furantoin monohydrate, is available in some countries and is given in a dose of 100 mg twice daily. A usual long-term prophylactic dose is 50 to 100 mg at bedtime.

For details of doses in children, see below.

◊ Reviews.

1. Guay DR. An update on the role of nitrofurans in the management of urinary tract infections. *Drugs* 2001; **61:** 353–64.

Administration in children. In the UK, nitrofurantoin may be given to children aged 3 months to 12 years for the *treatment* of urinary-tract infection in a usual oral dose of 3 mg/kg daily given in 4 divided doses; 1 mg/kg may be given at night for long-term *prophylactic* therapy. However, a systematic review[1] concluded, on the basis of the rather low-grade evidence available, that the adverse effects of nitrofurantoin may outweigh its benefits and render it unacceptable for long-term therapy.

Higher oral doses of 5 to 7 mg/kg daily in 4 divided doses are recommended for the *treatment* of urinary-tract infection in the USA in children aged 1 month and above; for long-term *prophylactic* therapy 1 mg/kg daily given in one or two divided doses is considered adequate.

Older children may be given usual adult doses (see above).

1. Williams GJ, *et al.* Long-term antibiotics for preventing recurrent urinary tract infection in children. Available in The Cochrane Database of Systematic Reviews; Issue 3. Chichester: John Wiley; 2006 (accessed 11/01/08).

Preparations

BP 2008: Nitrofurantoin Oral Suspension; Nitrofurantoin Tablets; ***USP 31:*** Nitrofurantoin Capsules; Nitrofurantoin Oral Suspension; Nitrofurantoin Tablets.

Proprietary Preparations (details are given in Part 3)
Arg.: Furadantina; ***Austral.:*** Furadantin; Macrodantin; Ralodantin†; ***Austria:*** Furadantin; ***Belg.:*** Furadantine; ***Braz.:*** Hantina; Macrodantina; Nitrofen; Urogem; ***Canad.:*** Macrobid; Macrodantin†; Novo-Furantoin; ***Chile:*** Macrodantina; Macrosan; Matidan; ***Cz.:*** Furantoin†; Nifurantin†; ***Fin.:*** Nitrofurc; ***Fr.:*** Furadantine; Furadoine; Microdoine; ***Ger.:*** Furadantin; Nifurantin; Nifuretten; Uro-Tablinen; ***Gr.:*** Furolin; ***India:*** Furadantin; ***Irl.:*** Furadantin; Macrobid; Macrodantin; ***Israel:*** Macrodantin†; Uvamin; ***Ital.:*** Furadantin; Furedan; Furil; Macrodantin; Neo-Furadantin; ***Mex.:*** Biofurin; Furadantina; Furitex; Futroken; Macrodantina; Macrofurin; Promac; Suronit; ***Neth.:*** Furabid; Furadantine MC; ***Norw.:*** Furadantin; ***NZ:*** Furadantin; Nifuran; ***Philipp.:*** Macrodantin; ***Pol.:*** Siraliden; ***Port.:*** Furadantina; ***S.Afr.:*** Furadantin; Macrodantin; ***Spain:*** Furantoina; Furobactina; ***Swed.:*** Furadantin; ***Switz.:*** Furadantine; Urodin; Uvamine retard; ***Turk.:*** Piyeloseptyl; ***UK:*** Furadantin; Macrobid; Macrodantin; ***USA:*** Furadantin; Macrobid; Macrodantin; ***Venez.:*** Furadina†; Macrodantina.

Multi-ingredient: ***Arg.:*** Bagociletas con Anestesia; Bagociletas sin Anestesia†; ***Braz.:*** Urofen†; Uropac; ***Ger.:*** Nifurantin B 6; Urospasmon sine†; Urospasmon†; ***India:*** Nephrogesic; ***Mex.:*** Furanton†; ***Turk.:*** Uriseptin.

Nitrofurazone *(BAN)*

Nitrofural *(plNN)*; Furacilinum; Nitrofuraali; Nitrofurál; Nitrofuralis; Nitrofuralum; Nitrofuratsoni; Nitrofurazon; Nitrofurazonum. 5-Nitro-2-furaldehyde semicarbazone.

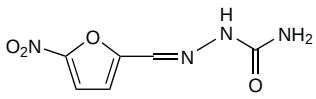
Нитрофурал

$C_6H_6N_4O_4$ = 198.1.

