

HEMATOLOGY

NGN NCLEX 2026

BLEEDING DISORDERS

Thrombocytopenic Purpura

Immune (ITP) & Thrombotic (TTP) — recognizing low platelet emergencies, prioritizing bleeding precautions, and applying clinical judgment.

📖 Diane's NGN NCLEX 2026 Study Series 🔥 System: Hematologic / Immune ★ High-Yield Topic

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Definition / Overview

What it is & why it matters

- ▶ **Thrombocytopenia** = platelet count $< 150,000/\text{mm}^3$ (normal 150,000–400,000). Spontaneous bleeding risk rises sharply $< 20,000$.
- ▶ **Purpura** = visible purple/red skin discoloration from bleeding under the skin (petechiae, ecchymoses).
- ▶ The two NCLEX-tested forms behave very differently — **treatment for one can kill the other**, so always identify the type first.

● ITP — Immune Thrombocytopenic Purpura

- ▶ **Autoimmune** — antibodies destroy platelets in the spleen.
- ▶ Often follows a **viral infection** (peds) or is chronic (adults, esp. women 20–40).
- ▶ Bleeding is the main risk — clotting is *impaired*.

● TTP — Thrombotic Thrombocytopenic Purpura

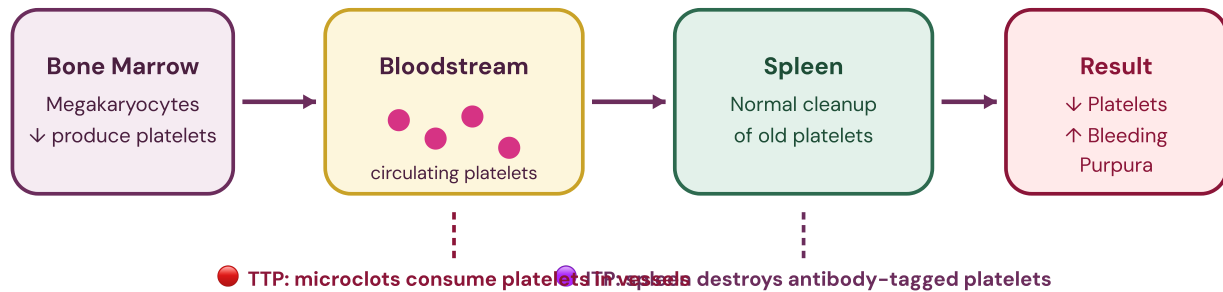
- ▶ **ADAMTS13 enzyme deficiency** → microthrombi form throughout small vessels.
- ▶ Platelets are *consumed* by widespread clotting → low count + organ ischemia.
- ▶ **Medical emergency** — high mortality without prompt treatment.

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Pathophysiology (Simplified)

The mechanism, step by step

Platelet Pathway: Where Each Disorder Strikes



ITP Cascade

- 1 Trigger** (often viral infection) → body produces autoantibodies (IgG) targeting platelet surface antigens.
- Antibody-coated platelets are recognized as foreign by the **spleen**.
- Spleen destroys platelets faster than marrow can replace them → **platelet count drops**.
- Capillary fragility + insufficient platelets → **petechiae, purpura, mucosal bleeding**.

TTP Cascade

- 1 ADAMTS13 enzyme deficiency** (the enzyme that cleaves von Willebrand factor multimers).
- Ultra-large vWF strands accumulate → platelets aggregate → **microthrombi form in small vessels** (brain, kidneys, heart).
- Platelets are consumed in clots → **thrombocytopenia**; RBCs sheared by fibrin → **microangiopathic hemolytic anemia (MAHA)**.
- Organ ischemia → **fever, neuro changes, AKI**. Untreated mortality > 90%.

