Malaysia: Primacor; ***Mex.:*** Primacor; ***Neth.:*** Corotrope; ***NZ:*** Primacor; ***Pol.:*** Corotrope; ***Port.:*** Corotrope; ***Singapore:*** Primacor; ***Spain:*** Corotrope; ***Swed.:*** Corotrop; ***Switz.:*** Corotrop; ***Thai.:*** Primacor; ***UK:*** Primacor; ***USA:*** Primacor; ***Venez.:*** Corotrope.

Minoxidil *(BAN, USAN, rINN)*

Minoksidiili; Minoksidilis; Minoxidilum; U-10858. 2,6-Diamino-4-piperidinopyrimidine 1-oxide.

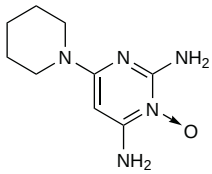
Миноксидил

$C_9H_{15}N_5O$ = 209.2.

CAS — 38304-91-5.

ATC — C02DC01; D11AX01.

ATC Vet — QC02DC01.



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

Ph. Eur. 6.2 (Minoxidil). A white or almost white crystalline powder. Slightly soluble in water; soluble in methyl alcohol and in propylene glycol. Protect from light.

USP 31 (Minoxidil). A white or off-white crystalline powder. Slightly soluble in water; soluble in alcohol and in propylene glycol; practically insoluble in acetone, in chloroform, in ethyl acetate, and in petroleum spirit; sparingly soluble in methyl alcohol.

Adverse Effects and Treatment

Adverse effects commonly caused by minoxidil include reflex tachycardia, fluid retention accompanied by weight gain, oedema, and sometimes deterioration of existing heart failure and changes in the ECG. Hypertrichosis develops in up to 80% of patients within 3 to 6 weeks of the start of minoxidil therapy but is slowly reversible on discontinuation. Pericardial effusion, sometimes with associated tamponade, has been reported in about 3% of patients. Pericarditis may also occur. Minoxidil may aggravate or uncover angina pectoris. Other less frequent adverse effects include headache, nausea, gynaecomastia and breast tenderness, polymenorrhoea, allergic skin rashes, Stevens-Johnson syndrome, and thrombocytopenia.

Reflex tachycardia can be overcome by the use of a beta blocker, or alternatively methyldopa, and a diuretic (usually a loop diuretic) is used to reduce fluid retention. If excessive hypotension occurs, an intravenous infusion of sodium chloride 0.9% can be given to maintain the blood pressure. If a pressor agent is necessary, drugs such as adrenaline, which can aggravate tachycardia, should be avoided; phenylephrine, angiotensinamide, vasopressin, or dopamine may be given if there is evidence of inadequate perfusion of a vital organ.

Topical application of minoxidil may be associated with contact dermatitis, pruritus, local burning, and flushing; sufficient may be absorbed to produce systemic adverse effects. Changes in hair colour or texture may occur.

Effects on the eyes. Bilateral optic neuritis and retinitis occurred in a patient during treatment with minoxidil for hypertension after a renal transplant.[1] The patient was also taking prednisolone and azathioprine.

1. Gombos GM. Bilateral optic neuritis following minoxidil administration. *Ann Ophthalmol* 1983; **15:** 259–61.

Effects on the hair. The hypertrichosis frequently associated with oral minoxidil makes it generally unsuitable for women. There have also been reports of changes in hair colour.[1] In addition a case has been reported of increased hair loss, followed by subsequent regrowth of differently-coloured hair.[2] Substantial hair loss occurred in a woman after withdrawal of minoxidil and she had to wear a wig.[3]

Severe hypertrichosis has also been reported in 5 of 56 women applying minoxidil 5% solution topically for androgenetic alopecia.[4] Facial, arm, and leg hypertrichosis were reported 2 to 3 months after starting treatment. Hypertrichosis had disappeared 5 months after discontinuation of minoxidil.

