sopressin in upper gastrointestinal variceal haemorrhage, see below.

1. Schulz KF, *et al.* Vasopressin reduces blood loss from second-trimester dilatation and evacuation abortion. *Lancet* 1985; **ii:** 353–6.
2. Lurie S, *et al.* Subendometrial vasopressin to control intractable placental bleeding. *Lancet* 1997; **349:** 698.
3. Noseworthy TW, Anderson BJ. Massive hemoptysis. *Can Med Assoc J* 1986; **135:** 1097–9.
4. Bilton D, *et al.* Life threatening haemoptysis in cystic fibrosis: an alternative therapeutic approach. *Thorax* 1990; **45:** 975–6. Correction. *ibid.* 1991; **46:** 274.
5. Darcy M. Treatment of lower gastrointestinal bleeding: vasopressin infusion versus embolization. *J Vasc Interv Radiol* 2003; **14:** 535–43.

Nocturnal enuresis. For references to the use of the vasopressin analogue, desmopressin, in nocturnal enuresis, see p.2187.

Shock. Argipressin has been reported to have beneficial vasopressor effects in the management of shock (p.1183) due to vasodilatation. It has been given by continuous intravenous infusion at a dose of about 2 to 6 units/hour as supplemental therapy in patients who could not be adequately managed with conventional vasopressor therapy.[1,2] In a retrospective study[3] vasopressin given with or without catecholamines for haemodynamic support of shock did not increase the incidence of venous thromboembolism compared with catecholamines given alone. Further reports[4,5] of the benefit of vasopressin in septic shock suggest that it may be of value in reducing doses of catecholamine vasopressors.

1. Dünser MW, *et al.* Management of vasodilatory shock: defining the role of arginine vasopressin. *Drugs* 2003; **63:** 237–56.
2. Dünser MW, *et al.* Arginine vasopressin in advanced vasodilatory shock: a prospective, randomized, controlled study. *Circulation* 2003; **107:** 2313–19.
3. Doepker BA, *et al.* Thromboembolic events during continuous vasopressin infusions: a retrospective evaluation. *Ann Pharmacother* 2007; **41:** 1383–9.
4. Obritsch MD, *et al.* Effects of continuous vasopressin infusion in patients with septic shock. *Ann Pharmacother* 2004; **38:** 1117–22.
5. Szumita PM, *et al.* Vasopressin for vasopressor-dependent septic shock. *Am J Health-Syst Pharm* 2005; **62:** 1931–6.

Variceal haemorrhage. Vasopressin has been widely used to control bleeding from oesophageal varices, as discussed under Monoethanolamine, on p.2346. However, terlipressin, and more recently octreotide, have been found to have some advantages over vasopressin, including bolus dosage and fewer adverse effects, and octreotide is increasingly preferred for this purpose. Glyceryl trinitrate has been given with the aim of counteracting the adverse cardiac effects of vasopressin while potentiating its beneficial effects on portal pressure.[1-4]

1. Stump DL, Hardin TC. The use of vasopressin in the treatment of upper gastrointestinal haemorrhage. *Drugs* 1990; **39:** 38–53.
2. Williams SGJ, Westaby D. Management of variceal haemorrhage. *BMJ* 1994; **308:** 1213–17.
3. Sung JJY. Non-surgical treatment of variceal haemorrhage. *Br J Hosp Med* 1997; **57:** 162–6.
4. McCormack G, McCormack PA. A practical guide to the management of oesophageal varices. *Drugs* 1999; **57:** 327–35.

Preparations

USP 31: Lypressin Nasal Solution; Vasopressin Injection.

Proprietary Preparations (details are given in Part 3)
Austral.: Pitressin; ***Canad.:*** Pressyn; ***Ger.:*** Pitressin†; ***Gr.:*** Pitressin†; ***Irl.:*** Pitressin; ***NZ:*** Pitressin; ***UK:*** Pitressin; ***USA:*** Pitressin.

Used as an adjunct in: ***Thai.:*** Neo-Lidocaton†.

Vegetable Fatty Oils

Kasvirasvaöljyt; Olea Herbaria; Oljor, feta, vegetabiliska.

Pharmacopoeias. In *Eur.* (see p.vii).
Ph. Eur. 6.2 (Vegetable Fatty Oils). Vegetable fatty oils are mainly solid or liquid triglycerides of fatty acids that may contain small amounts of other lipids such as waxes, free fatty acids, partial glycerides, or unsaponifiable matters. They are obtained from the seeds or fruits of plants by expression and/or solvent extraction, and may then be refined or hydrogenated with the addition of a suitable antoxidant if necessary. The following are defined:

- *virgin oil*: the oil obtained from raw materials of special quality by mechanical procedures such as cold expression or centrifugation.
- *refined oil*: the oil obtained by expression and/or solvent extraction, and subsequently, either alkali refining (followed by bleaching and deodorisation) or physical refining.
- *hydrogenated oil*: an oil obtained by expression and/or solvent extraction, and subsequently, either alkali refining or physical refining, then possible bleaching, followed by drying, hydrogenation, and subsequently bleaching and deodorisation.