CAS — 59-87-0.

ATC — B05CA03; D08AF01; D09AA03; P01CC02; S01AX04; S02AA02.

ATC Vet — QB05CA03; QD08AF01; QD09AA03; QG01AX90; QP51AC02; QS01AX04; QS02AA02.



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

Ph. Eur. 6.2 (Nitrofural; Nitrofurazone BP 2008). A yellow or brownish-yellow, crystalline powder. Very slightly soluble in water; slightly soluble in alcohol. The filtrate from a 1% suspension in water has a pH of 5.0 to 7.0. Protect from light.

USP 31 (Nitrofurazone). A lemon-yellow, odourless crystalline powder. It darkens slowly on exposure to light. Soluble 1 in 4200 of water, 1 in 590 of alcohol, and 1 in 350 of propylene glycol; practically insoluble in chloroform and in ether; soluble in dimethylformamide; slightly soluble in polyethylene glycol mixtures. The filtrate from a 1% suspension in water has a pH of 5.0 to 7.5. Store in airtight containers at a temperature not exceeding 40°. Protect from light.

Sterilisation. Autoclaving gauze dressings impregnated with nitrofurazone, as recommended by the US manufacturer, resulted in a greater than 10% loss of the drug.[1] Since the spectroscopic assay used may not distinguish between nitrofurazone and some of its degradation products, the degree of degradation may have been greater than this.

1. Phillips C, Fisher E. Effect of autoclaving on stability of nitrofurazone soluble dressing. *Am J Health-Syst Pharm* 1996; **53:** 1169–71.

Adverse Effects

Sensitisation and generalised allergic skin reactions may be produced by topical nitrofurazone.

Nitrofurazone is a toxic drug when given orally and serious adverse effects include severe peripheral neuropathy; haemolysis may occur in patients with G6PD deficiency. Nitrofurazone in high oral doses is carcinogenic in *rats*.

Precautions

Nitrofurazone is contra-indicated in patients with known hypersensitivity. Preparations containing macrogols should be used with caution in patients with renal impairment since macrogols can be absorbed and their accumulation in such patients may result in symptoms of further impairment.

Oral nitrofurazone should be used with caution in patients with G6PD deficiency because of the risk of haemolysis.

Antimicrobial Action

Nitrofurazone is a nitrofuran derivative with a broad spectrum of antibacterial activity, but with little activity against *Pseudomonas* spp. It also has antitrypanosomal activity.

Uses and Administration

Nitrofurazone is a nitrofuran derivative that is used topically for wounds, burns, ulcers, and skin infections, and for the preparation of surfaces before skin grafting. It is usually applied in a concentration of 0.2% in a water-soluble or water-miscible basis. A solution of nitrofurazone is used for bladder irrigation.

Urinary catheters impregnated with nitrofurazone, to reduce bacterial colonisation and infection, are available in some countries.

Preparations

USP 31: Nitrofurazone Ointment; Nitrofurazone Topical Solution.

Proprietary Preparations (details are given in Part 3)
Arg.: Furacin; Ivoran Pilot†; Nitromed; ***Belg.:*** Furacine; ***Braz.:*** Alivioderm†; Caziderm; Cleanbac†; Furacin; Sensiderme; ***Chile:*** Demodek†; Furacin; ***Ger.:*** Furacin-Sol; ***India:*** Furacin; ***Mex.:*** Furacin; Kufro; Nifurol; Probizal; Vulnizol; ***Neth.:*** Furacine; ***Philipp.:*** Furacin; ***Port.:*** Rayonfur; ***S.Afr.:*** Furacin; Furex; Germex; ***Spain:*** Furacin; ***Thai.:*** Bactacin; Mytrocin; Polycin; ***Turk.:*** Dermikolin; Furacin; Furaderm; Furazol; ***USA:*** Furacin†; ***Venez.:*** Furacin; Furfuril; Fuxal; Polifur†.

Multi-ingredient: ***Arg.:*** Fadanasal; Neo Pelvicillin; O-Biol; Vagicural; Vagisan; Vagisan Compuesto; Vislus; ***Braz.:*** Nitrileno; Nitrolerg†; Otodol†; ***India:*** Furacin-S; ***Ital.:*** Furotricina; ***Mex.:*** Madecassol C; Madecassol N; ***Spain:*** Dertrase; ***Thai.:*** Denson.