1. Traub YM, *et al.* Treatment of severe hypertension with minoxidil. *Isr J Med Sci* 1975; **11:** 991–8.
2. Ingles RM, Kahn T. Unusual hair changes with minoxidil therapy. *Int J Dermatol* 1983; **22:** 120–2.
3. Kidwai BJ, George M. Hair loss with minoxidil withdrawal. *Lancet* 1992; **340:** 609–10.
4. Peluso AM, *et al.* Diffuse hypertrichosis during treatment with 5% topical minoxidil. *Br J Dermatol* 1997; **136:** 118–20.

Effects on skeletal muscle. A polymyalgia syndrome, manifesting as fatigue, anorexia, weight loss, and severe pain in the shoulders and pelvic girdle, was seen in 4 men using topical minoxidil.[1] All symptoms improved within 2 to 4 weeks of stopping the drug. In 2 of the patients rechallenge produced a recurrence of symptoms.

1. Colamarino R, *et al.* Polymyalgia and minoxidil. *Ann Intern Med* 1990; **113:** 256–7.

Effects on the skin. Although skin reactions to systemic minoxidil do not appear to be common, cases of classic Stevens-Johnson syndrome have been reported.[1,2] The syndrome generally responds to withdrawal and corticosteroid therapy; in one case[1] subsequent rechallenge provoked a recurrence. In another patient an extensive erythematous weeping rash with lesions consistent with actinic keratosis also appeared to be due to minoxidil; bullous lesions recurred on re-exposure.[3] After topical application itching, scaling, flushing, and dermatitis have been the most common adverse effects; allergic contact dermatitis has been reported in rare instances.[4]

For other lesions associated with Kaposi's sarcoma and angioma, see Neoplasms, below, and for effects on the hair, see above.

1. DiSantis DJ, Flanagan J. Minoxidil-induced Stevens-Johnson syndrome. *Arch Intern Med* 1981; **141:** 1515.
2. Callen EC, *et al.* Stevens-Johnson syndrome associated with oral minoxidil: a case report. *J Nephrol* 2007; **20:** 91–3.
3. Ackerman BH, *et al.* Pruritic rash with actinic keratosis and impending exfoliation in a patient with hypertension managed with minoxidil. *Drug Intell Clin Pharm* 1988; **22:** 702–3.
4. Clissold SP, Heel RC. Topical minoxidil: a preliminary review of its pharmacodynamic properties and therapeutic efficacy in alopecia areata and alopecia androgenetica. *Drugs* 1987; **33:** 107–22.

Neoplasms. Two haemorrhagic lesions with Kaposi's features appeared on the forehead, an unusual location for HIV-associated Kaposi's sarcoma, in an HIV-positive patient who had applied topical minoxidil there for 3 months.[1] In a healthy patient an angioma of the scalp developed after 2 months of topical minoxidil therapy. The patient had had a similar lesion as a baby. Minoxidil may induce angiogenesis or may stimulate endothelial cells, fibroblasts, and muscle cells to proliferate. Care should be taken when minoxidil is applied to the skin of people who are predisposed to neo-angiogenesis, or who are HIV-positive.

For other effects of minoxidil on the skin following topical application, see above.

1. Pavlovitch JH, *et al.* Angiogenesis and minoxidil. *Lancet* 1990; **336:** 889.

Precautions

Minoxidil is contra-indicated in phaeochromocytoma. It should be used with caution after a recent myocardial infarction, and in patients with pulmonary hypertension, angina pectoris, chronic heart failure, and significant renal impairment.

Topical application of minoxidil should be restricted to the scalp; it should not be applied to inflamed scalp skin or areas affected by psoriasis, severe sunburn, or severe excoriations, because of the risk of increased absorption. Patients being treated for hypertension should be monitored if topical minoxidil is used concurrently.

AIDS. For recommendations that topical minoxidil should be used with caution in HIV-positive patients, see Neoplasms under Adverse Effects, above.

