(Хилозар-КОМОД); ***S.Afr.:*** Duovisc; Viscoat; ***Singapore:*** Duovisc; Viscoat; ***Switz.:*** Alphastria; Ialugen Plus; Lacrycon; ***Thai.:*** Duovisc; Viscoat; ***Turk.:*** Duovisc; Viscoat; ***UK:*** Atopiclair; Gelclair; Seprafilm; Xclair; Zuidex; ***USA:*** Atopiclair; Deflux; DisCoVisc; Gelclair; Healon Yellow; RadiaPlex Rx; Seprafilm; Viscoat; Zacare Kit; ***Venez.:*** Cepin; Epitheliale AH; Viscoat†.

Hyaluronidase *(BAN, rINN)*

Hialuronidasa; Hialuronidáz; Hialuronidazė; Hiyalüronidaz; Hyaluronidaasi; Hyaluronidas; Hyaluronidasa; Hyaluronidasum.

Гиалуронидаза

CAS — 9001-54-1.
ATC — B06AA03.
ATC Vet — QB06AA03.

NOTE. The name kinetin (p.1603) has also been used as a proprietary name for hyaluronidase.

Pharmacopoeias. In *Chin.* and *Eur.* (see p.vii). *US* includes as an injectable form.

Ph. Eur. 6.2 (Hyaluronidase). An enzyme capable of hydrolysing mucopolysaccharides of the hyaluronic acid type. It is prepared from the testes of mammals by a method that has been shown to reduce contamination by known infectious agents to acceptable limits; a suitable stabilising agent may be added to the purified preparation. A white or yellowish-white, amorphous powder; it contains not less than 300 international units of hyaluronidase activity per mg, calculated with reference to the dried substance. Soluble in water; practically insoluble in alcohol and in acetone. A 0.3% solution in water has a pH of 4.5 to 7.5. Store at 2° to 8° in airtight containers.

Units

The international and USP units are equivalent. One international or USP unit is equivalent to one turbidity-reducing unit or about 3.3 viscosity-reducing units.

Adverse Effects and Precautions

Sensitivity to hyaluronidase occasionally occurs. Because of the danger of spreading infection, the enzyme generally should not be injected into or around an infected area. It has been suggested that the presence of malignancy may similarly be a contra-indication to the use of hyaluronidase. It should not be given by intravenous injection nor should it be used for anaesthetic procedures in cases of unexplained premature labour. Hyaluronidase should not be applied directly to the cornea. It should not be used to reduce the swelling of bites or stings.

Uses and Administration

Hyaluronidase is an enzyme that reversibly depolymerises hyaluronic acid (above), a component of the ground substance or tissue cement surrounding cells, thereby temporarily reducing its viscosity and rendering the tissues more readily permeable to injected fluids.

Hyaluronidase is used to increase the speed of absorption and reduce discomfort due to subcutaneous or intramuscular injection of fluids, to promote resorption of excess fluids and extravasated blood in the tissues, and to increase the effectiveness of local anaesthesia.

In the UK, the usual dose as an adjunct to subcutaneous or intramuscular injection is 1500 units, added directly to the injection. To aid the dispersal of extravasated fluids or blood, the same dose is given in 1 mL of Water for Injections or 0.9% sodium chloride into the affected area. Lower doses of hyaluronidase are used in some countries; in the USA, the usual dose is 150 units.

In hypodermoclysis, hyaluronidase is used to aid the subcutaneous administration of relatively large volumes of fluids, especially in infants and young children, where intravenous injection is difficult. Care should be taken in the treatment of children and the elderly to control the speed and total volume given and to avoid overhydration. Hyaluronidase may be added to the injection fluid or may be injected into the site before the fluid is given. In the UK, 1500 units of hyaluronidase is generally given with each 500 to 1000 mL of fluid for subcutaneous use, but in the USA, 150 units of hyaluronidase is considered adequate for each litre of hypodermoclysis solution.