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Signs & Symptoms

Early vs. Late — and when to escalate

● Early / Mild (platelets 50–150K)

- ▶ **Petechiae** — pinpoint red/purple spots, often on lower legs
- ▶ **Ecchymoses** — easy bruising from minor bumps
- ▶ Prolonged bleeding from cuts, bleeding gums when brushing
- ▶ Frequent or heavy **nosebleeds** (epistaxis)
- ▶ Fatigue (from chronic low-grade blood loss)

● Late / Severe (platelets < 20K)

- ▶ **Mucosal bleeding** — gums, oral blood blisters, GI bleed
- ▶ **Hematuria**, melena, hematemesis
- ▶ Heavy/prolonged menstrual bleeding (menorrhagia)
- ▶ Headache, vision changes, confusion (intracranial bleed)
- ▶ Hypotension, tachycardia (hypovolemia from blood loss)

🚨 RED FLAGS — Notify HCP / Rapid Response

- 🚨 **Sudden severe headache**, vision change, or altered LOC → *intracranial hemorrhage*
- 🚨 Active GI or vaginal bleeding with hypotension & tachycardia
- 🚨 Platelet count < **20,000** — high spontaneous bleed risk
- 🚨 TTP **pentad**: Fever + Thrombocytopenia + MAHA + Neuro changes + Renal dysfunction
- 🚨 New seizure, focal weakness, or aphasia (TTP brain microclots)

🧠 TTP Pentad — "FAT RN"

- ★ Fever
- ★ Anemia (microangiopathic hemolytic)
- ★ Thrombocytopenia
- ★ Renal dysfunction

★ **Neurologic changes**

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Priority Nursing Interventions

ABCs · Safety · NCLEX prioritization

A

Airway

Assess for oral/airway bleeding, swelling from hematoma, suction **gently** to avoid mucosal trauma.

B

Breathing

Monitor RR, SpO₂, lung sounds — **circulatory overload** with platelet/blood transfusions; watch for crackles.

C

Circulation

Vital signs q4h (more often if bleeding); HR ↑ & BP ↓ = early shock. Track **platelet count, H&H**.

Bleeding Precautions (CORE)

- ▶ **Soft-bristle toothbrush** only; no flossing if platelets < 50K
- ▶ **Electric razor** — no straight razors
- ▶ **No IM injections**; minimize venipuncture, hold pressure ≥ **5–10 min** after blood draws
- ▶ **No aspirin, NSAIDs**, ginkgo, or other antiplatelet/anticoagulant agents
- ▶ Avoid rectal temps, suppositories, enemas; **stool softeners** to prevent straining
- ▶ Pad side rails; remove fall hazards; **fall precautions**
- ▶ Blow nose **gently**; humidify air to prevent dry-mucosa bleeding
- ▶ Inspect skin q shift for new petechiae, bruising; check stool/urine for occult blood

ITP-Specific

- ▶ Anticipate **corticosteroids** (prednisone) as first-line therapy
- ▶ **IVIG** for rapid platelet rise before procedures or active bleed
- ▶ **Platelet transfusion** appropriate for active bleeding or pre-op (when needed)
- ▶ Educate on **splenectomy** as definitive treatment for chronic refractory cases

TTP-Specific (EMERGENCY)

- ▶ **Plasmapheresis (plasma exchange) is the priority treatment** — start ASAP
- ▶ Administer **fresh frozen plasma (FFP)** if plasmapheresis is delayed
- ▶ Corticosteroids and **rituximab** per HCP order
- ▶  **DO NOT give platelet transfusions in TTP** unless life-threatening hemorrhage — they fuel more microclots ("fuel on the fire")

- ▶ Continuous **neuro checks**, strict I&O, daily weight, renal function monitoring

