impairment have not been fully characterised and therefore recommends that no more than 200 mg in any 24-hour period should be given to these patients.

Motor neurone disease. Minocycline is being investigated as a potential treatment for amyotrophic lateral sclerosis, a form of motor neurone disease (p.2380), on the basis of its neuroprotective properties.

Movement disorders. Minocycline is under investigation[1,2] for the management of Huntington's chorea (p.953).

1. Huntington Study Group. Minocycline safety and tolerability in Huntington disease. *Neurology* 2004; **63:** 547–9.
2. Bonelli RM, *et al.* Neuroprotection in Huntington's disease: a 2-year study on minocycline. *Int Clin Psychopharmacol* 2004; **19:** 337–42.

Musculoskeletal and joint disorders. For reference to the use of minocycline in the treatment of rheumatoid arthritis, see under Tetracycline, p.350.

Skin disorders. For reference to the use of minocycline in the treatment of various skin disorders, see under Tetracycline, p.350.

Preparations

BP 2008: Minocycline Tablets; Prolonged-release Minocycline Capsules; ***USP 31:*** Minocycline for Injection; Minocycline Hydrochloride Capsules; Minocycline Hydrochloride Oral Suspension; Minocycline Hydrochloride Tablets.

Proprietary Preparations (details are given in Part 3)

Arg.: Acneclin; Asolmicina†; Clinax; Meibi; Minocin; Pimple; Seboclear; ***Austral.:*** Akamin; Minomycin; ***Austria:*** Auramin; Klinoc†; Minocin†; Minostad; Minotyrol†; Udima; ***Belg.:*** Klinotab; Mino-50; Minocin; Minotab; ***Braz.:*** Minoderm; Minomax†; ***Canad.:*** Enca; Minocin; ***Chile:*** Bagomicina; Minocin†; Pracne; ***Cz.:*** Skid†; ***Fr.:*** Mestacine; Minolis; Mynocine; Parocline; Yelnac†; Zacnar; ***Ger.:*** Akne-Puren†; Aknefug Mino; Aknin-Mino†; Aknosan; Klinomycin; Lederderm†; Minakne; Mino-Wolff†; Minoclir; Minoplus; Skid; Skinocyclin; Udima; ***Gr.:*** Cycline; Minocin; ***Hong Kong:*** Minaxen; Minocin; ***India:*** CNN†; Cynomycin; ***Indon.:*** Minocin; ***Irl.:*** Minocin; Minox; ***Israel:*** Minocin†; Minoclin; ***Ital.:*** Minocin; ***Jpn:*** Periocline; ***Malaysia:*** Borymycin; Minocin†; Minoclin; ***Mex.:*** Banimed; Micromycin; Minocin; Ranmino; ***Neth.:*** Aknemin; Minocin; Minotab; Peritrol; ***NZ:*** Minomycin; Minotabs; ***Philipp.:*** Minocin; ***Port.:*** Arestin; Cipancin; Minocin; Minotrex; ***S.Afr.:*** Cyclimycin; Minotabs; Triomin; ***Singapore:*** Borymycin; Minocin†; ***Spain:*** Minocin; ***Switz.:*** Aknin-N; Aknoral; Minac 50; Minocin; ***Thai.:*** Minocin†; ***UK:*** Aknemin; Blemix†; Dentomycin; Minocin; Sebomin; Sebren; ***USA:*** Arestin; Cleeravue-M; Dynacin; Minocin; Myrac; Solodyn; ***Venez.:*** Minocin†.

Morinamide *(pINN)*

Morinamida; Morinamidum; Morphazinamide. *N*-Morpholinomethylpyrazine-2-carboxamide.

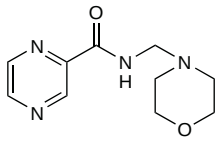
Моринамид

$C_{10}H_{14}N_4O_2$ = 222.2.

CAS — 952-54-5.

ATC — J04AK04.

ATC Vet — QJ04AK04.



Profile

Morinamide is an antimycobacterial that has been given orally as the hydrochloride in the treatment of tuberculosis.

Preparations

Proprietary Preparations (details are given in Part 3)

Turk.: Morfozid.

Moxifloxacin Hydrochloride *(BANM, USAN, rINNM)*

Bay-12-8039; Hidrocloruro de moxifloxacino; Moxifloxacine, chlorhydrate de; Moxifloxacini hydrochloridum. 1-Cyclopropyl-6-fluoro-1,4-dihydro-8-methoxy-7-[(4a*S*,7a*S*)-octahydro-6*H*-pyrrolo[3,4-*b*]pyridin-6-yl]-4-oxo-3-quinolinecarboxylic acid hydrochloride.

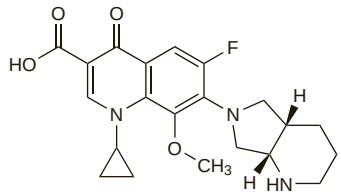
Моксифлоксацина Гидрохлорид

$C_{21}H_{24}FN_3O_4$,HCl = 437.9.

CAS — 151096-09-2 (moxifloxacin); 186826-86-8 (moxifloxacin hydrochloride).

