Flavoxate Hydrochloride

(BANM, USAN, rINNM)

DW-61; Flavoksat Hidroklorür; Flavoxate, chlorhydrate de; Flavoxati hydrochloridum; Hidrocloruro de flavoxato; NSC-114649; Rec-7-0040. 2-Piperidinoethyl 3-methyl-4-oxo-2-phenyl-4*H*-chromene-8-carboxylate hydrochloride.

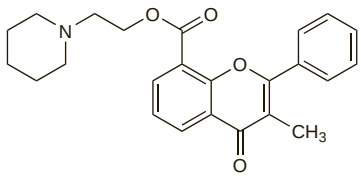
Флавоксата Гидрохлорид

$C_{24}H_{25}NO_4$,HCl = 427.9.

CAS — 15301-69-6 (flavoxate); 3717-88-2 (flavoxate hydrochloride).

ATC — G04BD02.

ATC Vet — QG04BD02.



(flavoxate)

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

Ph. Eur. 6.2 (Flavoxate Hydrochloride). A white or almost white crystalline powder. Slightly soluble in water and in alcohol; sparingly soluble in dichloromethane. Protect from light.

Adverse Effects, Treatment, and Precautions

As for Atropine Sulfate, p.1219. Ocular effects, including increased intra-ocular pressure, are occasionally troublesome. Other adverse effects include sedation or fatigue, vertigo, and hypersensitivity reactions. Leucopenia or eosinophilia has been reported rarely.

Interactions

As for antimuscarinics in general (see Atropine Sulfate, p.1220).

Pharmacokinetics

Flavoxate is readily absorbed from the gastrointestinal tract and rapidly metabolised, about 50 to 60% of a dose being excreted in the urine within 24 hours as methyl flavone carboxylic acid.

Uses and Administration

Flavoxate hydrochloride is described as a smooth muscle relaxant but it also has antimuscarinic effects (see, p.1221); it is a tertiary amine. It is used for the symptomatic relief of pain, urinary frequency, and incontinence associated with inflammatory disorders of the urinary tract. It is also used for the relief of vesicourethral spasms resulting from instrumentation or surgery. A usual dose is 200 mg orally three times daily.

Urinary incontinence. Flavoxate is indicated mainly in the treatment of urge incontinence (p.2180). Results of studies have sometimes been disappointing,[1,2] although adverse effects are said to be less marked than those seen with other antimuscarinics such as oxybutynin.[3] In the UK, guidelines issued by NICE suggest that flavoxate should not be recommended for the treatment of urinary incontinence or overactive bladder in women; other antimuscarinics are preferred.[4]

1. Chapple CR, *et al.* Double-blind, placebo-controlled, cross-over study of flavoxate in the treatment of idiopathic detrusor instability. *Br J Urol* 1990; **66:** 491–4.
2. Dahm TL, *et al.* Flavoxate treatment of micturition disorders accompanying benign prostatic hypertrophy: a double-blind placebo-controlled multicenter investigation. *Urol Int* 1995; **55:** 205–8.
3. Fehrmann-Zumpe P, *et al.* Using flavoxate as primary medication for patients suffering from urge symptomatology. *Int Urogynecol J* 1999; **10:** 91–5.
4. NICE. Urinary incontinence: the management of urinary incontinence in women (issued October 2006). Available at: http://www.nice.org.uk/nicemedia/pdf/CG40NICEguideline.pdf (accessed 02/09/08)

Preparations

BP 2008: Flavoxate Tablets.