Nitroxoline *(BAN, plNN)*

Nitroxolina; Nitroxolinum. 5-Nitroquinolin-8-ol.

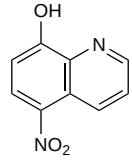
Нитроксолин

$C_9H_6N_2O_3$ = 190.2.

CAS — 4008-48-4.

ATC — J01XX07.

ATC Vet — QJ01XX07.



Profile

Nitroxoline has antibacterial and antifungal properties and is used in the treatment of urinary-tract infections in oral doses ranging from 80 to 250 mg three times daily before food. It has also been given with sulfamethizole.

Preparations

Proprietary Preparations (details are given in Part 3)
Fr.: Nibiol†; ***Ger.:*** Cysto-Saar; ***Rus.:*** 5-Nitrox (5-Нитрокс); 5-Nok (5-Нок); ***S.Afr.:*** Nicene N.

Multi-ingredient: ***Braz.:*** Minazol.

Norfloxacin *(BAN, USAN, rINN)*

AM-715; *N*-Desmethylpefloxacin; MK-366; Norfloksacinas; Norfloksacyna; Norfloksasiini; Norfloksasin; Norfloxacine; Norfloxacino; Norfloxacinum. 1-Ethyl-6-fluoro-1,4-dihydro-4-oxo-7-(piperazin-1-yl)quinoline-3-carboxylic acid.

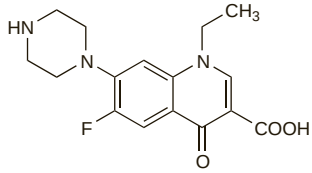
Норфлоксацин

$C_{16}H_{18}FN_3O_3$ = 319.3.

CAS — 70458-96-7.

ATC — J01MA06; S01AX12.

ATC Vet — QJ01MA06; QS01AX12.



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

Ph. Eur. 6.2 (Norfloxacin). A white or pale yellow, hygroscopic, photosensitive, crystalline powder. Very slightly soluble in water; slightly soluble in alcohol and in acetone. Store in airtight containers. Protect from light.

USP 31 (Norfloxacin). A white to pale yellow crystalline powder. Slightly soluble in water, in alcohol, and in acetone; freely soluble in acetic acid; sparingly soluble in chloroform; practically insoluble in ether; very slightly soluble in ethyl acetate and in methyl alcohol. Store in airtight containers. Protect from light.

Norfloxacin Pivoxil *(BANM, rINNM)*

Norfloxacine, Pivoxil de; Norfloxacini Pivoxil; Norfloxacino pivoxilo. Pivaloyloxymethyl 1-ethyl-6-fluoro-1,4-dihydro-4-oxo-7-(piperazin-1-yl)quinoline-3-carboxylic acid.

Норфлоксацина Пивоксил

$C_{22}H_{28}FN_3O_5$ = 433.5.

Adverse Effects and Precautions

As for Ciprofloxacin, p.244.

Interactions

As for Ciprofloxacin, p.246.

Antimicrobial Action

As for Ciprofloxacin, p.246, although norfloxacin is less potent *in vitro*. Norfloxacin is not active against Chlamydiaceae, mycoplasmas, or mycobacteria.

Pharmacokinetics

About 30 to 40% of an oral dose of norfloxacin is absorbed. Peak plasma concentrations of about 1.5 micrograms/mL occur about 1 to 2 hours after a 400-mg oral dose; the presence of food can delay absorption. Norfloxacin is about 14% bound to plasma proteins. It is probably widely distributed, but information is limited. Norfloxacin penetrates well into tissues of the genito-urinary tract. It crosses the placenta. Relatively high concentrations are achieved in bile.

The plasma half-life is 3 to 4 hours and may be prolonged in renal impairment; a value of 6.5 hours or more has been reported when creatinine clearance is below 30 mL/minute per 1.73 m^2. About 30% of a dose is excreted unchanged in the urine within 24 hours, producing high urinary concentrations; norfloxacin is least soluble at a urinary pH of 7.5. Urinary excretion is by tubular secretion and glomerular filtration and is reduced by probenecid, although plasma concentrations of norfloxacin are not generally affected. Some metabolism occurs, possibly in the liver, and several metabolites have been identified in urine, some with antibacterial activity. About 30% of an oral dose is recovered from the faeces.