Only phosphoric acid and alkali refined oils may be used in the preparation of parenteral dosage forms.

Hydrogenated Vegetable Oil

Aceite vegetal hidrogenado.

Pharmacopoeias. In *Br. Jpn* allows under the title Hydrogenated Oil a product from fish, other animals or vegetables. Also in *USNF*.
BP 2008 (Hydrogenated Vegetable Oil). A mixture of triglycerides of fatty acids of vegetable origin. An almost white, fine powder at room temperature and a pale yellow, oily liquid above its m.p. of 57° to 70°. Practically insoluble in water; soluble in chloroform, in hot isopropyl alcohol, and in petroleum spirit. Store at a temperature of 8° to 25°.
USNF 26 (Hydrogenated Vegetable Oil). Type 1 Hydrogenated Vegetable Oil occurs as a fine, white powder, beads, or small flakes; m.p. 57° to 85°. Type 2 Hydrogenated Vegetable Oil occurs as a plastic (semi-solid) or flakes, having a softer consistency than Type 1; m.p. 20° to 50°.
Insoluble in water; soluble in chloroform, in hot isopropyl alcohol, and in petroleum spirit. Store in airtight containers at a temperature of 8° to 15°.

Profile

Vegetable fatty oils are generally solid or liquid triglycerides of fatty acids that may contain small amounts of other lipids. They are obtained from the seeds or fruits of plants by expression and/or solvent extraction, and may then be refined or hydrogenated with the addition of a suitable antoxidant if necessary. They are fixed oils (expressed oils) and do not evaporate on warming as opposed to essential oils (ethereal oils, volatile oils), which evaporate readily and are usually obtained from their aromatic plant source by distillation. Some fixed vegetable oils are used to modify the consistency of ointments and for their emollient properties. They have also been used as vehicles for fat-soluble substances such as vitamins.

Hydrogenated vegetable oil is refined, bleached, hydrogenated, and deodorised vegetable oil stearins consisting mainly of the triglycerides of stearic and palmitic acids. It is used as a tablet lubricant and as an ointment or suppository basis.

Preparations

Proprietary Preparations (details are given in Part 3)
Spain: Blodex†.

Veratrine

Veratriini; Veratrin; Veratrina; Veratrinum.
CAS — 8051-02-3 (veratrine mixture); 71-62-5 (veratrine amorphous); 62-59-9 (veratrine crystallised, cevadine).

Description. Veratrine is a mixture of alkaloids from the dried ripe seeds of *Schoenocaulon officinale* (Liliaceae) (sabadilla). Veratrine should be distinguished from protoveratrines obtained from veratrum.

Adverse Effects, Treatment, and Precautions

Veratrine resembles aconite (p.2246) in its action on the peripheral nerve endings and poisoning should be treated similarly. It is an intense local irritant and has a powerful direct stimulating action on all muscle tissues. It has a violent irritant action on mucous membranes, even in minute doses, and must be handled with great care. When ingested it causes violent vomiting, purging, an intense burning sensation in the mouth and throat, and general muscular weakness.

Uses and Administration

Veratrine should not be used internally. It was formerly applied externally for its analgesic properties and as a parasiticide, especially for head lice, but even when used in this way there is danger of systemic poisoning from absorption.

Green Veratrum

American Hellebore; American Veratrum; Eléboro verde; Green Hellebore; Green Hellebore Rhizome; Veratro Verde; Veratrum Viride.
CAS — 8002-39-9.
ATC — C02KA01.
ATC Vet — QC02KA01.

Description. Green veratrum consists of the dried rhizome and roots of *Veratrum viride* (Liliaceae) from which are derived the alkaloidal mixtures alkavervir and cryptenamine.

White Veratrum

Eléboro blanco; European Hellebore; Veratrum Album; White Hellebore; White Hellebore Rhizome.
ATC — C02KA01.
ATC Vet — QC02KA01.

Description. White veratrum consists of the dried rhizome and roots of *Veratrum album* (Liliaceae) from which are derived the alkaloids protoveratrine A and B.

