

- Ward CD. Does selegiline delay progression of Parkinson's disease? A critical re-evaluation of the DATATOP study. *J Neurol Neurosurg Psychiatry* 1994; **57**: 217–20.
- Brannan T, Yahr MD. Comparative study of selegiline plus -dopa-carbidopa versus -dopa-carbidopa alone in the treatment of Parkinson's disease. *Ann Neurol* 1995; **37**: 95–8.
- The Parkinson Study Group. Effects of tocopherol and deprenyl on the progression of disability in early Parkinson's disease. *N Engl J Med* 1993; **328**: 176–83.
- Parkinson Study Group. Impact of deprenyl and tocopherol treatment on Parkinson's disease in DATATOP subjects not requiring levodopa. *Ann Neurol* 1996; **39**: 29–36.
- Parkinson Study Group. Impact of deprenyl and tocopherol treatment on Parkinson's disease in DATATOP patients requiring levodopa. *Ann Neurol* 1996; **39**: 37–45.
- Olanow CW, et al. The effect of deprenyl and levodopa on the progression of Parkinson's disease. *Ann Neurol* 1996; **38**: 771–7.
- Parkinson's Disease Research Group of the United Kingdom. Comparison of therapeutic effects and mortality data of levodopa and levodopa combined with selegiline in patients with early, mild Parkinson's disease. *BMJ* 1995; **311**: 1602–7.
- Myllylä VV, et al. Early selegiline therapy reduces levodopa dose requirement in Parkinson's disease. *Acta Neurol Scand* 1995; **91**: 177–82.
- Larsen JP, Boas J. Norwegian-Danish Study Group. The effects of early selegiline therapy on long-term treatment and parkinsonian disability: an interim analysis of a Norwegian-Danish 5-year study. *Mov Disord* 1997; **12**: 175–82.
- Pålhagen S, et al. Selegiline slows the progression of the symptoms of Parkinson disease. *Neurology* 2006; **66**: 1200–6.
- Parkinson's Disease Research Group in the United Kingdom. Comparisons of the therapeutic effects of levodopa, levodopa and selegiline, and bromocriptine in patients with early, mild Parkinson's disease: three year interim report. *BMJ* 1993; **307**: 467–72.
- Olanow CW, et al. Patients taking selegiline may have received more levodopa than necessary. *BMJ* 1996; **312**: 702–3.
- Ahlskog JE. Treatment of early Parkinson's disease: are complicated strategies justified? *Mayo Clin Proc* 1996; **71**: 659–70.
- Mizuno Y, Kondo T. Mortality associated with selegiline in Parkinson's disease: what do the available data mean? *Drug Safety* 1997; **16**: 289–94.
- Ben-Shlomo Y, et al. Investigation by Parkinson's Disease Research Group of United Kingdom into excess mortality seen with combined levodopa and selegiline treatment in patients with early, mild Parkinson's disease: further results of randomised trial and confidential inquiry. *BMJ* 1998; **316**: 1191–6.
- Abrams KR. Monitoring randomised controlled trials. *BMJ* 1998; **316**: 1183–4.
- Breteler MMB. Selegiline, or the problem of early termination of clinical trials. *BMJ* 1998; **316**: 1182–3.
- Thorogood M, et al. Mortality in people taking selegiline: observational study. *BMJ* 1998; **317**: 252–4.
- Macleod AD, et al. Monoamine oxidase B inhibitors for early Parkinson's disease. Available in The Cochrane Database of Systematic Reviews; Issue 3. Chichester: John Wiley; 2005 (accessed 16/02/06).
- Olanow CW, et al. Effect of selegiline on mortality in patients with Parkinson's disease: a meta-analysis. *Neurology* 1998; **51**: 825–30.
- Ives NJ, et al. Monoamine oxidase type B inhibitors in early Parkinson's disease: meta-analysis of 17 randomised trials involving 3525 patients. *BMJ* 2004; **329**: 593–6.
- The Parkinson Study Group. Mortality in DATATOP: A multicenter trial in early Parkinson's disease. *Ann Neurol* 1998; **43**: 318–25.

Smoking cessation. Selegiline has been investigated as an aid to smoking cessation (p.2354).

References.

- George TP, et al. A preliminary placebo-controlled trial of selegiline hydrochloride for smoking cessation. *Biol Psychiatry* 2003; **53**: 136–43.
- Biberman R, et al. A randomized controlled trial of oral selegiline plus nicotine skin patch compared with placebo plus nicotine skin patch for smoking cessation. *Addiction* 2003; **98**: 1403–7.

Preparations

BP 2008: Selegiline Oral Solution; Selegiline Tablets;
USP 31: Selegiline Hydrochloride Tablets.