Uses and Administration

Norfloxacin is a fluoroquinolone antibacterial with properties similar to those of ciprofloxacin (p.243), but it is generally less potent *in vitro*.

Norfloxacin is used mainly in the treatment of urinary-tract infections (p.199) and for the treatment of gonorrhoea (p.191).

Norfloxacin is given orally at least 1 hour before, or 2 hours after, food or milk.

In urinary-tract infections the usual dose is 400 mg twice daily for 3 to 10 days. Treatment may need to be continued for up to 12 weeks in chronic relapsing urinary-tract infections; it may be possible to reduce the dose to 400 mg once daily if there is an adequate response within the first 4 weeks. A 28-day course of treatment with a dose of 400 mg twice daily should be given for acute or chronic bacterial prostatitis.

For details of reduced doses to be used in renal impairment, see below.

A single oral dose of 800 mg is given in the treatment of uncomplicated gonorrhoea.

Eye drops containing 0.3% of norfloxacin are used to treat eye infections.

The pivaloyloxymethyl salt of norfloxacin, norfloxacin pivoxil, is also used in some countries.

Administration in renal impairment. Doses of norfloxacin may need to be reduced in renal impairment; for urinary-tract infections, 400 mg once daily should be given to patients with a creatinine clearance of 30 mL/minute per 1.73 m^2 or less.

Preparations

BP 2008: Norfloxacin Eye Drops; Norfloxacin Tablets;
USP 31: Norfloxacin Ophthalmic Solution; Norfloxacin Tablets.

Proprietary Preparations (details are given in Part 3)

Arg.: Bio Tarbun; Chibroxin†; Floxamicin; Floxatral; Memento NF; Norflol; Noroxin; Norsol; Parcetin; Ritromine; Uro-Linfol; Urofos; Uronovag; Uroseptal; Urotem; Uroxacin; Wenflox; Yanurax†; ***Austral.:*** Insensye; Norfloxhexal; Noroxin; Nufloxib; Roxin; ***Austria:*** Floxacin; Norflostad; Urobacid†; Zoroxin; ***Belg.:*** Chibroxol; Zoroxin; ***Braz.:*** Androfloxin; Chibroxin†; Flox†; Floxacin; Floxanor; Floxatom†; Floxatrat†; Floxilin†; Floxinol; Genitoflox; Neofloxin; Norf; Norflamin†; Norflox; Norfloxasan; Norfloxil; Norfloxmed; Norxacin†; Norxin; Quinoform; Respexil; Uritrat; Uroflox†; Uroplex†; Uroseptal; Uroxazol-N; ***Canad.:*** Apo-Norflox; Noroxin†; ***Chile:*** Chibroxin†; Fulgram; Noroxin†; Urekolin†; ***Cz.:*** Gyrablock; Nolicin; ***Denm.:*** Zoroxin†; ***Fin.:*** Lexinor†; Noroxin†; ***Fr.:*** Chibroxine; Noroxine; ***Ger.:*** Bactracid; Barazan; Chibroxin; Firin; Norflohexal; Norflosal; Norflox; Norflox-Azu†; Norflox-Puren†; Norfloxbeta; Norfluxx; ***Gr.:*** Alenbit; Constilax; Dirunez†; Fluseminal; Grenis; Lemorcan; Lorcamin; Norocin; Ovinol; Pistofil; Setanol; Sinobid; Sofasin; Steinaclox; Urobacid; Uropses-N; Vetamol; ***Hong Kong:*** Floxen; Janacin; Lexiflox; Lexinor†; Mitatonin; Rexacin†; Uroctal; ***Hung.:*** Nolicin; ***India:*** Bacigyl; Biofloxin; Norbactin; Norflox; Normax; ***Indon.:*** Pyrflox; ***Israel:*** Apirol; Chibroxin†; ***Ital.:*** Diperflox; Flossac; Fulgram†; Norflox; Noroxin; Renoxacin; Sebercim; Theanorf; Uticina; Utinor; ***Jpn:*** Baccidal; ***Malaysia:*** Chibroxin†; Floxen†; Janacin; Lexinor†; Norbactin†; Norfloxin; Norfloxinor†; Rexacin; Trizolin; Urinox; Urobacid; ***Mex.:*** Baxamed; Difoxacil; Floxacin; Microxin; Nofloroxx; Noroxin; Norquinol; Oranor; ***Neth.:*** Chibroxol; Noroxin; ***NZ:*** Noroxin; ***Philipp.:*** Euroflox; Lexinor; Norbactin; Nortram; Septinor; Uritracin; Urobacid; Utiflox; Utinor; Winaflox; ***Pol.:*** Chibroxin; Nolicin; ***Port.:*** Besflox; Chibroxol; Noroxin; Quinoflex†; Taflox†; Uroflox; ***Rus.:*** Gyrablock (Гираблок); Negaflox (Негафлокс); Nolicin (Нолицин); Norbactin (Норбактин); Norfacin (Норфацин); Norilet (Норилет); Normax (Нормакс); ***S.Afr.:*** Floxin; Noroxin; Utin; ***Singapore:*** Bexinor; Chibroxin†; Effectsal; Foxgoria; Gyrablock; Norbactin; Sefnor†; Trizolin†; Urobacid†; ***Spain:*** Amicrobin; Baccidal; Chibroxin; Esclebin; Espeden; Nalion; Norflok; Noroxin; Senro; Uroctal; Xasmun; ***Swed.:*** Lexinor; ***Switz.:*** Chibroxol†; Norflocine; Noroxin; Norsol; Noxufen; ***Thai.:*** BGB Norflox†; Foxin; Foxinon; Gonorcin; Janacin; Lexfor†; Lexinor; Loxone; M-Flox; Manoflox; Myfloxin; Noracin; Norbactin; Norcin; Norfcin; Norflo†; Norflocin; Norfloxin; Norfloxyl; Norsa†; Norxacin; Norxia; Noxine; Noxinor; Proxinor; Rexacin; Sefnor; Snoffocin; Trizolin†; Urinox; Uritracin; Vesxacin; Xacin; ***Turk.:*** Noroxin; ***UAE:*** Uroxin; ***UK:*** Utinor; ***USA:*** Noroxin; ***Venez.:*** Chibroxin†; Danilon; Norflosan†; Norfloval†; Norilet†; Noroxin.

