

Azithromylin (Azalid) / Makrolide

Herstellerangaben: „Infektionen der unteren und oberen Atemwege; Bronchitis, leichte bis mittelschwere ambulant erworbene Pneumonie; Sinusitis, Pharyngitis/Tonsillitis. Akute Otitis media. **Leichte bis mittelschwere Infektionen der Haut und des Weichteilgewebes;** Folliculitis, Zellulitis, Erysipelas. Unkomplizierte, durch Chlamydia trachomatis verursachte Urethritis und Zervicitis“.

Wikipedia: „Weiterhin wird Azithromycin bei akuten Mittelohrentzündungen, Haut- und Wundinfektionen, [Lyme-Borreliose](#), bakterieller Konjunktivitis, bei Urethritis durch [Chlamydien](#) und zur Prophylaxe sogenannter [MAK-Infektion](#) (Mycobacterium-avium-intrazelluläre-Komplex-Infektion) bei immungeschwächten Patienten verwendet“. <http://de.wikipedia.org/wiki/Azithromycin>

Product Information: "infections of the lower and upper respiratory tract; bronchitis, mild to moderate community-acquired pneumonia, sinusitis, pharyngitis / tonsillitis. Acute otitis media. Mild to moderately severe infections of the skin and soft tissue; folliculitis, cellulitis, erysipelas. Uncomplicated urethritis and cervicitis, caused by Chlamydia trachomatis".

Wikipedia: "Furthermore, azithromycin is used in acute middle ear infections, skin and wound infections, Lyme disease, bacterial conjunctivitis, with urethritis due to chlamydia and for the prevention of so-called MAC infection (Mycobacterium avium-intracellular complex infection) in immunocompromised patients."
<http://de.wikipedia.org/wiki/Azithromycin>

Beachte:

Long QT syndrome: http://en.wikipedia.org/wiki/Long_QT_syndrome

QTc-Zeit (BAZETT): <http://www.dr-gawlitza.de/qtc.htm>

Hypokaliämie und Hypomagnesiämie ausschließen bzw. vermeiden!

Keine Kombination von Azithromycin mit Fluconazol oder Chinolonen (z.B. Ciprofloxacin, Levofloxacin) oder Psychopharmaka oder Antikoagulantien oder Sartanen oder mit anderen Makroliden (z.B. Chlorithromycin), oder Chinidin, Procainamid, Klasse 3-Antiarrhythmika wie Defetilid, Amiodaron, Sotalol und Dauerbehandlung mit Saluretika (z.B. Lasix®)!

Keine Verordnung von Azithromycin bei Bradycardie, Hypokaliämie, Hypomagnesiämie, iatrogenen Hyponatriämie (z.B. Behandlung mit Saluretika), bei Neugeborenen und in den beiden ersten Wochen nach der Schwangerschaft (evtl. Pylorusstenose des Neugeborenen), allogener HSZT zur Behandlung hämatologischer Malignome.

No combination of azithromycin with fluconazole or quinolones (eg, ciprofloxacin, levofloxacin) or psychotropic drugs or anticoagulants or Sartanes or with other macrolides (eg Chlorithromycin), or quinidine, procainamide, class 3 antiarrhythmic drugs as defetilid, amiodarone, sotalol, and duration of treatment with diuretics (eg Lasix ®)!

No prescription of azithromycin in bradycardia, hypokalemia, hypomagnesemia, iatrogenic hyponatremia (eg, treatment with diuretics), in newborns and in the first two weeks after termination of pregnancy (possibly pyloric stenosis in the newborn), allogene HSZT for treatment of hematologic malignoms.

Occasional Neurotoxicity

Antimicrobial Class	Most Common Presentation of Neurotoxicity	Risk Factors	Proposed Mechanism	Note to Clinician
Macrolides Most common: clarithromycin, erythromycin	Acute psychosis Delirium Mania	Age Cytochrome P450 3A4 substrates	Interactions with GABA and glutamate Change in cortisol and prostaglandin metabolism Cytochrome P450 drug interactions	Case reports of azithromycin-associated delirium in elderly patients; however, clarithromycin and erythromycin are more common offenders

Lally L, Mannion L (2013) The potential for antimicrobials to adversely affect mental state. *BMJ Case Rep.* 2013;2013.

Mattappalil A, Mergenhagen KA (2014) Neurotoxicity with antimicrobials in the elderly: a review. *Clin Ther.* 36, 1489-1503. [Abstract](#)

Source of literature:

http://www.medscape.com/viewarticle/873864?nlid=111840_3243&src=WNL_mdplsfeat_170110_msc_pedit_imed&uac=165524AR&spon=18&impID=1269865&faf=1

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“**CONCLUSIONS: The results show that azithromycin is a safe and effective alternative in the treatment of inflammatory acne with few side-effects and good compliance....**”

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Bébéar C, Pereyre S, Peuchant O (2011) **Mycoplasma pneumoniae**: susceptibility and resistance to antibiotics. [Journal Article, Review] Future Microbiol 6(4), 423-431. [Abstract](#) [Full Citation](#) [Find Related Articles](#)

Sampaio E, Rocha M, Figueiredo LC, et al. (2011) Clinical and microbiological effects of azithromycin in the treatment of generalized **chronic periodontitis**: a randomized placebo-controlled clinical trial. J Clin Periodontol 38(9), 838-846.