Breast feeding. Study[1] of a breast-feeding mother showed that minoxidil was rapidly distributed into breast milk, achieving similar concentrations to those in the maternal plasma. No adverse effects were seen in the infant after 2 months and the American Academy of Pediatrics considers[2] that minoxidil is therefore usually compatible with breast feeding.

1. Valdivieso A, *et al.* Minoxidil in breast milk. *Ann Intern Med* 1985; **102:** 135.
2. 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 26/09/05)

Porphyria. Minoxidil is considered to be unsafe in patients with porphyria because it has been shown to be porphyrinogenic in *animals* or *in-vitro* systems.

Pregnancy. A patient who took minoxidil, propranolol, and furosemide throughout pregnancy delivered a normal infant at 37 weeks. Pregnancy was uneventful.[1]

1. Valdivieso A, *et al.* Minoxidil in breast milk. *Ann Intern Med* 1985; **102:** 135.

Interactions

The antihypertensive effect of minoxidil may be enhanced by use of other hypotensive drugs. Severe orthostatic hypotension may occur if minoxidil and sympathetic blocking drugs such as guanethidine are given concurrently.

Topical minoxidil should not be used with other topical agents known to enhance absorption, such as corticosteroids, retinoids, or occlusive ointment bases.

Tretinoin. Percutaneous absorption of minoxidil is enhanced by tretinoin as a result of increased stratum corneum permeability.[1]

1. Ferry JJ, *et al.* Influence of tretinoin on the percutaneous absorption of minoxidil from an aqueous topical solution. *Clin Pharmacol Ther* 1990; **47:** 439–46.

Pharmacokinetics

About 90% of an oral dose of minoxidil is absorbed from the gastrointestinal tract. The plasma half-life is about 4.2 hours although the haemodynamic effect may persist for up to 75 hours, presumably due to accumulation at its site of action. Minoxidil is not bound to plasma proteins. It is distributed into breast milk. Minoxidil is extensively metabolised by the liver. It requires sulfation to become active, but the major metabolite is a glucuronide conjugate. Minoxidil is excreted predominantly in the urine mainly in the form of metabolites. Minoxidil and its metabolites are dialysable, although the pharmacological effect is not reversed.

About 0.3 to 4.5% of a topical dose of minoxidil is absorbed from intact scalp.

◊ References.

1. Pacifici GM, *et al.* Minoxidil sulphation in human liver and platelets: a study of interindividual variability. *Eur J Clin Pharmacol* 1993; **45:** 337–41.

Uses and Administration

Minoxidil is an antihypertensive that acts mainly by causing direct peripheral vasodilatation of the arterioles. It produces effects on the cardiovascular system similar to those of hydralazine (p.1307). Minoxidil is given orally for the treatment of severe hypertension unresponsive to standard therapy (p.1171). When applied topically to the scalp minoxidil may stimulate hair growth to a limited extent and is used in the treatment of alopecia.

In the treatment of **hypertension** minoxidil is given with a beta blocker, or with methyldopa, to diminish the cardiac-accelerating effects, and with a diuretic, usually a loop diuretic, to control oedema. After a single oral dose, the maximum hypotensive effect usually occurs after 2 to 3 hours, although the full effects may not occur until after 3 to 7 days of continuous treatment. An initial dose of 5 mg of minoxidil daily (or 2.5 mg daily in the elderly) is gradually increased at intervals of not less than 3 days to 40 or 50 mg daily according to response; in exceptional circumstances up to 100 mg daily has been given. If more rapid control of blood pressure is required, dosage changes may be made every 6 hours with careful monitoring. The daily dose may be given as a single dose or in 2 divided doses. For children, the initial dose is 200 micrograms/kg daily, increased in steps of 100 to 200 micrograms/kg at intervals of not less than 3 days, until control of blood pressure has been achieved or a maximum of 1 mg/kg or 50 mg daily has been reached.

Reduced doses may be required in patients with renal impairment (see below).