The diffusion of local anaesthetics is accelerated by the addition of 1500 units (in the USA, 150 units) of hyaluronidase to the anaesthetic solution. It has also been used in ophthalmology as an aid to local anaesthesia at recommended doses of 15 units/mL of local anaesthetic solution. Hyaluronidase has also been used for the treatment of vitreous haemorrhage and diabetic retinopathy.

To improve the resorption of radiopaque agents in subcutaneous urography, hyaluronidase is injected subcutaneously in a dose of 75 units over each scapula followed by injection of the contrast medium at the same site.

Recombinant human hyaluronidase is used for the preparation of oocytes during IVF.

Hyalosidase (GL enzyme) is a highly purified form of hyaluronidase that has been studied.

◊ General references.

1. Watson D. Hyaluronidase. *Br J Anaesth* 1993; **71:** 422–5.

Ophthalmic surgery. In a study[1] involving 150 consecutive patients undergoing surgery for senile cataract, retrobulbar anaesthesia with lidocaine 2% solution plus adrenaline 1:100 000 and hyaluronidase 15 units/mL produced successful anaesthesia in 69 of 75 cases (92%), which was significantly better than 42 of 75 treated with lidocaine plus adrenaline alone. Although poor results have been reported from hyaluronidase and a local anaesthetic without adrenaline to restrict local anaesthetic absorption, the use of the enzyme and adrenaline was recommended as an aid to achieving complete ocular akinesia and anaesthesia in cataract surgery. Hyaluronidase has also been used with a mixture of bupivacaine and lidocaine for peribulbar anaesthesia, but results have been conflicting. In a study[2] in 50 patients, addition of hyaluronidase 25 units/mL of local anaesthetic mixture had no significant effect on time to satisfactory anaesthesia. However, in a second study[3] involving 200 patients, addition of hyaluronidase 50 or 300 units/mL improved the quality of the peribulbar block and, in the case of the higher concentration, also increased the speed of onset.

1. Thomson I. Addition of hyaluronidase to lignocaine with adrenaline for retrobulbar anaesthesia in the surgery of senile cataract. *Br J Ophthalmol* 1988; **72:** 700–2.
2. Prosser DP, *et al*. Re-evaluation of hyaluronidase in peribulbar anaesthesia. *Br J Ophthalmol* 1996; **80:** 827–30.
3. Dempsey GA, *et al*. Hyaluronidase and peribulbar block. *Br J Anaesth* 1997; **78:** 671–4.

Preparations

BP 2008: Hyaluronidase Injection;
USP 31: Hyaluronidase for Injection; Hyaluronidase Injection.

Proprietary Preparations (details are given in Part 3)
Arg.: Unidasa; ***Austral.:*** Hyalase; ***Braz.:*** Hyalozima; ***Chile:*** Wydase†; ***Cz.:*** Hyasa†; Hylase; ***Ger.:*** Hylase; ***Gr.:*** Hylase; ***Hung.:*** Hyase†; ***India:*** Hynidase; ***Israel:*** Hyalase; ***Ital.:*** Jaluran†; ***Neth.:*** Hyason; ***NZ:*** Hyalase; ***S.Afr.:*** Hyalase; ***Turk.:*** Orthovisc; ***UK:*** Hyalase; ***USA:*** Amphadase; Hydase; Hylenex; Vitrase; Wydase†.

Multi-ingredient: ***Arg.:*** Nilflux; ***Austria:*** Lemuval; ***Braz.:*** Oto Xilodase; Postec; Xilodase; ***Ital.:*** Lido-Hyal; ***Pol.:*** Helason; ***Spain:*** Lasonil†; Oto Difusor†; ***Switz.:*** Lido-Hyal.

Hydrangea

Hidrangea; Seven Barks; Smooth Hydrangea; Wild Hydrangea.

Profile

Hydrangea, the root of *Hydrangea arborescens* (Hydrangeaceae), has diuretic and litholytic properties and is used for genitourinary disorders including renal and urinary calculi.

Homoeopathy. Hydrangea has been used in homoeopathic medicines under the following names: Hydrangea arborescens; Hydrang.