Multi-ingredient: ***Arg.:*** Nor 2; Urotem Dol; ***India:*** Bacigyl-N†; Bioflox-TZ; NM Powder; Nor T; Norflox TZ; Normax TZ; Parabact; Powergyl; Tinvista-NF; ***Mex.:*** Mictasol.

Norvancomycin Hydrochloride

N-Demethylvancomycin; 56-Demethylvancomycin. (S_a)-(3*S*,6*R*,7*R*,22*R*,23*S*,26*S*,36*R*,38a*R*)-44-{[2-*O*-(3-Amino-2,3,6-trideoxy-3-*C*-methyl-α-L-*lyxo*-hexopyranosyl)-β-D-glucopyranosyl]oxy}-3-(carbamoylmethyl)-10,19-dichloro-2,3,4,5,6,7,23,24,25,26,36,37,38,38a-tetradecahydro-7,22,28,30,32-pentahydroxy-6-[(2*R*)-4-methyl-2-(amino)valeramido]-2,5,24,38,39-pentaoxo-22*H*-8,11:18,21-dietheno-23,36-(iminomethano)-13,16:31,35-dimetheno-1*H*,16*H*-[1,6,9]oxadiazacyclohexadecino[4,5-*m*][10,2,16]-benzoxadiazacyclotetracosine-26-carboxylic acid, monohydrochloride.

$C_{65}H_{73}Cl_2N_9O_{24}$, HCl = 1471.7.
CAS — 91700-98-0 (norvancomycin).

Pharmacopoeias. In *Chin*.

Profile

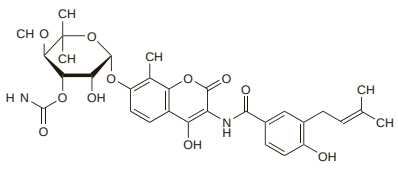
Norvancomycin is a glycopeptide antibacterial with properties similar to those of vancomycin (p.358).