In the treatment of **alopecia androgenetica** (male-pattern baldness) 1 mL of a 2% or 5% solution of minoxidil is applied twice daily to the scalp. The 5% solution is not recommended for women.

Administration in renal impairment. A study of the pharmacokinetics of minoxidil in patients with varying degrees of renal impairment found that the non-renal clearance was also impaired as renal function worsened.[1] Substantial accumulation of

minoxidil might occur in these patients during multiple-dose therapy. It was advised that minoxidil be started with smaller doses or at longer dosage intervals in patients with renal impairment.

1. Halstenson CE, *et al.* Disposition of minoxidil in patients with various degrees of renal function. *J Clin Pharmacol* 1989; **29:** 798–802.

Alopecia. Minoxidil is used topically to stimulate hair growth in alopecia (p.1577), although its mechanism of action is poorly understood.[1] Increases in pigmented non-vellus hair may be due to thickening and pigmentation of existing vellus rather than new growth.[2] Measurement over 96 weeks showed[3] that minoxidil in solutions of 2 or 5% had a greater effect on hair weight than number of hairs in men with androgenetic alopecia (male-pattern baldness) with the 5% solution being more effective; 24 weeks after treatment was stopped both values had returned to baseline. Another study[4] also showed that 5% minoxidil had a greater effect than 2%, and produced an earlier response. However, 5% minoxidil has been found[5] less effective than oral finasteride. Even with continued use there is a waning of effect with minoxidil.[6,7] It may be more effective in retarding the progression of male-pattern baldness than in reversing it,[2] and users are advised to abandon treatment if there is insufficient benefit after a year.[8]

Minoxidil has also been used in women with female pattern hair loss, and as with men the 5% solution has been found[9] more effective than the 2%. In women with no evidence of biochemical hyperandrogenism minoxidil 2% was more effective[10] than oral cyproterone; where there was such evidence, cyproterone was superior.

Topical minoxidil has been shown to be safe in a large prospective study[11] of men and women with androgenetic alopecia.

Minoxidil appeared to have no beneficial effect on alopecia areata,[12] although one study indicated that topical minoxidil with 0.5% dithranol cream was more effective than either treatment alone.[13]

1. Messenger AG, Rundegren J. Minoxidil: mechanisms of action on hair growth. *Br J Dermatol* 2004; **150:** 186–94.
2. Katz HI. Topical minoxidil: review of efficacy and safety. *Cutis* 1989; **43:** 94–8.
3. Price VH, *et al.* Changes in hair weight and hair count in men with androgenetic alopecia, after application of 5% and 2% topical minoxidil, placebo, or no treatment. *J Am Acad Dermatol* 1999; **41:** 717–21.
4. Olsen EA, *et al.* A randomized clinical trial of 5% topical minoxidil versus 2% topical minoxidil and placebo in the treatment of androgenetic alopecia in men. *J Am Acad Dermatol* 2002; **47:** 377–85.
5. Arca E, *et al.* An open, randomized, comparative study of oral finasteride and 5% topical minoxidil in male androgenetic alopecia. *Dermatology* 2004; **209:** 117–25.
6. de Groot AC, *et al.* Minoxidil: hope for the bald? *Lancet* 1987; **i:** 1019–22.
7. Anonymous. Topical minoxidil does little for baldness. *Drug Ther Bull* 1989; **27:** 74–5.
8. Shrank AB. Treating young men with hair loss. *BMJ* 1989; **298:** 847–8.
9. Lucky AW, *et al.* A randomized, placebo-controlled trial of 5% and 2% topical minoxidil solutions in the treatment of female pattern hair loss. *J Am Acad Dermatol* 2004; **50:** 541–53.
10. Vexiau P, *et al.* Effects of minoxidil 2% vs. cyproterone acetate treatment on female androgenetic alopecia: a controlled, 12-month randomized trial. *Br J Dermatol* 2002; **146:** 992–9.
11. Shapiro J. Safety of topical minoxidil solution: a one-year, prospective, observational study. *J Cutan Med Surg* 2003; **7:** 322–9.
12. Anonymous. Topical minoxidil for baldness: a reappraisal. *Med Lett Drugs Ther* 1994; **36:** 9–10.
13. Fiedler VC, *et al.* Treatment-resistant alopecia areata. *Arch Dermatol* 1990; **126:** 756–9.