ATC — J01MA14; S01AX22.

ATC Vet — QJ01MA14; QS01AX22.



(moxifloxacin)

Pharmacopoeias. In *Eur.* (see p.vii).

Ph. Eur. 6.2 (Moxifloxacin Hydrochloride). Produced using a method validated to demonstrate the satisfactory enantiomeric purity of the final product. A light yellow or yellow powder or crystals, slightly hygroscopic. Sparingly soluble in water; slightly soluble in alcohol; practically insoluble in acetone. A 0.2% solution in water has a pH of 3.9 to 4.6. Store in airtight containers. Protect from light.

Adverse Effects and Precautions

As for Ciprofloxacin, p.244.

◊ References.

1. Faich GA, *et al.* Clinical experience with moxifloxacin in patients with respiratory tract infections. *Ann Pharmacother* 2004; **38:** 749–54.
2. Ball P, *et al.* Safety profile of oral and intravenous moxifloxacin: cumulative data from clinical trials and postmarketing studies. *Clin Ther* 2004; **26:** 940–50.
3. Andriole VT, *et al.* Retrospective analysis of the safety profile of oral moxifloxacin in elderly patients enrolled in clinical trials. *Drug Safety* 2005; **28:** 443–52.

Interactions

As for Ciprofloxacin, p.246.

Moxifloxacin does not appear to interact significantly with theophylline or probenecid.

Antimicrobial Action

As for Ciprofloxacin, p.246.

Moxifloxacin is reported to have greater activity against Gram-positive bacteria, including pneumococci, than ciprofloxacin.

◊ References.

1. Stein GE, *et al.* Bactericidal activities of methoxyfluoroquinolones gatifloxacin and moxifloxacin against aerobic and anaerobic respiratory pathogens in serum. *Antimicrob Agents Chemother* 2003; **47:** 1308–12.
2. Pletz MWR, *et al.* Early bactericidal activity of moxifloxacin in treatment of pulmonary tuberculosis: a prospective, randomized study. *Antimicrob Agents Chemother* 2004; **48:** 780–2.

Pharmacokinetics

Moxifloxacin is readily absorbed from the gastrointestinal tract after oral doses with an absolute bioavailability of about 90%. It is widely distributed throughout the body tissues and is about 30 to 50% bound to plasma proteins. Moxifloxacin has an elimination half-life of about 12 hours, allowing once-daily dosing. It is metabolised mainly via sulfate and glucuronide conjugation, and is excreted in the urine and the faeces as unchanged drug and as metabolites, the sulfate conjugate primarily in the faeces and the glucuronide exclusively in the urine. Distribution into milk has been found in *animals*.

Uses and Administration

Moxifloxacin is a fluoroquinolone antibacterial with actions and uses similar to those of ciprofloxacin (p.247).

It is given orally, or by intravenous infusion over 60 minutes, for the treatment of susceptible infections including respiratory, skin and skin structure, and intra-abdominal infections. Moxifloxacin is given as the hydrochloride but doses are expressed in terms of the base; moxifloxacin hydrochloride 436.3 mg is equivalent to about 400 mg of moxifloxacin. The usual dose is 400 mg once daily.

Moxifloxacin is also used topically as the hydrochloride in eye drops containing the equivalent of 0.5% of moxifloxacin for the treatment of bacterial conjunctivitis.

◊ Reviews.

1. Keating GM, Scott LJ. Moxifloxacin: a review of its use in the management of bacterial infections. *Drugs* 2004; **64:** 2347–77.
2. Miravitlles M, *et al.* Eficacia clínica del moxifloxacino en el tratamiento de las agudizaciones de la bronquitis crónica: revisión sistemática y metaanálisis. *Arch Bronconeumol* 2007; **43:** 22–8.
3. Miravitlles M. Moxifloxacin in the management of exacerbations of chronic bronchitis and COPD. *Int J Chron Obstruct Pulmon Dis* 2007; **2:** 191–204.
4. O'Brien TP. Evidence-based review of moxifloxacin. *Int Ophthalmol Clin* 2006; **46:** 61–72.

Eye infections. In order to attain therapeutic concentrations most antibacterials used in the treatment of bacterial endophthalmitis need to be given by the intravitreal route but moxifloxacin given systemically may produce adequate concentrations. An oral dose of moxifloxacin 400 mg daily may be given for 10 days.[1]

