Vol 04, Issue 02, 13 July 2026

The Bulletin from the Clinical Pharmacist

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Levonadifloxacin

Drug Class: Novel Benzoquinolizine Fluoroquinolone antibiotic

Available as:

Levonadifloxacin – Intravenous

Alalevonadifloxacin – Oral prodrug

Mechanism of Action

- Inhibits bacterial DNA gyrase (primary target), resulting in inhibition of DNA replication and bacterial cell death.
- Unlike conventional fluoroquinolones, it preferentially targets DNA gyrase rather than topoisomerase IV, providing potent activity against MRSA and quinolone-resistant Staphylococcus aureus.
- Retains activity in acidic environments, intracellular infections, and biofilms.

Indications

- Acute Bacterial Skin and Skin Structure Infections (ABSSSI)
- Diabetic Foot Infections
- Community-Acquired Bacterial Pneumonia (CAP)
- Hospital-acquired respiratory infections

Spectrum of activity

Active Against

Gram-positive: MRSA, MSSA, hVISA, VRSA, Streptococcus pneumoniae, Streptococcus pyogenes.

Gram-negative: E. coli, Klebsiella pneumoniae, Haemophilus influenzae, Pseudomonas aeruginosa, Acinetobacter baumannii.

Atypical pathogens: Mycoplasma, Chlamydophila, Legionella, Ureaplasma.

Anaerobes: Clostridium spp., Bacteroides fragilis, Prevotella, Porphyromonas.

Recommended Dose

IV Levonadifloxacin- 800 mg IV every 12 hours

Oral Alalevonadifloxacin- 1000 mg orally every 12 hours

Dose Adjustment

Renal impairment: Pharmacokinetic studies in renal impaired patients have not been conducted.

Hepatic impairment: No dose adjustment required, including Child-Pugh A, B and C patients.

Contraindications

- Hypersensitivity to levonadifloxacin, alalevonadifloxacin, or other quinolone antibiotics.
- Avoid in patients with previous serious fluoroquinolone-associated adverse reactions

Special Population

Pregnancy: Use only if clearly needed; avoid routine use due to limited human safety data.

Breastfeeding: Use with caution; consider temporary interruption of breastfeeding if clinically indicated due to insufficient human data.