DOXYCYCLINE

Belongs to the tetracycline class of antibiotics, binds to 30S subunit of the bacterial ribosome and prevents binding by tRNA, thus blocks protein synthesis.

ANTIMICROBIAL SPECTRUM

- Gram-positive: some strains of Streptococcus pneumoniae, most strains of methicillin-susceptible and methicillin-resistant staphylococci.
- Gram-negative: Haemophilus influenzae, Neisseria meningitidis, Helicobacter pylori.
- Intracellular bacteria: Brucella spp., Rickettsia spp., Coxiella burnetii, Chlamydiophila spp.
- Mycoplasma spp.
- Spirochetes: Borelia burgdorferi, Treponema pallidum, Leptospira spp.
- Parasites: Plasmodium spp.
- Poor activity against most Gram-negative rods, anaerobes, enterococci.

EXCRETION

- Faeces (30%); urine (23% to 40%).
- Renal function impairment: Renal excretion 5%.

MAIN INDICATIONS

- Respiratory tract infections: community-acquired pneumonia as part of combination therapy.
- Sexually transmitted infections: Lymphogranuloma venereum, uncomplicated urethral, endocervical or rectal infections caused by Chlamydia trachomatis; granuloma inguinale (donovanosis) caused by Klebsiella granulomatis; chancroid caused by Haemophilus ducreyi; Ureaplasma urealyticum urethritis; syphilis when penicillin is contraindicated.
- Trachoma or inclusion conjunctivitis caused by Chlamydia trachomatis.
- Lyme disease.
- Pelvic inflammatory disease.
- Legionnaires’ disease.
- Anthrax, including inhalational anthrax (postexposure).
- Rocky Mountain spotted fever, typhus fever and the typhus group, Q fever etc.
- Zoonotic infections: Treatment of psittacosis caused by Chlamydiophila psittaci; plague due to Yersinia pestis; tularemia caused by Francisella tularensis; brucellosis; plague due to Pasteurella multocida; anthrax; plague due to Francisella tularensis; human granulocytic ehrlichiosis; Rocky Mountain spotted fever, Q fever.
- Prophylaxis for malaria due to Plasmodium falciparum in short-term travellers (<4 months).

ADULT DOSE

200 mg per day PO in one or two doses for most indications.

Food interaction

- Doxycycline serum levels may be slightly decreased if taken with high-fat meals or milk.
- Administration with iron or calcium may decrease doxycycline absorption.
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SIDE EFFECTS

- Esophagitis and oesophageal ulceration: sudden onset of chest pain, dysphagia, odyophagia and/or retrosternal pain requires assessment. It may occur any time during treatment especially in presence of pre-existing gastro-oesophageal reflux.
- Photosensitivity: skin photosensitivity reactions ranging from mild sunburn-like reactions to photodermatitis, usually develops shortly after sun exposure and is dose-related.
- Prevention: sun avoidance, sun protective clothing and broad-spectrum sunscreen (UVA and UVB).
- Drug Rash with Eosinophilia and Systemic Symptoms (DRESS).

OTHER ADVERSE EFFECTS

- Gastrointestinal, cutaneous:
  - Erythema multiforme, exfoliative dermatitis, maculopapular rash.
- Hepatic:
  - Hepatotoxicity (rare: <1%; cholestatic or mixed hepatitis; may be accompanied by DRESS).

PREGNANCY

FDA Category D

The use of drugs of the tetracycline class during tooth development (second half of pregnancy, infancy and childhood to the age of 8 years) may cause permanent discoloration of the teeth (yellow-grey-brown).

DOXYCYCLINE IN CHILDREN

- Doxycycline is the only tetracycline that can be used in children younger than 8 years if indicated, permitted by the American Academy of Pediatrics for a course < 21 days.

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