CHEMOTHERAPY-INDUCED ALOPECIA. Minoxidil 2% solution was applied daily to the scalp of a boy with acute lymphoblastic leukaemia whose hair had failed to regrow satisfactorily after intensive chemotherapy.[1] Almost normal hair growth, achieved over a 9-month period, was attributed to the use of minoxidil.

A small study[2] in women undergoing combination chemotherapy including doxorubicin found that topical minoxidil applied throughout therapy and for up to 4 months afterwards reduced the duration of alopecia by an average of 50 days.

Other methods for reducing chemotherapy-induced alopecia are described under the Treatment of Adverse Effects of Antineoplastics, p.639.

1. Vickers MA, Barton CJ. Minoxidil induced hair growth after leukaemia treatment? *Arch Dis Child* 1995; **73:** 184.
2. Duvic M, *et al.* A randomized trial of minoxidil in chemotherapy-induced alopecia. *J Am Acad Dermatol* 1996; **35:** 74–8.

Preparations

BP 2008: Minoxidil Scalp Application;
USP 31: Minoxidil Tablets; Minoxidil Topical Solution.

Proprietary Preparations (details are given in Part 3)
Arg.: Anagen; Ivix; Locemix; Macbirs Minoxidil; Minoxile; Toneon†; Tricolocion; Tricoplus; Tricoxane†; Ylox; ***Austral.:*** Loniten; Regaine; ***Austria:*** Loniten; Regaine; Rogaine; ***Belg.:*** Neoxidil; Regaine; ***Braz.:*** Loniten; Neoxidil†; Regaine; ***Canad.:*** Apo-Gain; Loniten; Minox†; Rogaine; ***Chile:*** Alopek; Regaine; Tricoxane; ***Cz.:*** Minoxitrim†; Neocapil; Regaine; ***Denm.:*** Regaine; ***Fin.:*** Recrea; Regaine†; Rogaine; ***Fr.:*** Alopexy; Alostil; Lonoten; Regaine; ***Ger.:*** Lonolox; Regaine; ***Gr.:*** Axelan; Botafex; Dermolantyl; Ebersedin; Hairway; Loniten; Lotorin; Minodril; Monoxidil†; Neo-Pruristam; Nherea; Oxofenil; Regaine; Stemeral; ***Hong Kong:*** Apo-Gain†; Hairgrow; Headway; Loniten; Minoxi; Neoxidil†; Regaine; Regro; ***Hung.:*** Neocapil; Regaine; ***India:*** Mintop; ***Indon.:*** Aloxid; Eminox; Regaine; Regrou; ***Irl.:*** Loniten; Rogaine; ***Israel:*** Alopexy; Hair-Treat; Hairgaine; Minoxi; Neoxidil; Regaine; ***Ital.:*** Aloxidil; Loniten; Minovital; Minoximen; Normoxidil†; Regaine; Tricoxidil; ***Malaysia:*** Apo-Gain; Epokelan†; Headway; Regaine; Regro; ***Mex.:*** Folcres†; Regaine; ***Neth.:*** Alopexy; Lonnoten; Regaine; ***Norw.:*** Regaine†; Rogaine; ***NZ:*** Headway; Rogaine; ***Philipp.:*** Regroe; ***Pol.:*** Loxon; Piloxidil; Regaine; ***Port.:*** Biocrinal; Crinalsofex; Hairtene; Loniten†; Mantai; Minocalve; Minox; Neoxidil; Regaine; Tricovivax; Zeldilon; ***Rus.:*** Regaine (Регейн); ***S.Afr.:*** Loniten; Regaine; ***Singapore:*** Growell; Minoxitrim; Neoxidil†; Regaine; Regro; ***Spain:*** Alopexy; Carexidil; Dinaxil Capilar; Lacovin; Loniten; Regaine; Regaxidil; Riteban†; ***Swed.:*** Recrea; Regaine†; Revexan; Rogaine; ***Switz.:*** Alopexy; Loniten; Neocapil; Piloxil†; Regaine; ***Thai.:*** Loniten; Manoxidil; Minoxitrim†; Modil; Noxidil; Nuhair; Regaine; Regrowth; Reten; ***UK:*** Loniten; Regaine; ***USA:*** Loniten†; Rogaine; ***Venez.:*** Guayaten; Regaine†; Topixidil; Zitoxil.