Preparations

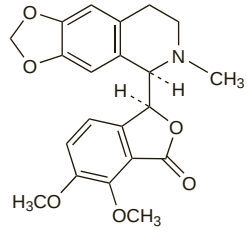
Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***UK:*** Antiglan; Backache.

Hydrastine Hydrochloride

Hidrastina, hidrocloruro de; Hydrastyny chlorowodorek. 6,7-Dimethoxy-3-(5,6,7,8-tetrahydro-6-methyl-1,3-dioxolo[4,5-*g*]isoquinolin-5-yl)isobenzofuran-1(3*H*)-one hydrochloride.

$C_{21}H_{21}NO_6$,HCl = 419.9.

CAS — 118-08-1 (hydrastine); 5936-28-7 (hydrastine hydrochloride).



(hydrastine)

Profile

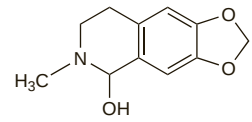
Hydrastine hydrochloride, the hydrochloride of an alkaloid obtained from *Hydrastis canadensis* (Ranunculaceae) (see Hydrastis, below), has been reputed to cause uterine contractions and arrest uterine haemorrhage but it is of doubtful value. It was also formerly used in gastrointestinal disorders. Toxic doses are reported to cause strychnine-like convulsions and relaxation of the gut.

Hydrastinine Hydrochloride

Idrastinina Cloruro. 5,6,7,8-Tetrahydro-6-methyl-1,3-dioxolo[4,5-*g*]isoquinolin-5-ol hydrochloride.

$C_{11}H_{11}NO_2$,HCl = 225.7.

CAS — 6592-85-4 (hydrastinine); 4884-68-8 (hydrastinine hydrochloride).



(hydrastinine)

Profile

Hydrastinine is a derivative of the alkaloid hydrastine (p.2321) and has been used similarly. It has vasoconstrictor properties and has been used as the hydrochloride as an ingredient of topical preparations for minor eye disorders.

Preparations

Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Austria:*** Dacrin; Haemanal.

Hydrastis

Golden Seal; Goldenseal; Hidraste; Hidrastis; Hydrast.; Hydrastidis Radix; Hydrastis rhizoma; Hydrastisjuuri; Hydrastisrot; Idraste; Kanadinių auksašaknių šakniastiebiai; Vodilkový kořen; Yellow Root.

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

Ph. Eur. 6.2 (Goldenseal Rhizome; Goldenseal Root BP 2008). The whole or cut, dried rhizome and root of *Hydrastis canadensis* containing not less than 2.5% of hydrastine and not less than 3.0% of berberine, calculated on the dried basis. Protect from light.

USP 31 (Goldenseal). The dried roots and rhizomes of *Hydrastis canadensis* (Ranunculaceae), containing not less than 2.0% of hydrastine and not less than 2.5% of berberine, calculated on the dried basis. Store in airtight containers. Protect from light, moisture, and heat.

Profile

Hydrastis was formerly used to arrest excessive uterine haemorrhage. It is included in some herbal preparations for gastrointestinal disorders and peripheral vascular disorders. The pharmacological activity of hydrastis is attributed primarily to 2 of its constituent alkaloids, berberine (p.2264) and hydrastine (above).

Homoeopathy. Hydrastis has been used in homoeopathic medicines under the following names: Hydrastis canadensis; Hydrdr. can.

Preparations

Proprietary Preparations (details are given in Part 3)
Ger.: Gingivitol N.

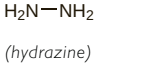
Multi-ingredient: ***Austral.:*** Bilberry Plus; Euphrasia Complex; Herbal Cleanse†; Hydrastis Complex†; Sambucus Complex†; Urapro†; Urinase†; ***Braz.:*** Bromidrastina†; ***Canad.:*** Echinacea Goldenseal Formula†; ***Fr.:*** Climaxol; ***Spain:*** Proctosor†; Solucion Schoum; ***Turk.:*** Ma-Ka-Ta; ***UK:*** Digestive; HRI Golden Seal Digestive; Wind & Dyspepsia Relief.