Adverse Effects

Veratrum alkaloids may cause nausea and vomiting at conventional therapeutic doses. Other adverse effects include epigastric and substernal burning, sweating, mental confusion, bradycardia or cardiac arrhythmias, dizziness, and hiccup. Profound hypotension and respiratory depression can occur at high doses.

Sneezing powder. Various symptoms of intoxication occurred in 7 patients due to the use of a sneezing powder containing white veratrum alkaloids.[1]

1. Fogh A, *et al.* Veratrum alkaloids in sneezing-powder: a potential danger. *J Toxicol Clin Toxicol* 1983; **20:** 175–9.

Treatment of Adverse Effects

After oral ingestion of veratrum alkaloids the stomach should be emptied by aspiration and lavage; activated charcoal may be considered within 1 hour of ingestion. Excessive hypotension with bradycardia or cardiac arrhythmias can be treated with atropine. The patient should be placed in a supine position with the feet raised.

Uses and Administration

White and green veratrum contain a number of pharmacologically active alkaloids that produce centrally mediated peripheral vasodilatation and bradycardia. They have been used in the treatment of hypertension but are generally considered to produce an unacceptably high incidence of adverse effects and have largely been replaced by less toxic antihypertensives.
Both green and white veratrum have also been used as insecticides.
Homoeopathy. White Veratrum has been used in homoeopathic medicines under the following names: Veratrum album; Ver. alb.

Verbascum

Aaron's Rod (*Verbascum thapsus*); Bouillon Blanc; Bouillon blanc, fleur de (mullein flower); Diviznový květ (mullein flower); Great Mullein (*Verbascum thapsus*); Kungsljusblomma (mullein flower); Mullein; Ökörfarkkoró virág (mullein flower); Orange Mullein (*Verbascum phlomoides*); Tūbių žiedai (mullein flower); Ukontulikukankukka (mullein flower); Verbasci flos (mullein flower); Wollblumen.

NOTE. The name Aaron's Rod has been applied to a number of plants including *V. densiflorum*, *Solidago* spp., and *Sempervivum tectorum*.

Pharmacopoeias. *Eur.* (see p.vii) includes the dried flowers.
Ph. Eur. 6.2 (Mullein Flower; Verbasci flos). The dried flowers, reduced to the corolla and the androecium, of *Verbascum thapsus*, *V. densiflorum*, and *V. phlomoides*. Store in airtight containers.

Profile

Verbascum flower is an ingredient of herbal remedies for cough and cold symptoms. The dried leaves and stems have also been used.

Preparations

Proprietary Preparations (details are given in Part 3)
Ger.: Eres N†; ***Pol.:*** Noverban.

Multi-ingredient: ***Austral.:*** Procold†; Verbascum Complex†; ***Austria:*** Brust- und Hustentee St Severin; ***Cz.:*** Naturland Grosser Swedenbitter†; Species Pectorales Planta; ***Fr.:*** Detoxell; ***Ger.:*** Equisil N; Hevertopect N†; ***Mex.:*** Bronkitose Mielimon; ***Pol.:*** Flegatussin; Gwajatussin; Termasil; ***Rus.:*** Original Grosser Bittner Balsam (Оригинальный Большой Бальзам Биттнера); ***Spain:*** Bronpul†; Natusor Broncopul†.

Verbenone

Werbenon. 2-Pinen-4-one; 4,6,6-Trimethylbicyclo[3.1.1]hept-3-en-2-one.
$C_{10}H_{14}O$ = 150.2.
CAS — 80-57-9 (verbenone); 18309-32-5 (d-verbenone); 1196-01-6 (l-verbenone).
ATC Vet — QR05CA11 (L-verbenone).

Profile

Verbenone is a terpene found in lemon-verbena oil, rosemary oil (p.2381) and some other essential oils. It has been used, sometimes with pine oil, for respiratory disorders.
Verbenone has also been used as an insect repellent in forestry.

Preparations

Proprietary Preparations (details are given in Part 3)
Ital.: Ozopulmin; Ozopulmin G.

Multi-ingredient: ***Ital.:*** Ozopulmin; Ozopulmin G.

Vervain

Herba Columbariae; Herba Verbenae; Shop Vervain Wort; Verbena; Verveine Officinale.

Pharmacopoeias. In *Chin.* and *Eur.* (see p.vii).
Ph. Eur. 6.2 (Verbena Herb). The whole or fragmented, dried aerial parts of *Verbena officinalis* collected during flowering. It contains a minimum of 15% of verbenalin ($C_{17}H_{24}O_{10}$ = 388.4) calculated with reference to the dried drug.

Profile

Vervain, the aerial parts of *Verbena officinalis* (Verbenaceae), has been used for a wide range of disorders. It is a bitter and has been used for digestive disorders. It also has sedative properties and