



University of Iowa Hospitals and Clinics
Department of Pharmaceutical Care

Rx Update

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TIGECYCLINE

Tigecycline, a bacteriostatic glycylcycline antibiotic, is a tetracycline derivative with a broad spectrum of activity that includes methicillin-resistant *Staphylococcus aureus*. It is FDA-approved in adults for complicated skin and skin structure infections and complicated intra-abdominal infections caused by susceptible microorganisms. **Tigecycline has NO activity against *Pseudomonas aeruginosa* or *Proteus* and should not be used empirically or as directed therapy for suspected or documented nosocomial infections.** Life-threatening infections should be treated with bactericidal drugs (penicillins, aminoglycosides, vancomycin, etc.). In general, bacteriostatic antimicrobials are not synergistic with bactericidal agents; in fact, tigecycline may be less effective when combined with a bactericidal agent such as penicillin.

Tigecycline should be used with caution in patients allergic to tetracyclines. It should not be used in pregnant (Pregnancy Category D) or breastfeeding women. As a tetracycline derivative, the use of tigecycline during tooth development (last half of pregnancy through 8 years of age) may cause permanent tooth discoloration. It has not been studied in patients less than 18 years old and is not indicated for pediatrics unless the benefits clearly outweigh the risks.

Tigecycline has a high incidence of nausea (30%) and vomiting (20%). The incidence can be lessened by eating prior to tigecycline administration. Antiemetics (e.g., metoclopramide, prochlorperazine, ondansetron) may also be given prior to tigecycline if the patient is NPO or has nausea/vomiting despite eating. Other adverse events reported with tigecycline therapy include diarrhea, infection, fever, local reactions, and serum transaminase elevations.

Tigecycline is only available in injectable form. The recommended adult dose of tigecycline injection is 100 mg IV followed by 50 mg IV every 12 hours for 5 to 14 days. Patients with severe hepatic dysfunction (Child Pugh C) should receive 100 mg IV followed by 25 mg IV every 12 hours. The dose should be diluted in 100 ml of NS or D₅W and administered over 30 to 60 minutes through a dedicated IV line. The line should be flushed before and after tigecycline therapy if the line is also used to administer other medications.

Tigecycline is available as a protocol drug at UIHC with its prescribing restricted to approval by the Infectious Diseases Service.

APPROPRIATE USE OF INJECTABLE LEVOTHYROXINE

Oral levothyroxine is commonly used to treat hypothyroidism. Levothyroxine sodium for injection is indicated for situations where a rapid onset of effect is desired (myxedema coma or crisis) or in patients in whom the oral route is precluded for long periods of time. Frequently, orders are written to administer levothyroxine intravenously in patients who cannot ingest substances by the enteral route (or are NPO) for a short period of time. **However, because levothyroxine has a half-life of approximately 7 days, it is usually unnecessary to change an oral dose to intravenous unless the patient has been NPO for more than one week.** If the intravenous form is used, the dose should be 50% that of the patient's previous oral maintenance dose because of the decreased bioavailability of the oral formulation. Judicious use of intravenous levothyroxine is indicated because of potential cardiovascular risks. Patients with cardiovascular diseases should be monitored closely. Generally, the effect of intravenous levothyroxine is not seen before six to eight hours after administration. Intravenous levothyroxine should be reserved for use in myxedema coma or crisis where a rapid onset of effect is desired. It may also be used in patients unable to take the oral form (either by mouth or through a gastrointestinal tube) for more than 7 days.