Hydrazine Sulfate

Hidrazina, sulfato de; Hydrazine Sulphate; Hydrazyny siarczan.

$H_6N_2O_4S$ = 130.1.

CAS — 302-01-2 (hydrazine); 10034-93-2 (hydrazine sulfate).



(hydrazine)

Profile

Hydrazine sulfate is employed in various industrial processes. It is used in the preparation of hydrazine hydrate which is applied after a solution of platinic chloride for corneal tattooing. It has been tried, but with little if any benefit, in the management of cancer-related anorexia and cachexia.

Adverse effects and treatment. References to adverse effects resulting from exposure to hydrazine.[1-5] Pyridoxine has been used in the management of hydrazine intoxication.[6-8]

1. Albert DM, Puliafito CA. Choroidal melanoma: possible exposure to industrial toxins. *N Engl J Med* 1977; **296:** 634–5.
2. Durant PJ, Harris RA. Hydrazine and lupus. *N Engl J Med* 1980; **303:** 584–5.
3. WHO. Hydrazine. *Environmental Health Criteria 68*. Geneva: WHO, 1987. Available at: http://www.inchem.org/documents/ehc/ehc/ehc68.htm (accessed 24/07/08)
4. WHO. Hydrazine health and safety guide. *IPCS Health and Safety Guide 56*. Geneva: WHO, 1991. Available at: http://www.inchem.org/documents/hsg/hsg/hsg056.htm (accessed 24/07/08)
5. Hainer MI, *et al*. Fatal hepatorenal failure associated with hydrazine sulfate. *Ann Intern Med* 2000; **133:** 877–80.
6. Kirklin JK, *et al*. Treatment of hydrazine-induced coma with pyridoxine. *N Engl J Med* 1976; **294:** 938–9.

7. Harati Y, Niakan E. Hydrazine toxicity, pyridoxine therapy, and peripheral neuropathy. *Ann Intern Med* 1986; **104:** 728–9.
8. Nagappan R, Riddell T. Pyridoxine therapy in a patient with severe hydrazine sulfate toxicity. *Crit Care Med* 2000; **28:** 2116–18.

Anorexia and cachexia. References[1-3] to the use of hydrazine sulfate in patients with anorexia or cachexia associated with cancer.

1. Tayek JA, *et al*. Effect of hydrazine sulphate on whole-body protein breakdown measured by C-lysine metabolism in lung cancer patients. *Lancet* 1987; **ii:** 241–4.
2. Loprinzi CL, *et al*. Cancer-associated anorexia and cachexia: implications for drug therapy. *Drugs* 1992; **43:** 499–506.
3. Kaegi E. Unconventional therapies for cancer: hydrazine sulfate. *Can Med Assoc J* 1998; **158:** 1327–30.

Preparations

Proprietary Preparations (details are given in Part 3)
Rus.: Sehydrin (Сегидрин).

Hydrochloric Acid

Acide chlorhydrique; Acidum Hydrochloricum; Acidum hydrochloridum; Clorhídrico, ácido; E507; Kloorivetyhappo; Kwas solny; Kyselina chlorovodíková; Saltsyra; Salzsäure; Sósav; Suolahappo; Vandenilio chlorido rūgštis; Vetykloridihappo.

HCl = 36.46.
CAS — 7647-01-0.
ATC — A09AB03; B05XA13.
ATC Vet — QA09AB03; QB05XA13.

NOTE. The impure acid of commerce is known as Spirits of Salt and as Muriatic Acid.

