PHARMACY & THERAPEUTICS COMMITTEE

Guidelines for Use

Macrolides

OVERVIEW:

- Formulary macrolides are: erythromycin (ERY), clarithromycin (CLARI), azithromycin (AZI)
- Spectrum is comparable among all three except for lesser *H. influenzae* activity for ERY
- **Organisms that are resistant to one macrolide are typically resistant to the entire class.**

SPECTRUM:

Gram-positive aerobes:

- ***Streptococcus pneumoniae*** -- very good activity against penicillin susceptible strains. Penicillin intermediate and resistant strains are more frequently resistant to macrolides.
- **Streptococci groups A, B, C, F, & G beta hemolytic** -- very good activity (penicillin or ampicillin/amoxicillin remain drugs of choice)
- **Methicillin-susceptible *Staphylococcus aureus*** -- generally good activity (oxacillin, cefazolin, cephalexin, and dicloxacillin have better activity)

Gram-negative aerobes:

Good activity against:

- *H. influenzae (including b-lactamase +)* (CLARI & AZI)
- *M. catarrhalis (including b-lactamase +)*

Atypical organisms:

Very good activity against:

- *Mycoplasma pneumoniae*
- *Chlamydia pneumoniae, C.trachomatis and Legionella pneumophilia*
- Many non TB mycobacteria (CLARI & AZI)

***** Not useful against:***

- Enterococci
- *Listeria monocytogenes*
- Methicillin-resistant *Staphylococcus aureus (*MRSA)
- Methicillin-resistant coagulase (-) staphylococci
- Gram negative bacteria except those mentioned above
- *Mycobacterium tuberculosis*

GENERAL DOSING GUIDELINS:

Adults:	ERY:	250 - 500mg Q6 hours PO or IV
	CLARI:	250 - 500 mg PO BID. No IV available
	AZI PO:	500mg X1 then 250mg qd x 4days (Z-pack)
	IV:	500mg qd
Children:	ERY:	30-50mg/kg/day divided into tid-qid dosing (max =500mg q6h)
	CLARI:	15mg/kg/d divided bid (max=500bid)
	AZI:	otitis & CAP: 10mg/kg on day1, followed by 5mg/kg/d x 4 (max=250mg/d)
		Pharyngitis/tonsilitis: 12mg/kg once daily x 5 (max=500mg/d)

Dosing for Renal impairment:

ERY:	CrCl <10 decrease dose by 50%
CLARI:	CrCl <10 decrease dose by 50%
AZI:	No adjustment for renal dysfunction

RECOMMENDED ADULT DOSING FOR APPROVED USES of CLARI and AZI: **See Special Note * below**

- Lower respiratory tract infections (LRTIs) including those caused by "atypical" organisms:
  CLARI: 500mg BID X 10 days OR
  AZI: 500mg X1 then 250 x 4 days (Z-pack)
- MAC **prophylaxis:** AZI 1200mg Q Week or **Treatment**: CLARI as LRTI above (do not use as monotherapy)
- Sinusitis and bronchitis when antibiotic therapy is appropriate: Treat as LRTI above
- Moderate to severe hospitalized community acquired pneumonia (CAP) in combination with a beta-lactam:
  PO CLARI: 500mg bid or IV AZI: 500mg QD
- Step down po monotherapy for CAP after patient improves on a beta-lactam + a macrolide:
  CLARI 500mg BID to complete 10-14 days of therapy (including the IV portion) is the macrolide of choice for this indication. (May use AZI 500mg PO qd if drug interactions with CLARI are a concern)
- Streptococcal pharyngitis in penicillin allergic patients:
  CLARI 250mg bid or AZI as LRTI above
- Uncomplicated skin and soft tissue infections in patients allergic to penicillins or cephalosporins:
  CLARI 250mg BID or AZI as LRTI above.
- Eradication of *H. pylori* when used in conjunction with other recommended agents: CLARI 500mg BID - TID x 14 days
- Chlamydia trachomatis urethritis or cervicitis: AZI 1gram X 1 dose

Cost comparisons:

	Inpatient po/d	Inpatient IV/d	Outpatient po
ERY:	**$0.49**	**$15.48**	**$8.75 / 10d**
CLARI:	**$6.30**	**N/A**	**$27 / 10d**
AZI:	**$5.18/250mg**	**$19.76/500mg**	**$29.75 / Z-pak**

Drug Interactions:

ERY: inlcude (but not limited to) cisapride, carbamazepine, benzodiazepines, statins, cyclosporine, felodipine, digoxin, theophylline, birth control pills, ergotamines, SSRIs, warfarin

CLARI: Less potent P450 inhibitor than ERY but similar class interactions to ERY.

AZI: Warfarin

***SPECIAL NOTE:** Specific indications must be clearly stated on all prescriptions. In addition, an indication of failure of, or allergy to, first-line therapy is necessary as noted in approved uses.

Guidelines prepared by: Jim Lewis, Pharm.D., Rosa Garcia R.Ph., James Jorgensen, PhD, Gavin Corcoran MD