Novobiocin *(BAN, rINN)*

Crystallinic Acid; Novobiocina; Novobiocine; Novobiocinum; Novobiosiini; Novobiosin; PA-93; Streptonivicin; U-6591. 4-Hydroxy-3-[4-hydroxy-3-(3-methylbut-2-enyl)benzamido]-8-methylcoumarin-7-yl 3-*O*-carbamoyl-5,5-di-*C*-methyl-α-L-lyxofuranoside.

Новобиоцин

$C_{31}H_{36}N_2O_{11}$ = 612.6.
CAS — 303-81-1.



Description. Novobiocin is an antimicrobial substance produced by the growth of *Streptomyces niveus* and *S. spheroides* or related organisms.

Novobiocin Calcium *(BANM, rINNM)*

Calcii Novobiocinum; Calcium Novobiocin; Novobiocina cálcica; Novobiocine Calcique; Novobiocinum Calcium.

Кальций Новобиоцин

$(C_{31}H_{35}N_2O_{11})_2Ca$ = 1263.3.
CAS — 4309-70-0.

Novobiocin Sodium *(BANM, rINNM)*

Natrii Novobiocinum; Novobiocina sódica; Novobiocine Sodique; Novobiocinum Natricum; Sodium Novobiocin.

Натрий Новобиоцин

$C_{31}H_{35}N_2NaO_{11}$ = 634.6.
CAS — 1476-53-5.

Pharmacopoeias. In *Fr.* and *US*.

USP 31 (Novobiocin Sodium). A white or yellowish-white, odourless, hygroscopic crystalline powder. Freely soluble in water, in alcohol, in methyl alcohol, in glycerol, and in propylene glycol; practically insoluble in acetone, in chloroform, and in ether; slightly soluble in butyl acetate. pH of a 2.5% solution in water is between 6.5 and 8.5. Store in airtight containers.

Profile

Novobiocin is an antibacterial which is structurally related to coumarin. It is active against Gram-positive bacteria such as *Staphylococcus aureus* (including meticillin-resistant strains) and other staphylococci; *Enterococcus faecalis* is usually resistant but *E. faecium* may be sensitive. Some Gram-negative organisms including *Haemophilus influenzae* and *Neisseria* spp. are also susceptible, as are some strains of *Proteus*, but most of the Enterobacteriaceae are resistant. Its action is primarily bacteriostatic, although it may be bactericidal against more sensitive species at high concentrations. It is an inhibitor of DNA gyrase and is effective in eliminating plasmids, but resistance to novobiocin develops readily *in vitro* and during therapy.

Although novobiocin has been used alone or with other drugs such as rifampicin or sodium fusidate in the treatment of infections due to staphylococci and other susceptible organisms, it has been largely superseded by other drugs because of the problems of resistance and toxicity.

Novobiocin is a potent sensitiser and hypersensitivity reactions are relatively common; they include rashes, fever, and pruritus, and more serious reactions such as Stevens-Johnson syndrome and pneumonitis. Jaundice and liver damage have occurred, although apparent jaundice may be due to a yellow metabolite of the drug rather than hyperbilirubinaemia. Other adverse effects include eosinophilia, leucopenia, thrombocytopenia, agranulocytosis, and haemolytic anaemia; gastrointestinal disturbances are common.

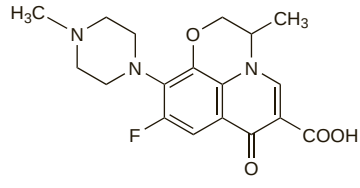
Porphyria. Novobiocin has been associated with acute attacks of porphyria and is considered unsafe in porphyric patients.

Ofloxacin *(BAN, USAN, rINN)*

DL-8280; Hoe-280; Ofloksacinas; Ofloksasiini; Ofloksasin; Ofloxacine; Ofloxacino; Ofloxacinum; RU-43280. (±)-9-Fluoro-2,3-dihydro-3-methyl-10-(4-methyl-1-piperazinyl)-7-oxo-7*H*-pyrido[1,2,3-*de*]-1,4-benzoxazine-6-carboxylic acid.

Офлоксацин

$C_{18}H_{20}FN_3O_4$ = 361.4.
CAS — 82419-36-1; 83380-47-6.
ATC — J01MA01; S01AX11.
ATC Vet — QJ01MA01; QS01AX11.