[Albert RK](#), [Connett J](#), [Bailey WC](#), [Casaburi R](#), [Cooper JA Jr](#), [Criner GJ](#), [Curtis JL](#), [Dransfield MT](#), [Han MK](#), [Lazarus SC](#), [Make B](#), [Marchetti N](#), [Martinez FJ](#), [Madinger NE](#), [McEvoy C](#), [Niewoehner DE](#), [Porsasz J](#) et al. [COPD Clinical Research Network](#).

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“CONCLUSIONS: Among selected subjects with COPD, azithromycin taken daily for 1 year, when added to usual treatment, decreased the frequency of exacerbations and improved quality of life but caused hearing decrements in a small percentage of subjects. Although this intervention could change microbial resistance patterns, the effect of this change is not known”.

Renna M, Schaffner C, Brown K, et al. (2012) **Azithromycin blocks autophagy** and may predispose cystic fibrosis patients to mycobacterial infection. J Clin Invest 121(9):3554-3563.

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Ray WA, Murray KT, Hall K, et al. (2012) Azithromycin and the **risk of cardiovascular death.** N Engl J Med 366(20), 1881-90. [Abstract](#)
<http://www.ncbi.nlm.nih.gov/pubmed/22591294>
http://www.medscape.com/viewarticle/763994_print
<http://www.nejm.org/doi/full/10.1056/NEJMoa1003833>

Berghoff W (2012) **Literaturübersicht Azithromycin.** ([Gewebskonzentrationen, Effizienz, Nebenwirkungen bei Langzeitbehandlung](#))
http://www.praxis-berghoff.de/dokumente/Literaturuebersicht_Azithromycin.pdf

Mosholder AD et al. (2013) **Cardiovascular Risks** with Azithromycin and Other Antibacterial Drugs. NEJM 368, 1665-1668
<http://www.nejm.org/doi/full/10.1056/NEJMp1302726>

Credible Meds (2013) Drug **Lists by Risk Groups.** Drugs that Prolong the QT Interval and/or Induce Torsades de Pointes.
<http://www.azcert.org/medical-pros/drug-lists/drug-lists.cfm>

Svanström H, Pasternak B, Hviid A (2013) **Use of Azithromycin and Death from Cardiovascular Causes.** N Engl J Med 368, 1704-1712 DOI: 10.1056/NEJMoa1300799 <http://www.nejm.org/doi/full/10.1056/NEJMoa1300799>
“Conclusions: Azithromycin use was not associated with an increased risk of death from cardiovascular causes in a general population of young and middle-aged adults”.
„Kommentar: Kardiovaskuläre Risiken s.o. und kardiovaskuläre Patienten von der Behandlung mit Azithromycin ausschließen und das Restrisiko gegen den klinischen Nutzen der Behandlung mit Azithromycin gewichten“.

Mantelli F, et al. (2013) Topical azithromycin as a novel treatment for **ocular rosacea.** Ocul Immunol Inflamm. 21(5), 371-7. doi: 10.3109/09273948.2013.801991. Epub 2013 Jul 22. <http://www.ncbi.nlm.nih.gov/m/pubmed/23875944/>
Conclusions: Topical azithromycin may represent an additional treatment for ocular rosacea, with a shorter duration of treatment and absence of gastrointestinal side effects as compared to systemic doxycycline.

(2013) FDA Drug Safety Communication: Azithromycin (Zithromax or Zmax) and the risk of potentially fatal heart rhythms.
<http://www.fda.gov/drugs/drugsafety/ucm341822.htm>

Wynn RL. (2013) Azithromycin associated with a small increased risk of cardiovascular death: a review. Gen Dent. 61(2) 8–9.

Rao G A et al (2014) Azithromycin and Levofloxacin Use and Increased Risk of Cardiac Arrhythmia and Death. Ann Fam Med 12(2), 121-127
<http://dx.doi.org/10.1370/afm.1601> <http://www.annfammed.org/content/12/2/121.full>

Parnham MJ, Haber VE, Giamarellos-Bourboulis EJ et al. (2014) **Azithromycin: Mechanisms of action and their relevance for clinical applications.** Pharmacology & Therapeutics. <http://www.ncbi.nlm.nih.gov/pubmed/24631273>

“Azithromycin is a macrolide antibiotic which inhibits bacterial protein synthesis, quorum-sensing and reduces the formation of biofilm.... Long-term administration of azithromycin must be balanced against the potential for increased bacterial resistance. Azithromycin has a very good record of safety, but recent reports indicate rare cases of cardiac torsades des pointes in patients at risk.”