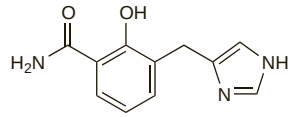
Multi-ingredient: ***Arg.:*** Tricoplus Coneff†.

Mivazerol *(rINN)*

Mivazérol; Mivazerolum; UCB-22073. α-Imidazol-4-yl-2,3-cresotamide.

Мивазерол

$C_{11}H_{11}N_3O_2$ = 217.2.
CAS — 125472-02-8.



Profile

Mivazerol is an alpha$_2$-adrenoceptor agonist that has been investigated for the prevention of perioperative complications resulting from myocardial ischaemia in patients with ischaemic heart disease undergoing non-cardiac surgery.

◊ References.

1. Oliver MF, *et al.* Effect of mivazerol on perioperative cardiac complications during non-cardiac surgery in patients with coronary heart disease: the European Mivazerol Trial (EMIT). *Anesthesiology* 1999: **91:** 951–61.

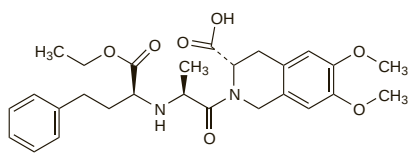
Moxipril Hydrochloride

(BANM, USAN, rINNM)

CI-925; Hidrocloruro de moexipril; Moeksipril Hidroklorür; Moexipril, Chlorhydrate de; Moexiprili Hydrochloridum; RS-10085-197; SPM-925. (3*S*-{2[*R**(*R**)],3*R**})-2-(2-{[1-(Ethoxycarbonyl)-3-phenylpropyl]amino}-1-oxopropyl)-1,2,3,4-tetrahydro-6,7-dimethoxy-3-isoquinoline-carboxylic acid hydrochloride.

Моэксиприла Гидрохлорид

$C_{27}H_{34}N_2O_7$,HCl = 535.0.
CAS — 103775-10-6 (moexipril); 82586-52-5 (moexipril hydrochloride).
ATC — C09AA13.
ATC Vet — QC09AA13.



(moexipril)

Adverse Effects, Treatment, and Precautions

As for ACE inhibitors, p.1193.

Interactions

As for ACE inhibitors, p.1196.

Pharmacokinetics

Moexipril acts as a prodrug of the diacid moexiprilat, its active metabolite. After oral doses moexipril is rapidly but incompletely absorbed and is metabolised to moexiprilat in the gastrointestinal mucosa and liver. Absorption is reduced in the presence of food. The bioavailability of moexiprilat is about 13% after oral doses of moexipril, and peak plasma concentrations of moexiprilat are reached in about 1.5 hours. Both moexipril and moexiprilat are moderately bound to plasma proteins. Moexipril is excreted mainly in the urine as moexiprilat, unchanged drug, and other metabolites; some moexiprilat may also be excreted in the faeces. The functional elimination half-life of moexiprilat is about 12 hours.

Uses and Administration

Moexipril is an ACE inhibitor (p.1193). It is used in the treatment of hypertension (p.1171).