Pharmacopoeias. *Chin.*, *Eur.* (see p.vii), *Int.*, *Jpn*, *Swiss*, and *Viet.* include various concentrations. Also in *USNF*.
Ph. Eur. 6.2 (Hydrochloric Acid, Concentrated; Acidum Hydrochloridum Concentratum; Hydrochloric Acid BP 2008). It contains 35.0 to 39.0% w/w of HCl. A clear, colourless, fuming liquid. Miscible with water. Store below 30° in stoppered containers of glass or other inert material.
Ph. Eur. 6.2 (Hydrochloric Acid, Dilute; Acidum Hydrochloridum Dilutum). It contains 9.5 to 10.5% w/w of HCl prepared by mixing hydrochloric acid 274 g with water 726 g.
USNF 26 (Hydrochloric Acid). It contains 36.5 to 38.0% w/w of HCl. A colourless, fuming liquid having a pungent odour. It ceases to fume when it is diluted with 2 volumes of water. Store in airtight containers.
USNF 26 (Diluted Hydrochloric Acid). It contains 9.5 to 10.5% w/v of HCl and may be prepared by mixing hydrochloric acid 226 mL with sufficient water to make 1000 mL. A colourless, odourless liquid. Store in airtight containers.

Adverse Effects

Hydrochloric acid is highly irritant and corrosive and ingestion has proved fatal. The corrosive effect causes chemical burns and severe pain. There may be violent vomiting, haematemesis, and circulatory collapse; acids can also produce intravascular coagulation and haemolysis. Ulceration may lead to perforation and patients can suffer strictures and pyloric stenosis. Asphyxiation may result from laryngeal oedema. Inhalation of acid fumes or aspiration of ingested acids may cause pneumonitis.

◊ References.

1. WHO. Chlorine and hydrogen chloride. *Environmental Health Criteria 21*. Geneva: WHO, 1982. Available at: http://www.inchem.org/documents/ehc/ehc/ehc21.htm (accessed 16/06/04)
2. Munoz Munoz E, *et al*. Massive necrosis of the gastrointestinal tract after ingestion of hydrochloric acid. *Eur J Surg* 2001; **167:** 195–8.

Treatment of Adverse Effects

Treatment of ingestion is mainly symptomatic. Gastric lavage and activated charcoal are not generally appropriate and emetics must *not* be used. Small amounts of water or milk may be given to dilute the acid but larger volumes may increase the risk of emesis and hence of further damage. Neutralising agents are not recommended because of the possibility of heat being produced during exothermic reactions, which may increase the injury further. Opioid analgesia may be required for pain. Endoscopy should be performed and surgical intervention may be necessary. There is little evidence to support the value of corticosteroids in preventing stricture formation.

Acid burns of the skin should be flooded immediately with water and the washing should be copious and prolonged. Any affected clothing should be removed while flooding is being carried out. For burns in the eye, the lids should be kept open and the eye flushed with a steady stream of water at room temperature or sodium chloride 0.9%. A few drops of a local anaesthetic solution will relieve lid spasm and facilitate irrigation.

Uses and Administration

Hydrochloric acid has been used as an escharotic. It has been used in the diluted form for the treatment of achlorhydria and other gastrointestinal disorders. It has also been given intravenously in the management of metabolic alkalosis (p.1667). An acid perfusion test using hydrochloric acid has been used in the diagnosis of oesophageal disorders. When taken orally, it should be sipped through a straw to protect the teeth.

Homoeopathy. Hydrochloric acid has been used in homoeopathic medicines under the following names: Acidum hydrochloricum; Muriaticum acidum; Hydrochloridum acidum; Chlorhydricum acidum; Acidum muriaticum; Ac. mur.

Diagnosis and testing. References and comments on the use of an acid perfusion test in the diagnosis of oesophageal disorders,[1-5] such as gastro-oesophageal reflux disease (p.1696) and oesophageal motility disorders (p.1702). The test involves intra-oesophageal perfusion of 0.1M hydrochloric acid; subsequent development of pain indicates an acid-sensitive oesophagus. This test has also been used in the differential diagnosis of angina.[2]

1. Sladen GE, *et al*. Oesophagoscopy, biopsy, and acid perfusion test in diagnosis of "reflux oesophagitis". *BMJ* 1975; **1:** 71–6.
2. Anonymous. Angina and oesophageal disease. *Lancet* 1986; **i:** 191–2.
3. Hewson EG, *et al.* Acid perfusion test: does it have a role in the assessment of non cardiac chest pain? *Gut* 1989; **30:** 305–10.
4. de Caestecker JS, Heading RC. Acid perfusion in the assessment of non-cardiac chest pain. *Gut* 1989; **30:** 1795–7.
5. Howard PJ, *et al.* Acid perfusion is a good screening test for symptomatic oesophageal reflux. *Gut* 1989; **30:** A1445.

