Antibiotic Myths for the Infectious Diseases

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Myth: No dose adjustment is needed for linezolid in patients with renal insufficiency

- Linezolid is administered as 600mg IV or orally (PO) twice daily (10mg/kg/dose q8h in pediatrics), with no dose adjustment for renal dysfunction recommended in the package insert
- experiences of patients receiving short-course linezolid, incidence of thrombocytopenia was low (less than 3%)
- Interestingly, it was found that an increased linezolid exposure (defined by total AUC or trough concentrations) was associated with thrombocytopenia among patients with renal dysfunction.
- It is suggest empirical linezolid dose reduction to 300mg IV or PO every 12 hours (50% of therapeutic dose)provides the best balance of safety and efficacy among patients with eGFR < 60mL/min

Myth: Linezolid must be avoided in patients receiving selective serotonin reuptake inhibitors

- Its reversible, nonselective inhibition of monoamine oxidase, an enzyme responsible for breaking down serotonin in CNS has led to cautious use in patients receiving serotonergic agents to avoid serotonin syndrome
- FDA recommends an impractical 14-day (5-weeks for fluoxetine) washout period in patients receiving these agents .
- SS is exceedingly rare (the incidences were 3/2208 (0.14%)) even when linezolid is combined with serotonergic agents , Patients receiving serotonergic agents should be monitored closely while receiving linezolid, but it is not necessary to avoid concomitant administration of linezolid when required
- linezolid plus citalopram, escitalopram, and methadone may be more likely to cause SS than other drug combinations

Myth: Clindamycin is a first-line drug for prevention of surgical site infections in patients with reported penicillin allergies

- it does not share any chemical structure with betalactam antibiotics, making clindamycin the historically preferred choice for SSI prophylaxis in patients with reported penicillin allergies
- Cefazolin, is traditionally avoided in patients with reported penicillin allergies since historical

For these reasons, the Joint Task Force on Practice Parameters (formed by two leading allergy and immunology groups in 2022) updated its guidance to suggest structurally dissimilar cephalosporins (e.g., cefazolin or ceftriaxone) as first-line antibiotic agents of choice for surgical prophylaxis in patients with a history of anaphylaxis to penicillin.[36] The need for clindamycin in surgical prophylaxis is now extremely limited.

- there were fewer SSIs (0.7% vs.3.5%, p < .001) including prosthetic joints infections amongst cefazolin-treated patients

MYTH: Doxycycline is contraindicated in pregnancy and pediatric patients less than 8 years old

- **Tetracycline is associated with maternal hepatotoxicity, inhibition of bone growth, and tooth discoloration with prolonged exposure in patients under age 8 .**
- **Doxycycline was developed later and contains structural**

The Pregnancy Team at the FDA stated, "while there are no controlled studies of doxycycline use in pregnant women to show safety, an expert review of published data on experiences with doxycycline use during pregnancy by the Teratogen Information System concluded therapeutic doses during pregnancy are unlikely to pose a substantial teratogenic risk…but the data are insufficient to state that there is no risk

group

- **The American Academy of Pediatrics states that short-course doxycycline (≤21 days) is acceptable since it has been shown to pose minimal risk of dental staining**

MYTH: Oseltamivir dose or duration should be doubled in severe flu

Infect Dis Ther (2019) 8:613–626
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ORIGINAL RESEARCH

Safety, Resistance, and Efficacy Results from a Phase IIIb Study of Conventional- and Double-Dose Oseltamivir Regimens for Treatment of Influenza in Immunocompromised Patients

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Body Weight	Dose (mg)	Volume per Dose	Treatment Dose *(5 days)*
Patients from 2 weeks to less than 1 year of age			
Consult manufacturer/CDC/IDSA recommendations			
Patients older than 1 year based on body weight			
≤ 33 lbs (15 kg)	30 mg	5 mL	5 mL two times daily
34 – 51 lbs (16 – 23 kg)	45 mg	7.5 mL	7.5 mL two times daily
52 – 88 lbs (24 – 40 kg)	60 mg	10 mL	10 mL two times daily
≥ 89 lbs (41 kg)	75 mg	12.5 mL	12.5 mL two times daily

Oseltamivir Dose	Total Volume
15 mg or less	37.5 mL
30 mg	75 mL
45 mg	100 mL
60 mg	125 mL
75 mg	150 mL

Storage Requirements

(Based on studies using approved vehicles and glass or PET bottles)

Refrigeration: stable for 5 weeks (35 days) when stored in a refrigerator at 2° to 8°C (36° to 46°F).

Room Temperature: stable for five (5) days when stored at room temperature, 25°C (77°F).

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Required volume of vehicle	34.5 mL	69 mL	91 mL	115 mL	137 mL
Final Concentration	6 mg/mL				

**For patients requiring a dose less than 75 mg: If an oral suspension cannot be compounded, a temporary emergency measure may be considered. During the initial investigational studies of oseltamivir, the drug was administered dissolved in orange juice.[2] A 75 mg capsule can be opened and mixed in 75 mL (5 tablespoons) of orange juice to make a 1 mg/mL solution. Stir to dissolve. Use an oral syringe to draw up the appropriate dose. For example, 30 mg = 30 mL. Discard any remaining solution immediately. It cannot be stored for later use.

Myth :Antibiotic Durations of 7, 14, 21 Days are Typically Necessary

Condition	Study	Cohort	Duration	Result	Reference
CAP	Meta-analysis of 4 RCTs	Pediatrics	3-5 days vs. 7-10 days	Equally effective	[21]
CAP	Meta-analysis of 21 CTs	Adults	≤ 6 days vs. ≥ 7 days	Equally effective, lower mortality with short-term	[22]
VAP	Meta-analysis of 5 RCTs	Adults	≤ 8 days vs. ≥ 10-15 days	Equally effective	[23]
AECOPD	Bayesian meta-analysis of 22 RCTs	Adults	Super-short: 1-3 days; Short: 4-6 days; Standard: 7-9 days; Long: ≥ 10 days	Equally effective, 4-6 days might be the safest	[24]
GN Bacteraemia (Enterobacterals)	Meta-analysis of IPD involving 3 RCTs	Adults	≤ 7 days vs. > 7 days (7-14)	Equally effective	[25]
Meningitis	Meta-analysis of 6 RCTs	Pediatrics	≤ 7 days vs. 10 days or double the days of equivalent short-term course	Equally effective	[26]

Thanks for your attention