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

Ph. Eur. 6.2 (Ofloxacin). A pale yellow or bright yellow crystalline powder. Slightly soluble in water and in methyl alcohol; slightly soluble to soluble in dichloromethane; soluble in glacial acetic acid. Store in airtight containers. Protect from light.

USP 31 (Ofloxacin). Pale yellowish-white to light yellowish-white crystals or crystalline powder. Slightly soluble in water, in alcohol, and in methyl alcohol; sparingly soluble in chloroform. Store at a temperature of 25°, excursions permitted between 15° and 30°. Protect from light.

Ofloxacin Hydrochloride *(BANM, rINNM)*

Hidrocloruro de ofloxacino; Ofloxacine, Chlorhydrate d'; Ofloxacini Hydrochloridum.

Офлоксацина Гидрохлорид

$C_{18}H_{20}FN_3O_4$,HCl = 397.8.

Adverse Effects and Precautions

As for Ciprofloxacin, p.244.

Symptomatic hyperglycaemia and/or hypoglycaemia have been reported, usually in diabetics who are also taking hypoglycaemics or insulin. Such patients should have their blood-glucose concentrations closely monitored and if signs or symptoms of glucose disturbances develop, ofloxacin should be stopped.

A reduction in blood pressure may occur rarely after intravenous infusion. Similarly, sudden reductions in blood pressure may occur when intravenous ofloxacin is given with hypotensive drugs. Cardiovascular function should be monitored in such patients and in those also receiving barbiturate anaesthetics.

Certain medications may also increase these risks (see Interactions, below).

Breast feeding. The American Academy of Pediatrics has stated that no adverse effects have been seen in breast-fed infants whose mothers were receiving ofloxacin and that it is therefore usually compatible with breast feeding.[1] However, in a study[2] of 10 women given ofloxacin after termination of pregnancy, drug concentrations in breast milk were sufficiently high to recommend that the use of ofloxacin in lactating women should be avoided.

1. American Academy of Pediatrics. The transfer of drugs and other chemicals into human milk. *Pediatrics* 2001; **108:** 776–89. Correction. *ibid.*; 1029. Also available at: http://aappolicy.aappublications.org/cgi/content/full/pediatrics%3b108/3/776 (accessed 27/05/04)
2. Giamarellou H, *et al.* Pharmacokinetics of three newer quinolones in pregnant and lactating women. *Am J Med* 1989; **87** (suppl 5A): 49S–51S.

Interactions

As for Ciprofloxacin, p.246.

Use with drugs that alter blood-glucose concentrations with ofloxacin increases the risk of blood-glucose disturbances.

Antimicrobial Action

As for Ciprofloxacin, p.246.

Ofloxacin is more active than ciprofloxacin against *Chlamydia trachomatis.* It is also active against *Mycobacterium leprae* as well as *M. tuberculosis* and some other *Mycobacterium* spp. Synergistic activity against *M. leprae* has been reported between ofloxacin and rifabutin.

The optically active *S*-(−)-isomer levofloxacin (p.292) has twice the activity of the racemate ofloxacin.

Resistance has been reported in some strains of *Neisseria gonorrhoeae*.

Pharmacokinetics

Ofloxacin is rapidly and well absorbed from the gastrointestinal tract. Oral bioavailability is almost 100% and a peak plasma concentration of about 3 to 5 micrograms/mL occurs 1 to 2 hours after an oral dose of 400 mg. Absorption may be delayed by the presence of food, but the extent of absorption is not substantially affected.

About 25% is bound to plasma proteins. Ofloxacin is widely distributed in body fluids, including the CSF, and tissue penetration is good. It crosses the placenta and is distributed into breast milk. It also appears in the bile.

The elimination of ofloxacin is biphasic; half-lives of about 4 to 5 and 20 to 25 hours have been reported for the 2 phases, respectively. In renal impairment values of 15 to 60 hours have been reported. There is limited metabolism to desmethyl and *N*-oxide metabolites; desmethylofloxacin has moderate antibacterial activity. Ofloxacin is eliminated mainly by the kidneys. Excretion is by tubular secretion and glomerular filtration and 65 to 80% of a dose is excreted unchanged in the urine over 24 to 48 hours, resulting in high urinary concentrations. Less than 5% is excreted in the urine as metabolites. From 4 to 8% of a dose may be excreted in the faeces.