Proprietary Preparations (details are given in Part 3)

Arg.: Brintenal; Jumex; Kinabide†; Zelapar; **Austral.:** Eldepryl; Selgene; **Austria:** Amboneural; Cognitiv; Jumex; Regepar; Xilopar; **Belg.:** Eldepryl; **Braz.:** Depnilan; Eldepril; Jumexil; Niar; Parkexin; **Canad.:** Eldepryl†; **Chile:** Selgina; **Cz.:** Apo-Seleg; Cognitiv; Jumex; Niar; Segalin†; Sepatrem†; **Denm.:** Eldepryl; **Fin.:** Eldepryl; **Fr.:** Deprenyl; Otrasel; **Ger.:** Amindant†; Antiparkin; Jutagilin; MAOTil†; Movergan; Selegam†; Selemereck; Selepar; Selgimed; Xilopar; **Gr.:** Cosmopril; Ermolax; Feliselin; Krautin; Legli; Procythol; Resostyl; **Hong Kong:** Julab; Jumex; Sefmex; Selegos; **Hung.:** Cognitiv; Jumex; Primumex†; **India:** Selerin; Selgin; **Indon.:** Jumex; **Irl.:** Eldepryl; **Israel:** Jumex; **Ital.:** Eglbren; Jumex; Selecom; Seledat; Xilopar; **Jpn.:** FP Tab; **Malaysia:** Ginex†; Jumex; Sefmex; Selegost; **Mex.:** Niar; **Neth.:** Eldepryl; **Norw.:** Eldepryl; **NZ:** Eldepryl; Selgene†; **Philipp.:** Apo-Selin; Jumex; Parkinil†; Segan; Selerin; Selgin; Selgires; **Port.:** Jumex; Niponeurin; Xilopar; **Rus.:** Cognitiv (Когнитив); Segan (Сеган); Selegos (Севеког); **S.Afr.:** Eldepryl; Parkilyn; **Singapore:** Jumex; Selegos; **Spain:** Plunimen; **Swed.:** Eldepryl; **Switz.:** Jumexil; Selecim†; **Thai.:** Elegelin†; Julab; Jumex; Kiniline†; Sefmex; Seline†; **Turk.:** Moverdin; Seldepar; **UK:** Eldepryl; Zelapar; **USA:** Atapryl; Carbox; Eldepryl; Emsam; Zelapar; **Venez.:** Jumex.

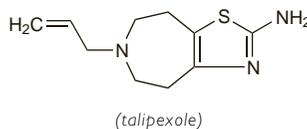
Talipexole Hydrochloride (rINN)

Aleflexole Hydrochloride; B-HT-920; Hidrocloruro de talipexol; Talipexole, Chlorhydrate de; Talipexoli Hydrochloridum. 6-Allyl-2-amino-5,6,7,8-tetrahydro-4H-thiazolo[4,5-d]zajepine dihydrochloride.

Талипексола Гидрохлорид

$C_{10}H_{15}N_3S_2HCl = 282.2$.

CAS — 101626-70-4 (talipexole); 36085-73-1 (talipexole hydrochloride).



Profile

Talipexole hydrochloride is a dopamine D_2 -agonist that is used in the management of parkinsonism (p.791) in usual oral doses of 1.2 to 3.6 mg daily, in divided doses. It has also been investigated in the treatment of schizophrenia.

Preparations

Proprietary Preparations (details are given in Part 3)

Jpn: Domin.

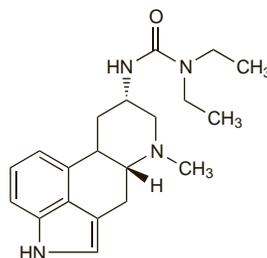
Terguride (rINN)

Tergurida; Terguridum. 1,1-Diethyl-3-(6-methylergolin-8 α -yl) urea.

Тергурида

$C_{20}H_{28}N_4O = 340.5$.

CAS — 37686-84-3.



Profile

Terguride, an ergot derivative, is a partial dopamine agonist with general properties similar to those of bromocriptine (p.798). It is used in the treatment of disorders related to hyperprolactinaemia (p.2079) in a usual oral dose of 500 micrograms twice daily. It is also being investigated in the management of parkinsonism.

References.

- Krause W, et al. Pharmacokinetics and endocrine effects of terguride in healthy subjects. *Eur J Clin Pharmacol* 1990; **38**: 609–15.
- Baronti F, et al. Partial dopamine agonist therapy of levodopa-induced dyskinesias. *Neurology* 1992; **42**: 1241–3.

Preparations

Proprietary Preparations (details are given in Part 3)

Cz.: Mysalfon†; **Jpn:** Teluron.

Tolcapone (BAN, USAN, rINN)

Ro-40-7592; Tolcapona; Tolcaponum; Tolkapon; Tolkaponi. 3,4-Dihydroxy-4'-methyl-5-nitrobenzophenone; 3,4-Dihydroxy-5-nitrophenyl(4-methylphenyl)methanone.

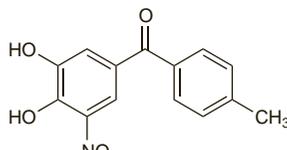
Толкапон

$C_{14}H_{11}NO_5 = 273.2$.

CAS — 134308-13-7.