Proprietary Preparations (details are given in Part 3)
Arg.: Bladuril; ***Austria:*** Urispas; ***Belg.:*** Urispas; ***Braz.:*** Genurin-S; ***Canad.:*** Urispas†; ***Chile:*** Bladuril; ***Cz.:*** Urispas†; ***Denm.:*** Urispadol; ***Fr.:*** Urispas; ***Ger.:*** Spasuret; ***Gr.:*** Verispasmin; ***Hong Kong:*** Genurin†; Urispas; ***India:*** Flavate; Urisol; Urispas; ***Indon.:*** Uroxal; ***Irl.:*** Urispas; ***Ital.:*** Genurin; ***Jpn:*** Bladderon; ***Malaysia:*** Uripax; Urispas; ***Mex.:*** Bladuril; ***Neth.:*** Urispas; Uronid; ***Port.:*** Urispas; ***S.Afr.:*** Urispas; ***Singapore:*** Cleanxate; Genurin†; Urispas; ***Spain:*** Uronid; ***Switz.:*** Urispas; ***Thai.:*** Flavo-Spa; Flavorin; Spasdic; Spasuri; U-Spa; Uroxate; Voxate; ***Turk.:*** Urispas; ***UK:*** Urispas; ***USA:*** Urispas; ***Venez.:*** Genurin.

Multi-ingredient: *Arg.:* Algio-Bladuril; ***Ital.:*** Cistalgan.

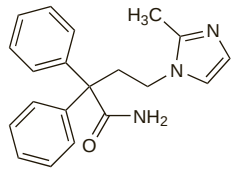
Imidafenacin *(rINN)*

Imidafenacina; Imidafénacine; Imidafenacinum; KRP-197; KRP-1979; Ono-8025. 4-(2-Methyl-1*H*-imidazol-1-yl)-2,2-diphenylbutanamide.

Имидафенацин

$C_{20}H_{21}N_3O$ = 319.4.

CAS — 170105-16-5.



Profile

Imidafenacin is an antimuscarinic that is used in the treatment of urinary frequency, urgency, and incontinence (p.2180). It is given in an oral dose of 100 micrograms twice daily, after food.

Preparations

Proprietary Preparations (details are given in Part 3)
Jpn: Staybla; Uritos.

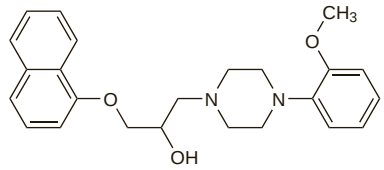
Naftopidil *(rINN)*

BM-15275; KT-611; Naftopidilum. (±)-4-(*o*-Methoxyphenyl)-α-[(1-naphthyloxy)methyl]-1-piperazineethanol.

Нафтопидил

$C_{24}H_{28}N_2O_3$ = 392.5.

CAS — 57149-07-2.



Profile

Naftopidil is a peripheral alpha$_1$-adrenoceptor blocker that is structurally related to urapidil (p.1419) and has similar general properties. It is used in benign prostatic hyperplasia to relieve symptoms of urinary obstruction.

Preparations

Proprietary Preparations (details are given in Part 3)
Jpn: Avishot; Flivas.

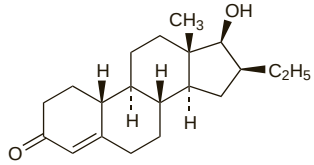
Oxendolone *(USAN, rINN)*

Oxendolona; Oxendolonum; TSAA-291. 16β-Ethyl-17β-hydroxyestr-4-en-3-one.

Оксендолон

$C_{20}H_{30}O_2$ = 302.5.

CAS — 33765-68-3.



Profile

Oxendolone is an anti-androgen that has been used in the treatment of benign prostatic hyperplasia.

Oxybutynin *(BAN, USAN, rINN)*

Oxibutinina; Oxybutynine; Oxybutyninum. 4-Diethylaminobut-2-ynyl 2-cyclohexyl-2-phenylglycolate; 4-(Diethylamino)-2-butynyl α-phenylcyclohexaneglycolic acid ester.

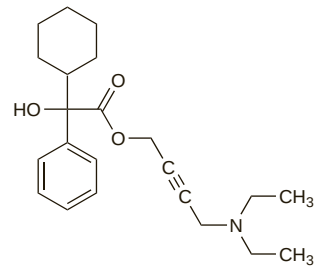
Оксибутинин

$C_{22}H_{31}NO_3$ = 357.5.