Moexipril owes its activity to moexiprilat, to which it is converted after oral doses. The haemodynamic effects are seen about 1 hour after an oral dose and the maximum effect occurs after about 3 to 6 hours, although the full effect may not develop for 2 to 4 weeks during chronic dosing. Moexipril is given orally as the hydrochloride.

In the treatment of hypertension, the usual initial dose of moexipril hydrochloride is 7.5 mg once daily. Since there may be a precipitous fall in blood pressure in some patients when starting therapy with an ACE inhibitor, the first dose should preferably be given at bedtime. An initial dose of 3.75 mg once daily, given under close medical supervision, is suggested for patients who are taking a *diuretic*; if possible the diuretic should be withdrawn 2 or 3 days before moexipril is started and resumed later if necessary. An initial dose of 3.75 mg once daily is also recommended for patients with renal or hepatic impairment and for the elderly.

The usual maintenance dose is 7.5 to 30 mg daily, which may be given in 2 divided doses if control is inadequate with a single dose.

◊ Reviews.

1. Brogden RN, Wiseman LR. Moexipril: a review of its use in the management of essential hypertension. *Drugs* 1998; **55:** 845–60.
2. Chrysant SG, Chrysant GS. Pharmacological and clinical profile of moexipril: a concise review. *J Clin Pharmacol* 2004; **44:** 827–36.

Administration in renal impairment. In patients with renal impairment (creatinine clearance 40 mL/minute or less) an initial dose of moexipril hydrochloride 3.75 mg is given; in the USA it is required that the maximum dose in such patients should not exceed 15 mg daily.

Preparations

Proprietary Preparations (details are given in Part 3)
Austria: Fempress; ***Cz.:*** Moex; ***Fr.:*** Moex; ***Ger.:*** Fempress; ***Gr.:*** Tensotec†; ***Hong Kong:*** Moex; ***Irl.:*** Perdix†; ***Israel:*** Perdix; ***Ital.:*** Fempires; ***Malaysia:*** Tensotec†; ***Philipp.:*** Univasc; ***Pol.:*** Cardiotensin; ***Port.:*** Tensotec; ***Rus.:*** Moex (Моэкс); ***S.Afr.:*** Perdix; ***Turk.:*** Univasc; ***UK:*** Perdix; ***USA:*** Univasc.

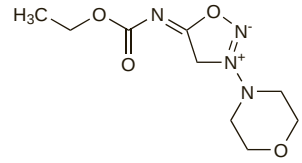
Multi-ingredient: ***Austria:*** Fempress Plus; ***Ger.:*** Fempress Plus; ***Ital.:*** Enulid; Femipres Plus; ***Philipp.:*** Uniretic; ***Rus.:*** Moex Plus (Моэкс Плюс); ***USA:*** Uniretic.

Molsidomine *(BAN, USAN, rINN)*

CAS-276; Molsidomiini; Molsidomin; Molsidomina; Molsidominum; Morsydomine; SIN-10. *N*-Ethoxycarbonyl-3-morpholinosydnonimine.

Молсидомин

$C_9H_{14}N_4O_4$ = 242.2.
CAS — 25717-80-0.
ATC — C01DX12.
ATC Vet — QC01DX12.



Pharmacopoeias. In *Eur.* (see p.vii).
Ph. Eur. 6.2 (Molsidomine). A white or almost white, crystalline powder. Sparingly soluble in water; soluble in anhydrous alcohol and in dichloromethane. A 1% solution in water has a pH of 5.5 to 7.5. Protect from light.

Profile

Molsidomine is a nitrovasodilator used in angina pectoris (p.1157). It may also be used in heart failure (p.1165) and after myocardial infarction (below).

Molsidomine is given in usual oral doses of 1 to 4 mg two to four times daily. Modified-release preparations are also available. It is also given intravenously in single doses of 2 to 4 mg and doses of 2 mg may be repeated at intervals of at least 2 hours if necessary; total doses of up to 40 mg daily have been given. Infusions may be given at a rate of up to 3 mg/hour.