor tone
- **O** ver T6 SCI
- **W** atch the airway (C3–C5)

"The 3 B's"

- **B** radycardia
- **B** elow-normal BP
- **B** one-dry, warm skin

Pattern Recognition

- Trauma patient + SCI above T6 + low BP + low HR = **think neurogenic shock first.**
- "Warm + bradycardic" only happens in neurogenic — everything else is tachycardic.
- Bradycardia in shock = priority for **atropine**, then pressors.
- Methylprednisolone? Always check institution — it's controversial.

9 NCJMM Clinical Judgment Scenario

Patient Scenario

Caleb, 24, brought to the ED after a high-speed MVC. He was the unbelted driver. Cervical collar in place. CT confirms **C5 spinal fracture with cord injury**. Vitals: **BP 78/40, HR 46, RR 24, SpO_2 93% on 4L NC, T 35.6°C**. Skin is **warm, dry, and pink below the nipple line**; arms and face are cool. No movement or sensation below shoulders. Alert but anxious.

STEP 1

Recognize Cues

Relevant cues: C5 SCI, hypotension (78/40), bradycardia (46), warm/dry/flushed skin below injury, poikilothermia (T 35.6°C), borderline SpO_2 on supplemental O_2, anxiety, paralysis below shoulders.

STEP 2

Analyze Cues

Cues fit the classic **neurogenic shock triad** (hypotension + bradycardia + warm/dry skin) caused by sympathetic disruption from high SCI. High cervical injury also threatens diaphragmatic function → respiratory failure risk. Poikilothermia from autonomic dysfunction.

STEP 3

Prioritize Hypotheses

1. **Neurogenic shock** (highest priority — hemodynamic collapse).
2. **Impending respiratory failure** (C5 = phrenic nerve at risk).
3. **Hypothermia** from poikilothermia.
4. **Risk for DVT / pressure injury / autonomic dysreflexia later**.

STEP 4

Generate Solutions

- Maintain cervical immobilization; prepare for possible intubation.
- Cautious IV fluid bolus (NS) — do not overload.
- Start **norepinephrine drip** to target MAP ≥ 85.
- Administer **atropine 0.5 mg IV** for symptomatic bradycardia.
- Warm blankets / forced-air warmer for hypothermia.
- Foley catheter, NG tube, SCDs, neuro checks q1h.

STEP 5

Take Action

- RN places second large-bore IV; initiates 500 mL NS bolus.
- Administers **atropine 0.5 mg IV push** per protocol.
- Starts **norepinephrine** via central line, titrates to MAP ≥ 85.
- Applies warming blanket; monitors core temp q15 min.
- Notifies trauma/neurosurgery; prepares intubation tray at bedside.
- Inserts Foley; documents strict I&O.

STEP 6

Evaluate Outcomes

30 minutes later: BP 108/68 (MAP 81), HR 64, RR 20, SpO_2 97% on 4L NC, T 36.4°C. Skin remains warm/dry below injury but no longer cyanotic above. Patient alert, less anxious. **Outcomes met — continue norepinephrine titration, monitor for autonomic dysreflexia and respiratory fatigue, transfer to neuro ICU.**