Pregnancy. Heartburn during pregnancy may be due to reflux of alkaline duodenal contents. A dilute solution of hydrochloric acid (pH 2) taken after meals and at bedtime produced improvements in heartburn in pregnant women.[1]

1. Anonymous. Heartburn in pregnancy. *Drug Ther Bull* 1990; **28:** 11–12.

Preparations

Proprietary Preparations (details are given in Part 3)
Pol.: Mixtura Pepsini.
Multi-ingredient: ***Ital.:*** Gastro-Pepsin; ***S.Afr.:*** Sentinel Ulcer Mixture.

Hydrofluoric Acid

Fluohydric Acid; Fluorhídrico, ácido; Fluoric Acid; Kwas fluorowodorowy.

HF = 20.01.
CAS — 7664-39-3.

Description. Hydrofluoric acid is a solution of hydrogen fluoride in water. Various strengths are used. It attacks glass strongly.

Adverse Effects

As for Hydrochloric Acid, above. Although the corrosive effects of hydrofluoric acid tend to predominate, absorption may produce systemic fluoride poisoning as described under Sodium Fluoride, p.1962.

The pain from contact with weak solutions may be delayed, so that the patient is not aware of being burnt until some hours later, when the area begins to smart; intense pain then sets in and this may persist for several days. Destruction of tissue proceeds under the toughened coagulated skin, so that the ulcers extend deeply, heal slowly, and leave a scar.

The fumes of hydrofluoric acid are highly irritant.

Treatment of Adverse Effects

The initial treatment of poisoning after oral exposure to hydrofluoric acid is similar to that described for hydrochloric acid, see above. Calcium gluconate should also be given intravenously to correct known or suspected hypocalcaemia. Burns in the eye are also managed as for hydrochloric acid, although irrigation of the eye may be continued with calcium gluconate solution 2% after initial flood with water or sodium chloride 0.9%.

In the event of skin burns with hydrofluoric acid, contaminated clothing or articles should be removed and the skin washed with copious cold water. A calcium gluconate gel is sometimes used and it may be necessary to infiltrate the affected areas with calcium gluconate intradermally or subcutaneously. Regional intravenous infusion of calcium gluconate may be necessary in severe burns of the forearm, hand, or fingers; if ineffective, intra-arterial infusion for burns of the fingers may be considered. Hydrofluoric acid passes through finger- and toe-nails without causing any apparent damage; nails will therefore have to be removed or perforated to be able to treat the underlying tissues. Other first-aid measures reported to be effective include prolonged soaks in iced solutions of benzalkonium chloride; iced water has sometimes been used as has iced magnesium sulfate solution. Local anaesthesia may be needed. Burn eschars should be excised and necrotic tissue debrided. Absorption may lead to systemic fluoride toxicity and the need for intravenous calcium gluconate to manage hypocalcaemic symptoms.

◊ References to the treatment of hydrofluoric acid burns.

1. Browne TD. The treatment of hydrofluoric acid burns. *J Soc Occup Med* 1974; **24:** 80–9.
2. MacKinnon MA. Hydrofluoric acid burns. *Dermatol Clin* 1988; **6**: 67–74.
3. McIvor ME. Acute fluoride toxicity: pathophysiology and management. *Drug Safety* 1990; **5**; 79–85.
4. Kirkpatrick JJR, *et al.* Hydrofluoric acid burns: a review. *Burns* 1995; **21:** 483–93.
5. Sanz-Gallen P, *et al.* Hypocalcaemia and hypomagnesaemia due to hydrofluoric acid. *Occup Med (Lond)* 2001; **51:** 294–5.
6. Martin HCO, Muller MJ. Hydrofluoric acid burns from a household rust remover. *Med J Aust* 2002; **176:** 296.
7. Foster KN, *et al.* Hydrofluoric acid burn resulting from ignition of gas from a compressed air duster. *J Burn Care Rehabil* 2003; **24:** 234–8.

