



21. LACTATED RINGER'S

a) Pharmacology

- (1) Isotonic crystalloid solution
- (2) Lactated Ringer's (LR) contains:

(a) Sodium (Na ⁺)	130 mEq/liter
(b) Potassium (K ⁺)	4 mEq/liter
(c) Calcium (Ca ⁺⁺)	3 mEq/liter
(d) Chloride (Cl ⁻)	109 mEq/liter
(e) Lactate	28 mEq/liter

b) Pharmacokinetics

Lactated Ringer's is a water and electrolyte replacement.

c) Indications

- (1) Hypovolemia
- (2) Keep vein open
- (3) Fluid boluses

d) Contraindications

Fluid overload states



e) Adverse Effects

Rare in therapeutic doses

f) Precautions

- (1) Patients receiving Lactated Ringer's should be monitored to prevent circulatory overload.
- (2) Lactated Ringer's should be used with caution in patients with congestive heart failure or renal failure.

g) Dosage

- (1)  Maximum dose 2,000 mL without medical consultation
- (2) Adult:
 - (a) KVO
 - (b) Initiate IV LR fluid therapy (20 mL/kg bolus).
 - (c) Titrate to a systolic pressure of 100 mmHg.
- (3) Pediatric:
 - (a) KVO
 - (b) If age-related vital signs and patient's condition indicate hypoperfusion, administer initial fluid bolus of 20 mL/kg LR IV/IO. Fluid boluses for neonates and volume-sensitive children are 10 mL/kg.
 - (c) If patient's condition does not improve, administer the second fluid bolus of 20 mL/kg LR IV/IO.
 - (d)  Third and subsequent fluid boluses at 20 mL/kg LR IV/IO