albumin (human) (al-byoo-min)
Albumin, Albamin, normal human serum albumin, Plasbumin

Classification
Therapeutic: volume expanders
Pharmacologic: blood products, colloids

Pregnancy Category C

Indications
Expansion of plasma volume and maintenance of cardiac output in situations associated with fluid volume deficit, including shock, hemorrhage, and burns. Temporary replacement of albumin in diseases associated with low levels of plasma protein, such as nephrotic syndrome or end-stage liver disease, resulting in relief or reduction of associated edema.

Action
Provides colloidal oncotic pressure, which serves to mobilize fluid from extravascular spaces back into the intravascular space. Requires concurrent administration of appropriate crystalloid.

Therapeutic Effects:
Increase in intravascular fluid volume.

Pharmacokinetics
Absorption:
Following IV administration, absorption is essentially complete.

Distribution:
Confined to the intravascular space, unless capillary permeability is increased.

Metabolism and Excretion:
Probably degraded by the liver.

Half-life:
2–3 wk.

TIME/ACTION PROFILE (oncotic effect)

ROUTE ONSET PEAK DURATION
IV 15–30 min unknown 24 hr

Contraindications/Precautions
Contraindicated in:
Allergic reactions to albumin, Severe anemia, HF, Normal or increased intravascular volume.

Use Cautiously in:
Severe hepatic or renal disease, Dehydration (additional fluids may be required), Patients requiring sodium restriction, Preterm neonates (infuse slowly due to increased risk of intravascular hemolysis).

Adverse Reactions/Side Effects
CNS: headache.

Interactions
Drug-Drug: None significant.

Route/Dosage
Dose is highly individualized and depends on condition being treated.

Hypovolemic shock—5% Albumin
IV (Adults): 25 g (500 mL), may be repeated within 10 min.
IV (Children): 0.5–1 g/kg/dose (10–20 mL/kg/dose) may repeat as needed (maximum 6 g/kg/day).
IV (Infants and Neonates): 0.25–1.5 g/kg/dose (5–10 mL/kg/dose).

Hypoproteinemia—25% Albumin
IV (Adults): 50–75 g.
IV (Children, Infants, and Neonates): 0.5–1 g/kg/dose, may repeat every 1–2 days, doses up to 1.5 g/kg/day have been added to hyperalimentation solutions and given over 24 hr.

Nephrotic Syndrome—25% Albumin
IV (Adults): 12.5–50 g/day in 3–4 divided doses.
IV (Children and Infants): 0.25–1 g/kg/day, intra.

NURSING IMPLICATIONS
Assessment
Monitor vital signs, IV, and intake and output before and frequently throughout therapy. Note: tachycardia, or hypertension occurs, stop infusions and notify physician immediately. Furosemide may be required to suppress this hyperosmolar response. Hypotension may also result from infusing too rapidly. May be given without regard to patient’s blood type. Use ﬁlter or tubing with 0.2-μm pore size for all IV preparations. IV push or IM injection: Do not use. Use only for IV administration.

Inhalation
Not recommended for inhalation therapy.

Patient/Family Teaching
Instruct patient to remain supine or in a sitting position when receiving albumin; avoid standing or lying flat. Advise patient to notify health care professional immediately if rash or pruritus occurs. Advise patient to report fever, rash, or chills immediately. Advise patient to notify health care professional of all Rx or OTCs taken including vitamins, before administering any Rx or OTCs during therapy. Advise patient to notify health care professional of medication regimen when making any new medication acquisition. Instruct patient on correct technique and administration site when self-administering injection. Inform patient that a reaction to antihistamines may be necessary if allergic reaction to albumin occurs. Advise patient to keep all follow-up appointments as recommended by health care professional.

Pharmacological Class: Blood products, colloids
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Assess for signs of vascular overload (elevated CVP, rales/crackles, dyspnea, hypertension, jugular venous distention) during and after administration.

**Surgical Patients:** Assess for increased bleeding after administration caused by increased BP and circulating blood volume. Albumin does not contain clotting factors.

**Lab Test Considerations:** Serum albumin levels should increase with albumin therapy.

**Hemorrhage:** Monitor hemoglobin and hematocrit levels. These values may fall because of hemodilution.

**Potential Nursing Diagnoses**
- Decreased cardiac output (Indications)
- Deficient fluid volume (Indications)
- Excess fluid volume (Side Effects)

**Implementation**
- Follow manufacturer’s recommendations for administration. Administer through a large-gauge (at least 20-gauge) needle or catheter. Record lot number in patient record.
- Solution should be clear amber; 25% albumin solution is equal to 5 times the osmotic value of plasma. Do not administer solutions that are discolored or contain particulate matter. Each L of both 5% and 25% albumin contains 130–160 mEq of sodium and is no longer labeled "salt-poor" albumin.
- Administration of large quantities of normal serum albumin may need to be supplemented with whole blood to prevent anemia. If more than 1000 mL of 5% normal serum albumin is given or if hemorrhage has occurred, the administration of whole blood or packed RBCs may be needed. Hydration status should be monitored and maintained with additional fluids.

**IV Administration**
- **pH:** 6.4–7.4.
- **Infusion Site:** Diltiazem, lorazepam.
- **Y-Site Incompatibility:** Fat emulsion, midazolam, vancomycin, verapamil.
- **Solution Compatibility:** 0.9% NaCl, D5W, D5/0.9% NaCl, D5/0.45% NaCl, sodium lactate 1/6M, D5/LR, and LR.

**Patient/Family Teaching**
- Explain the purpose of this solution to the patient.
- Instruct patient to report signs and symptoms of hypersensitivity reaction.

**Evaluation/Desired Outcomes**
- Increase in BP and blood volume when used to treat shock and burns.
- Increased urinary output reflects mobilization of fluid from extravascular tissues.
- Elevated serum plasma protein in patients with hypoproteinemia.

**Why was this drug prescribed for your patient?**