1. Moorfields Eye Hospital NHS Foundation Trust. *Pharmacists Handbook 2006*. London: Moorfields Pharmaceuticals, 2006.

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Avelox; Octegra†; Vigamox; ***Austral.:*** Avelox; ***Austria:*** Actira; Avelox; Octegra; ***Belg.:*** Avelox; Proflox; ***Braz.:*** Avalox; Vigamox; ***Canad.:*** Avelox; Vigamox; ***Chile:*** Avelox; Flovacil; Octegra†; Vigamox; ***Cz.:*** Avelox; ***Denm.:*** Avelox; ***Fin.:*** Avelox; ***Fr.:*** Izilox; ***Ger.:*** Avalox; ***Gr.:*** Avelox; Octegra; Proflox; ***Hong Kong:*** Avelox; Vigamox; ***Hung.:*** Avelox; Octegra; ***India:*** Moxicip; Moxif; ***Indon.:*** Avelox; ***Irl.:*** Avelox; ***Israel:*** Megaxin; Vigamox; ***Ital.:*** Actira; Avalox; Octegra; ***Jpn:*** Avelox; ***Malaysia:*** Avelox; Vigamox; ***Mex.:*** Avelox; Vigamoxi; ***Neth.:*** Actira†; Avelox; Octegra; ***NZ:*** Avelox; ***Philipp.:*** Avelox; Vigamox; ***Pol.:*** Avelox; ***Port.:*** Avelox; Proflox; ***Rus.:*** Avelox (Авелокс); ***S.Afr.:*** Avelon; ***Singapore:*** Avelox; Vigamox; ***Spain:*** Actira; Octegra; Proflox; ***Swed.:*** Avelox; ***Switz.:*** Avalox; ***Thai.:*** Avelox; Vigamox; ***Turk.:*** Avelox; ***UK:*** Avelox; ***USA:*** Avelox; Vigamox; ***Venez.:*** Avelox; Vigamox.

Mupirocin *(BAN, USAN, rINN)*

BRL-4910A; Mupirocina; Mupirocinas; Mupirocine; Mupirocinum; Mupirosiini; Pseudomonic Acid. 9-[(2*E*)-4-[(2*S*,3*R*,4*R*,5*S*)-5-[(2*S*,3*S*,4*S*,5*S*)-2,3-Epoxy-5-hydroxy-4-methylhexyl]tetrahydro-3,4-dihydroxypyran-2-yl]-3-methylbut-2-enoyloxy]nonanoic acid; (2*S*-{2α(*E*),3β,4β,5α[2*R**,3*R**(1*R**,2*R**)]})-9-{[3-Methyl-1-oxo-4-(tetrahydro-3,4-dihydroxy-5-{[3-(2-hydroxy-1-methyl-propyl)oxiranyl]methyl}-2*H*-pyran-2-yl)-2-butenyl]oxy}nonanoic acid.

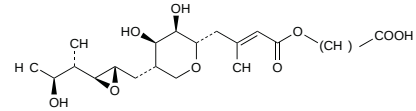
Мупироцин

$C_{26}H_{44}O_9$ = 500.6.

CAS — 12650-69-0.

ATC — D06AX09; R01AX06.

ATC Vet — QD06AX09; QR01AX06.



Pharmacopoeias. In *Eur.* (see p.vii) and *US.*

Ph. Eur. 6.2 (Mupirocin). A white or almost white powder. It shows polymorphism. Slightly soluble in water; freely soluble in dehydrated alcohol, in acetone, and in dichloromethane. The pH of a freshly prepared saturated solution in water is 3.5 to 4.0. Protect from light.

USP 31 (Mupirocin). A white to off-white crystalline solid. Very slightly soluble in water; freely soluble in dehydrated alcohol, in acetone, in chloroform, and in methyl alcohol; slightly soluble in ether. pH of a saturated solution in water is between 3.5 and 4.5. Store in airtight containers.

Mupirocin Calcium *(BANM, USAN, rINNM)*

BRL-4910F; Calcii Mupirocinum; Mupirocin vápenatá sůl dihydrát; Mupirocina cálcica; Mupirocine calcique; Mupirocinkalcium; Mupirocin-kalcium; Mupirocino kalcio druska; Mupirocinum calcicum; Mupirocinum Calcicum Dihydricum; Mupirosiinikalsium.

Кальций Мупироцин

$C_{52}H_{86}O_{18}Ca,2H_2O$ = 1075.3.

CAS — 104486-81-9 (anhydrous mupirocin calcium); 115074-43-6 (mupirocin calcium dihydrate).

ATC — D06AX09; R01AX06.

ATC Vet — QD06AX09; QR01AX06.

Pharmacopoeias. In *Eur.* (see p.vii), *Jpn*, and *US*.

Ph. Eur. 6.2 (Mupirocin Calcium). A white or almost white powder. Very slightly soluble in water; sparingly soluble in dehydrated alcohol and in dichloromethane.

USP 31 (Mupirocin Calcium). Store in airtight containers at a temperature of 25°, excursions permitted between 15° and 30°.

Adverse Effects and Precautions

Mupirocin is usually well tolerated but local reactions such as burning, stinging, and itching may occur after the application of mupirocin to the skin.

Some mupirocin products are formulated in a macrogol base: such formulations are not suitable for application to mucous membranes and should be used with caution in patients with extensive burns or wounds because of the possibility of macrogol toxicity. Care is also required in patients with renal impairment.

Antimicrobial Action

Mupirocin is an antibacterial that inhibits bacterial protein synthesis by binding to isoleucyl transfer RNA synthetase. It is mainly bacteriostatic at low concentrations, although it is usually bactericidal in the high concentrations achieved by topical application to the skin. At these concentrations it may have some activity against organisms reported to be relatively resistant to mupirocin *in vitro*.