ATC — N04BX01.

ATC Vet — QN04BX01.



Pharmacopeias. In US.

USP 31 (Tolcapone). A yellow, fine powder or fine powder with lumps. Insoluble in water and in *n*-hexane; freely soluble in acetone and in tetrahydrofuran; sparingly soluble in chloroform

and in dichloromethane; soluble in methyl alcohol and in ethyl acetate. Store in airtight containers at a temperature between 20° and 25°. Protect from light.

Adverse Effects

The most common adverse effects associated with tolcapone are diarrhoea, nausea, vomiting, constipation, abdominal pain, dry mouth, anorexia, dyskinesia, dystonia, dizziness, orthostatic hypotension, hallucinations, confusion, excessive dreaming, somnolence, headache, increased sweating, and sleep disorders. Diarrhoea may be severe enough for treatment to be stopped. Increases in liver enzyme values have occurred and hepatitis and hepatic failure, sometimes fatal, have been reported. Isolated cases of neuroleptic malignant syndrome have also been reported following dose reduction or stopping tolcapone; rhabdomyolysis may develop as a complication of the syndrome. Tolcapone and its metabolites can produce a yellow intensification in the colour of urine.

Effects on the liver. The UK CSM had noted¹ that, after a report² in September 1998 of fatal acute hepatic failure associated with tolcapone, the European Committee for Proprietary Medicinal Products (CPMP) had reviewed all reports of hepatic injury with tolcapone. There had been 10 reports of serious hepatic adverse reactions since tolcapone was marketed in October 1997, which included 7 reports of hepatitis, 3 of which had a fatal outcome. Serious hepatic reactions occurred unpredictably and their development was not always predicted by liver function monitoring. Consequently, in the EU, the marketing authorisation for tolcapone was suspended in November 1998. This suspension was lifted in April 2004 by the CPMP after further review.

In some countries such as the USA, tolcapone has always remained available albeit with restricted indications and strict monitoring requirements (see Precautions, below). Up to 2003, there had been no further reports of fatal hepatic failure following the introduction of these measures although the number of patients eligible to receive the drug has been reduced.³

- CSM/MCA. Withdrawal of tolcapone (Tasmar). *Current Problems* 1999; **25**: 2. Available at: http://www.mhra.gov.uk/home/idcplg?IdcService=GET_FILE&dDocName=CON2023233&RevisionSelectionMethod=LatestReleased (accessed 11/08/08)
- Assal F, et al. Tolcapone and fulminant hepatitis. *Lancet* 1998; **352**: 958.
- Borges N. Tolcapone-related liver dysfunction: implications for use in Parkinson's disease therapy. *Drug Safety* 2003; **26**: 743–7.

Effects on the skin. For reference to the development of vitiligo in a patient following addition of tolcapone to levodopa/carbidopa treatment, see under Levodopa, p.806.

Precautions

Tolcapone should not be given to patients with hepatic impairment or raised liver enzyme values. Liver enzymes should be monitored:

- when starting treatment with tolcapone or on increasing the dose to 200 mg three times daily
- every 2 weeks during the first year of therapy
- every 4 weeks for a further 6 months
- every 8 weeks thereafter

Tolcapone should be stopped if liver enzyme levels exceed the upper limit of normal or if signs or symptoms suggestive of the onset of hepatic failure occur. Patients who have developed evidence of hepatic injury while receiving tolcapone should not be given the drug again.

Tolcapone should be used with caution in patients with severe renal impairment.

It is contra-indicated in patients with severe dyskinesia or with a history of neuroleptic malignant syndrome (NMS). It is also contra-indicated in patients with a history of nontraumatic rhabdomyolysis or symptoms of hyperpyrexia and confusion possibly related to NMS. Patients with phaeochromocytoma should not be given tolcapone.

Use with levodopa may cause dizziness and orthostatic hypotension; if affected patients should not drive or operate machinery. Excessive daytime sleepiness and sudden onset of sleep may also occur with combination use (see Effects on Mental Function, under Adverse Effects of Levodopa, p.805) and again, caution is advised when driving or operating machinery; patients who suffer such effects should not drive or operate machinery until the effects have stopped recurring.

Abrupt withdrawal or dose reduction of tolcapone should be monitored carefully because of the risk of developing symptoms resembling NMS.

The elderly. Confusion occurred in 3 elderly patients with severe Parkinson's disease after the addition of tolcapone to their antiparkinsonian therapy.¹ It was suggested that a starting dose of tolcapone 100 mg daily might be more suitable in frail patients with severe disease. It was noted² that a reduction in levodopa dosage is generally recommended when tolcapone is given to patients such as these, who were receiving 500 to 600 mg of levodopa daily.

- Henry C, Wilson JA. Catechol-O-methyltransferase inhibitors in Parkinson's disease. *Lancet* 1998; **351**: 1965–6.
- Harper J, Vieira B. Catechol-O-methyltransferase inhibitors in Parkinson's disease. *Lancet* 1998; **352**: 578.