Amoebic infections. ***ACANTHAMOEBA INFECTIONS.*** Pentamidine was used to treat disseminated *Acanthamoeba* infection (p.822) without evidence of CNS involvement in 2 immunocompromised patients.[1,2] It is unlikely that pentamidine would be effective in infections involving the CNS.

1. Slater CA, *et al.* Brief report: successful treatment of disseminated Acanthamoeba infection in an immunocompromised patient. *N Engl J Med* 1994; **331:** 85–7.
2. Murakawa GJ, *et al.* Disseminated Acanthamoeba in patients with AIDS: a report of five cases and a review of the literature. *Arch Dermatol* 1995; **131:** 1291–6.

Babesiosis. Pentamidine has been tried for babesiosis (p.823), but while some patients showed clinical improvements,[1-3] the efficacy and safety of pentamidine in this infection has been questioned.[4]

1. Francioli PB, *et al.* Response of babesiosis to pentamidine therapy. *Ann Intern Med* 1981; **94:** 326–30.
2. Raoult D, *et al.* Babesiosis, pentamidine, and cotrimoxazole. *Ann Intern Med* 1987; **107:** 944.
3. Clarke CS, *et al.* Babesiosis: under-reporting or case-clustering? *Postgrad Med J* 1989; **65:** 591–3.
4. Teutsch SM, Juranek DD. Babesiosis. *Ann Intern Med* 1981; **95:** 241.

Leishmaniasis. Pentamidine has been used in the treatment of visceral leishmaniasis (p.824) both alone and with antimonials in patients who have failed to respond to antimonials alone.[1,2] It has also been tried for long-term secondary prophylaxis in patients with HIV infection.[3] Cutaneous leishmaniasis due to *L. guyanensis* is usually treated with pentamidine to reduce the risk of dissemination;[1] beneficial results in patients infected with *L. infantum*, *L. major*, or *L. tropica* have also been reported.[4] Lesions due to *L. aethiopica* may also respond to pentamidine, but can be left to heal spontaneously since the risk of diffuse cutaneous involvement is small.[1] Diffuse cutaneous or mucocutaneous disease which is unresponsive to antimonials may respond to pentamidine.[1]

For mention of the use of pentamidine with paromomycin to treat visceral leishmaniasis in an HIV-infected patient, see p.844.

1. WHO. *WHO model formulary.* Geneva: WHO, 2004.
2. Baily GG, Nandy A. Visceral leishmaniasis: more prevalent and more problematic. *J Infect* 1994; **29:** 241–7.
3. Pérez-Molina JA, *et al.* Pentamidine isethionate as secondary prophylaxis against visceral leishmaniasis in HIV-positive patients. *AIDS* 1996; **10:** 237–8.
4. Hellier I, *et al.* Treatment of Old World cutaneous leishmaniasis by pentamidine isethionate: an open study of 11 patients. *Dermatology* 2000; **200:** 120–3.

Pneumocystis pneumonia. In the treatment of pneumocystis pneumonia (p.521) intravenous pentamidine is generally reserved for patients with moderate to severe disease who do not respond to, or cannot tolerate, co-trimoxazole. Co-trimoxazole with pentamidine is no more effective than pentamidine alone in these patients and is potentially more toxic than either drug.[1] Inhaled pentamidine has occasionally been suggested for mild to moderate infection, but is now generally only used for prophylaxis. However, patients given inhaled pentamidine may be prone to extrapulmonary *Pneumocystis* infections.[2,3]

In both primary and secondary prophylaxis of pneumocystis pneumonia in immunocompromised patients, co-trimoxazole is preferred to inhaled pentamidine. Comparative studies have shown that, in the short term, inhaled pentamidine has been less effective than co-trimoxazole[4,5] and no more effective than another common prophylactic drug, dapsone.[6,7] In addition, both co-trimoxazole and dapsone (given with pyrimethamine) also provide protection against toxoplasmosis and extrapulmonary pneumocystis infections. However, inhaled pentamidine is better tolerated than either of these, and studies have suggested that in the long term the efficacy of the three drugs is comparable,[8,9] at least in patients with CD4+ T lymphocyte counts of more than 100 cells/microlitre. Increasing the dose of pentamidine from 300 mg every four weeks to 300 mg every two weeks[10,11] or 600 mg every week[12] may improve efficacy further. Intermittent parenteral dosage of pentamidine has been used when the more usual drugs cannot be given.[13]