CAS — 5633-20-5.

ATC — G04BD04.

ATC Vet — QG04BD04.



Oxybutynin Hydrochloride *(BANM, rINNM)*

5058; Hidrocloruro de oxibutinina; MJ-4309-1; Oksibütinin Hidroklorür; Oksibutinino hidrochloridas; Oksibutyniinihydrokloridi; Oksybutyniny chlorowodorek; Oxibutinin-hidroklorid; Oxibutyninhydroklorid; Oxybutynin Chloride *(USAN)*; Oxybutynin hydrochlorid; Oxybutynine, chlorhydrate d'; Oxybutynini hydrochloridum. 4-Diethylaminobut-2-ynyl α-cyclohexylmandelate hydrochloride; 4-(Diethylamino)but-2-ynyl (*RS*)-2-cyclohexyl-2-hydroxy-2-phenylacetate hydrochloride.

Оксибутинина Гидрохлорид

$C_{22}H_{31}NO_3$,HCl = 393.9.

CAS — 1508-65-2.

ATC — G04BD04.

ATC Vet — QG04BD04.

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

Ph. Eur. 6.2 (Oxybutynin Hydrochloride). A white or almost white, crystalline powder. Freely soluble in water and in alcohol; soluble in acetone; practically insoluble in cyclohexane. Protect from light.

USP 31 (Oxybutynin Chloride). A white, practically odourless, crystalline powder. Freely soluble in water and in alcohol; soluble in acetone; very soluble in chloroform and in methyl alcohol; slightly soluble in ether; very slightly soluble in hexane.

Adverse Effects, Treatment, and Precautions

As for Atropine Sulfate, p.1219.

Animal studies have shown reproductive toxicity with high doses of oxybutynin, hence the recommendation that it should be avoided during pregnancy; caution should also be observed during breast feeding.

Effects on body temperature. A 76-year-old man taking oxybutynin hydrochloride 5 mg three times daily suffered heatstroke on a day when the ambient temperature was about 37°. He had had a similar febrile episode the previous summer while taking oxybutynin.[1]

1. Adubofour KO, *et al.* Oxybutynin-induced heatstroke in an elderly patient. *Ann Pharmacother* 1996; **30:** 144–7.

Effects on the eyes. After 4 weeks of treatment, the adverse ocular effects of oxybutynin and tolterodine were evaluated in 24 and 28 women, respectively, being treated for urge incontinence.[1] The incidence of adverse effects reported by the patients was similar for the 2 drugs. A burning sensation in the eyes occurred in about half the women, but reports of a foreign-body sensation and dry eyes were less frequent. There was a reduction in accommodation amplitude although this was statistically significant only for oxybutynin, and pupillary diameter in dim light was only significantly larger for tolterodine. Tear film stability was found to be reduced for both drugs, but intra-ocular pressure was not significantly affected.

Acute angle-closure glaucoma has been reported in an elderly woman taking oxybutynin for urge incontinence.[2]

1. Altan-Yaycioglu R, *et al.* Ocular side-effects of tolterodine and oxybutynin, a single-blind prospective randomized trial. *Br J Clin Pharmacol* 2005; **59:** 588–92.
2. Sung VCT, Corridan PG. Acute-angle closure glaucoma as a side-effect of oxybutynin. *Br J Urol* 1998; **81:** 634–5.

Effects on the gastrointestinal tract. Reflux oesophagitis has been reported[1] in a 36-year-old woman with cerebral palsy and hiatus hernia who had taken oxybutynin for 5 years to prevent urinary incontinence. Symptoms of gastro-oesophageal reflux resolved when oxybutynin was stopped.

1. Lee M, Sharifi R. Oxybutynin-induced reflux esophagitis. *DICP Ann Pharmacother* 1990; **24:** 583–5.