Uses

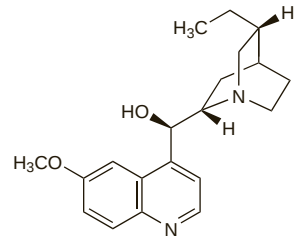
Hydrofluoric acid is used in industry. Its main use has been for the production of fluorocarbons for use as refrigerants and propellants. It has also been used as an ingredient of preparations for glass etching and rust removal.

Homoeopathy. Hydrofluoric acid has been used in homoeopathic medicines under the following names: Fluoricum acidum; Acidum hydrofluoricum; Ac. fluor.

Hydroquinine Hydrobromide

Dihydrochinin Hydrobromide; Dihydroquinine Hydrobromide; Hidroquinina, hidrobromuro de; Hydrochinin Hydrobromide; Methylhydrocupreine Hydrobromide. 8α,9*R*-10,11-Dihydro-6′-methoxycinchonan-9-ol hydrobromide.

$C_{20}H_{26}N_2O_2$,HBr = 407.3.
CAS — 522-66-7 (hydroquinine).
ATC — M09AA01.
ATC Vet — QM09AA01.



(hydroquinine)

NOTE. Do not confuse with Hydroquinone (p.1598).

Profile

Hydroquinine is a derivative of quinine (p.612) used similarly in the treatment of nocturnal muscle cramps. It is given as the hydrobromide in an oral dose of 200 mg with the evening meal and a further 100 mg at bedtime for 14 days.

Muscle spasm. Quinine and its derivatives such as hydroquinine have traditionally been used for the prevention of nocturnal cramps (p.1887) but there has been concern over their efficacy and potential for adverse effects, especially in the elderly.

References.

1. Jansen PHP, *et al.* Randomised controlled trial of hydroquinine in muscle cramps. *Lancet* 1997; **349:** 528–32.
2. van Kan HJM, *et al.* Hydroquinine pharmacokinetics after oral administration in adult patients with muscle cramps. *Eur J Clin Pharmacol* 2000; **56:** 263–7.

Preparations

Proprietary Preparations (details are given in Part 3)
Neth.: Inhibin.

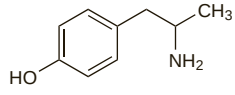
Hydroxyamfetamine Hydrobromide

(BANM, rINNM) ⊗

Bromhidrato de Hidroxianfetamina; Hidrobromuro de hidroxianfetamina; Hydroxyamfétamine, Bromhydrate d'; Hydroxyamfetamini Hydrobromidum; Hydroxyamphetamine Hydrobromide; *p*-Hydroxyamphetamine Hydrobromide; Oxamphetamine Hydrobromide. (±)-4-(2-Aminopropyl)phenol hydrobromide.

Гидроксиамфетамина Гидробромид

$C_9H_{13}NO$,HBr = 232.1.
CAS — 103-86-6 (hydroxyamfetamine); 1518-86-1 ((±)-hydroxyamfetamine); 306-21-8 (hydroxyamfetamine hydrobromide); 140-36-3 ((±)-hydroxyamfetamine hydrobromide).



(hydroxyamfetamine)

Pharmacopoeias. In *US*.
USP 31 (Hydroxyamphetamine Hydrobromide). A white, crystalline powder. Freely soluble in water and in alcohol; slightly soluble in chloroform; practically insoluble in ether. Its solutions in water are slightly acid to litmus, having a pH of about 5. Protect from light.

Profile

Hydroxyamfetamine hydrobromide is a sympathomimetic with an action similar to that of ephedrine (p.1559), but it has little or no stimulant effect on the CNS. It was formerly used as a vasopressor and in the management of some cardiac disorders.