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Pharmacology

Key drugs & nursing considerations

Drug / Class	Mechanism	Side Effects	Nursing Considerations
Prednisone <i>Corticosteroid</i>	Suppresses immune destruction of platelets (ITP first-line)	Hyperglycemia, ↑ infection risk, GI ulcer, mood changes, weight gain, osteoporosis	Give with food ; monitor glucose; never stop abruptly — taper. Watch for infection signs.
IVIG <i>Immune Globulin IV</i>	Saturates Fc receptors → blocks splenic destruction → rapid ↑ platelets	Headache, fever, chills, anaphylaxis, renal injury, thrombosis	Pre-medicate (acetaminophen, diphenhydramine); infuse slowly ; vital signs frequently; ensure hydration.
Romiplostim, Eltrombopag <i>TPO receptor agonists</i>	Stimulate marrow to make more platelets (chronic ITP)	Headache, ↑ liver enzymes, thromboembolism, marrow fibrosis (long-term)	Monitor CBC weekly until stable; LFTs for eltrombopag; assess for clot signs.
Rituximab <i>Monoclonal antibody (anti-CD20)</i>	Depletes B-cells → ↓ autoantibody production (refractory ITP, TTP)	Infusion reaction, hypotension, fever, ↑ infection risk, reactivation of hepatitis B	Pre-medicate; monitor during infusion; screen for hep B before starting.
Caplacizumab <i>Anti-vWF antibody</i>	Blocks platelet-vWF binding → halts microthrombi (TTP)	Bleeding (epistaxis, gingival), headache, urticaria	Used WITH plasmapheresis; monitor for bleeding; teach patient to report bleeding promptly.
Platelets <i>Transfusion</i>	Replaces platelets directly (ITP only when actively bleeding)	Febrile reaction, allergic reaction, TRALI, infection	Avoid in TTP (worsens microthrombi); use 0.9% NS , two-RN check, vitals q15 min × 1 hr.

Drug / Class	Mechanism	Side Effects	Nursing Considerations
FFP <i>Fresh Frozen Plasma</i>	Replaces ADAMTS13 enzyme (TTP bridge if plasmapheresis delayed)	Volume overload, allergic reaction, citrate toxicity	Monitor for fluid overload (crackles, JVD); use filter tubing; warm if rapid infusion.

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NCLEX Test Traps

Common mistakes & the right answer

~~✗ Give platelets to all thrombocytopenia patients~~

✓ NEVER give platelets in TTP — they feed microthrombi. Plasma exchange is priority.

~~✗ Use a hard toothbrush; floss as usual~~

✓ Soft-bristle brush only; no flossing if platelets < 50K.

~~✗ IM injections are fine for routine meds~~

✓ Avoid IM injections — risk of hematoma. Use PO, IV, or SQ instead.

~~✗ Treat fever with aspirin~~

✓ Aspirin & NSAIDs are contraindicated — give acetaminophen.

~~✗ Take rectal temp for accuracy~~

✓ Use oral, tympanic, or temporal — rectal causes mucosal bleeding.

~~✗ Stop steroids when patient feels better~~

✓ Steroids must be tapered — abrupt stop = adrenal crisis.

~~✗ Confuse petechiae with rash~~

✓ Petechiae do not blanch with pressure (rashes do).

~~✗ Hold pressure on blood draw site for 30 sec~~

✓ Hold pressure at least 5–10 minutes after any venipuncture.

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Patient & Family Education

Self-management and when to call

Daily Safety

- ▶ Soft toothbrush; **electric razor** only
- ▶ Wear shoes/slippers indoors; avoid contact sports
- ▶ Pad sharp furniture corners at home
- ▶ Use a humidifier to prevent dry-nose bleeds
- ▶ Take stool softeners; avoid straining

Medication Teaching

- ▶ **No aspirin, ibuprofen, naproxen**, herbal blood thinners (ginkgo, garlic supplements)
- ▶ Read OTC labels — many cold meds contain NSAIDs
- ▶ Take steroids **with food**; never stop suddenly
- ▶ Carry medication list & medical alert ID

Lifestyle

- ▶ Balanced diet rich in **iron, folate, B12**
- ▶ Stay hydrated; limit alcohol
- ▶ Get vaccinated (esp. **before splenectomy**: pneumococcal, meningococcal, Hib)
- ▶ Hand hygiene — steroids ↑ infection risk

When to Call HCP

- ▶ Sudden **severe headache**, vision change, confusion
- ▶ Bleeding that won't stop after 10 minutes of pressure
- ▶ Black/tarry stools, blood in urine, vomiting blood
- ▶ New petechiae spreading rapidly
- ▶ Fever > 100.4 °F (especially on steroids or after splenectomy)

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Memory Boosters & Mnemonics

Quick recall for exam day

Bleeding Precautions — "SOFT BLEED"