Mortensen EM, Halm EA, Pugh MJ et al. (2014) Association of Azithromycin With Mortality and Cardiovascular Events Among Older Patients Hospitalized With Pneumonia. [\[+\] Author Affiliations](#) JAMA. 311(21), 2199-2208.

doi:10.1001/jama.2014.4304. <http://jama.jamanetwork.com/Mobile/article.aspx?articleid=1877208>

“Conclusions and Relevance: Among older patients hospitalized with pneumonia, treatment that included azithromycin compared with other antibiotics was associated with a lower risk of 90-day mortality and a smaller increased risk of myocardial infarction. These findings are consistent with a net benefit associated with azithromycin use.”

Berghoff W (2014) **Azithromycin. (Gewebskonzentrationen, Effizienz, Nebenwirkungen bei Langzeitbehandlung).**

<https://www.praxis-berghoff.de/lehrbuch-lb/inhalt/kapitel-23-16/>

Lund M, Pasternak B, Davidsen RB et al. (2014) Use of makrolides in mother and child and risk of infantile hypertrophic stenosis: nation-wide cohort study. BMJ. 348, g1908. <http://www.bmj.com/content/348/bmj.g1908>

Bergeron A et al. (2017) Effect of Azithromycin on Airflow Decline-Free Survival After Allogeneic Hematopoietic Stem Cell Transplant: The ALLOZITHRO Randomized Clinical Trial. JAMA. 318(6), 557-566.

„Die Autoren stellten fest, dass die Aussagekraft der Ergebnisse durch die frühzeitige Beendigung der Studie und andere Faktoren eingeschränkt sei. Sie folgerten, dass eine potenzielle Gesundheitsschädigung durch Rezidive weiter untersucht werden müsse“.

Carbomycin

Kirk JE, Effersøe H (1953) The Effect of Washing with Soap and with a Detergent on the 4-Hour Sebaceous Secretion in the Forehead¹². The British Medical Journal 2 (4851), 1421–22. doi:10.1038/jid.1954.34

Robinson HM, Cohen MM (1954) [Magnamycin in the Treatment of Granuloma Inguinale](#). Journal of Investigative Dermatology 22 (4), 263–4. doi:10.1038/jid.1954.36. PMID 13152395.

BUCKINGER RH, HOOKINGS CE, GARSON WA (1955) preliminary report on the effect of carbomycin in early syphilis. Antibiotic Med Clin Ther. 1(2),100–103. [\[PubMed\]](#)

Menninger JR, Otto DP (1982) [Erythromycin, carbomycin, and spiramycin inhibit protein synthesis by stimulating the dissociation of peptidyl-tRNA from ribosomes](#). Antimicrobial Agents and Chemotherapy 21 (5), 811–18. doi:10.1128/AAC.21.5.811. PMC 182017.

Feng J, Wang T, Shi W, Zhang S, Sullivan D, Auwaerter PG, Zhang Y (2014) Identification of novel activity against Borrelia burgdorferi persists using an FDA approved drug library. Emerging Microbes and Infections (2014) 3, e49; doi:10.1038/emi.2014.53 _ 2014 SSCC. All rights reserved 2222-1751/14

<http://beforeitsnews.com/health/2014/07/fda-approved-drugs-for-persister-cells-lyme-disease-from-johns-hopkins-2541296.html>

„Daptomycin, clofazimine, **carbomycin** and some cephalosporin antibiotics (such as cefoperazone, cephalothin, cefotiam and cefuroxime) had among the highest activities against stationary-phase *B. burgdorferi* persisters. Doxycycline, amoxicillin, penicillin G, macrolide antibiotics, azithromycin and clarithromycin had relatively poor activity against *B. burgdorferi* persisters. Interestingly, we observed that tetracycline had higher activity against stationary-phase *B. burgdorferi* persisters than doxycycline. Here, we observed that clofazimine was highly active against stationary-phase *B. burgdorferi* persisters (Figure 3F), although the MIC of clofazimine was relatively high (6.25 mg/mL). The preferential activity of clofazimine against *B. burgdorferi* persisters may be due to its high lipophilicity and its effects on the membrane.“

➔ **Carbomycin, as a macrolide, a stronger 50s inhibitor**

“Carbomycin A has made a special feature: it seems as if carbomycin A enters into a so-called covalent bond with the ribosome ... Thus carbomycin A would bind much stronger and much less reversible to the ribosome ...”

<http://riboworld.com/antib/50santib.php> [compared to the other macrolides, such as Acithromycin]

➔ **Antibiotika Übersicht Carbomycin Blatt 21**

http://www.uni-saarland.de/fak8/mediziner/KlinischesSeminar/Thema%203_Antibiotika.pdf

[Bernt - Dieter Huismans](#), Start 2012. Letzte Revision Januar 2017 www.Huismans.click



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