- ★ **S** — Soft toothbrush
- ★ **O** — Only electric razors
- ★ **F** — Fall precautions
- ★ **T** — Temperature: NO rectal
- ★ **B** — Brush gently, blow nose gently
- ★ **L** — Limit needle sticks (no IM)
- ★ **E** — Eliminate aspirin/NSAIDs
- ★ **E** — Easy on bowels (stool softeners)
- ★ **D** — Daily skin/stool/urine inspection

TTP Pentad — "FAT RN"

- ★ **F**ever | **A**nemia (MAHA) | **T**hrombocytopenia | **R**enal dysfunction | **N**eurologic changes
- ★ If you see all five — call rapid response. Plasma exchange is priority.

Pattern Recognition

- ★ **"P" for Purpura, Petechiae, Platelet** — all start with P, all are low-platelet clues
- ★ **ITP = Immune (antibodies) → give immune-suppressing drugs** (steroids, IVIG, rituximab)
- ★ **TTP = Thrombi (clots) → REMOVE the bad plasma** (plasmapheresis)
- ★ **"Don't add Platelets to a TTP party"** — they make the clotting worse
- ★ Platelet count **< 20K = spontaneous bleed risk** (the magic number)
- ★ Petechiae **do not blanch** — that's how you tell from a rash

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Numbers to Know

- ★ Normal platelets: **150,000 – 400,000**
- ★ Thrombocytopenia: **< 150,000**
- ★ Spontaneous bleed risk: **< 20,000**
- ★ Hold pressure post-stick: **5–10 minutes**
- ★ 1 unit platelets raises count $\approx$ **5,000–10,000**

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NCJMM Clinical Judgment Scenario

Apply the 6-step Clinical Judgment Measurement Model

Case

A 34-year-old woman presents to the ED with a 2-day history of **fever (101.8 °F)**, confusion, and a new petechial rash on her lower legs. Her family reports she became "more sleepy and confused" this morning. Vital signs: BP 96/58, HR 118, RR 22, SpO₂ 95%, T 101.8 °F. Labs: **platelets 18,000**, Hgb 7.4, creatinine 2.6, LDH 850 (high), schistocytes on peripheral smear. The HCP is on the way.

1 Recognize Cues

Fever + confusion + petechiae + thrombocytopenia + anemia + ↑ creatinine + schistocytes = full **TTP pentad**. Hypotension & tachycardia indicate hemodynamic instability.

2 Analyze Cues

Pattern fits **TTP**, not ITP. ADAMTS13 deficiency → microthrombi → consumed platelets, sheared RBCs (schistocytes), kidney/brain ischemia. **Time-critical emergency**.

3 Prioritize Hypotheses

#1 TTP with neurologic involvement (highest mortality). Differential: ITP, DIC, sepsis, HUS — but the schistocytes + neuro + renal pattern strongly points to TTP.

4 Generate Solutions

Prepare for **plasmapheresis (priority)**; large-bore IV / central access; FFP if exchange delayed; **HOLD platelet transfusion**; corticosteroids per order; neuro checks q1h; strict I&O; fall & bleeding precautions.

5 Take Actions

Stabilize ABCs. Notify HCP & rapid response. Initiate **bleeding precautions**, continuous monitoring, place 2 large-bore IVs with NS. Coordinate with hematology & dialysis/apheresis team. Document neuro baseline.

6 Evaluate Outcomes

Goals: rising platelets, falling LDH, improving LOC, stable BP/HR, no new bleeding, urine output ≥ 30 mL/hr. Re-evaluate q1–4 h; escalate if no improvement after first plasma exchange.

Critical Decision Point

-  Even with platelets at 18,000, **do NOT push platelet transfusion in suspected TTP** unless life-threatening hemorrhage. Plasmapheresis comes first.
-  Time-to-plasma-exchange < 4–8 hours of suspicion is associated with the best survival.

 **Diane's NGN NCLEX 2026 Study Series** · Hematology Module · Thrombocytopenic Purpura

Crafted with ❤️ for clinical judgment mastery · *Content drawn from standard NGN NCLEX 2026 references (this topic was not in the uploaded notes)*