1. Glatt AE, Chirgwin K. Pneumocystis carinii pneumonia in human immunodeficiency virus-infected patients. *Arch Intern Med* 1990; **150:** 271–9.
2. Witt K, *et al.* Dissemination of Pneumocystis carinii in patients with AIDS. *Scand J Infect Dis* 1991; **23:** 691–5.
3. Sha BE, *et al.* Pneumocystis carinii choroiditis in patients with AIDS: clinical features, response to therapy, and outcome. *J Acquir Immune Defic Syndr Hum Retrovirol* 1992; **5:** 1051–8.
4. Schneider MME, *et al.* A controlled trial of aerosolized pentamidine or trimethoprim-sulfamethoxazole as primary prophylaxis against Pneumocystis carinii pneumonia in patients with human immunodeficiency virus infection. *N Engl J Med* 1992; **327:** 1836–41.
5. Hardy WD, *et al.* A controlled trial of trimethoprim-sulfamethoxazole or aerosolized pentamidine for secondary prophylaxis of Pneumocystis carinii pneumonia in patients with the acquired immunodeficiency syndrome. *N Engl J Med* 1992; **327:** 1842–8.
6. Girard P-M, *et al.* Dapsone-pyrimethamine compared with aerosolized pentamidine as primary prophylaxis against Pneumocystis carinii pneumonia and toxoplasmosis in HIV infection. *N Engl J Med* 1993; **328:** 1514–20.
7. Torres RA, *et al.* Randomized trial of dapsone and aerosolized pentamidine for the prophylaxis of Pneumocystis carinii pneumonia and toxoplasmic encephalitis. *Am J Med* 1993; **95:** 573–83.
8. Bozzette SA, *et al.* A randomized trial of three antipneumocystis agents in patients with advanced human immunodeficiency virus infection. *N Engl J Med* 1995; **332:** 693–9.
9. Rizzardi GP, *et al.* Risks and benefits of aerosolized pentamidine and cotrimoxazole in primary prophylaxis of Pneumocystis carinii pneumonia in HIV-1-infected patients: a two-year Italian multicentric randomized controlled trial. *J Infect* 1996; **32:** 123–31.
10. Kronawitter U, *et al.* Low incidence of Pneumocystis carinii pneumonia in HIV patients receiving 300 mg pentamidine aerosol every 2 weeks. *Clin Investig* 1992; **70:** 1089–91.
11. Rizzardi GP, *et al.* Better efficacy of twice-monthly than monthly aerosolised pentamidine for secondary prophylaxis of Pneumocystis carinii pneumonia in patients with AIDS: an Italian multicentric randomised controlled trial. *J Infect* 1995; **31:** 99–105.
12. Ong ELC, *et al.* Efficacy and effects on pulmonary function tests of weekly 600 mg aerosol pentamidine as prophylaxis against Pneumocystis carinii pneumonia. *Infection* 1992; **20:** 136–9.
13. CDC. Guidelines for preventing opportunistic infections among HIV-infected persons—2002: recommendations of the US Public Health Service and the Infectious Diseases Society of America. *MMWR* 2002; **51** (RR-8): 1–52. Also available at: http://www.cdc.gov/mmwr/PDF/rr/rr5108.pdf (accessed 27/05/05)

African trypanosomiasis. Pentamidine is used for the haematolymphatic phase of African trypanosomiasis caused by *Trypanosoma brucei gambiense* (p.827), and as an adjunct to other treatment for the meningoencephalitic stage of the infection.[1] It is reported to be less effective against *T. b. rhodesiense* and in some areas resistance of *T. b. gambiense* to pentamidine is increasing. Pentamidine has been used with suramin for *T. b. gambiense* infections but this has not been shown to be clinically superior to pentamidine alone.[2]

1. WHO. Control and surveillance of African trypanosomiasis: report of a WHO expert committee. *WHO Tech Rep Ser 881* 1998.
2. Pépin J, Khonde N. Relapses following treatment of early-stage Trypanosoma brucei gambiense sleeping sickness with a combination of pentamidine and suramin. *Trans R Soc Trop Med Hyg* 1996; **90:** 183–6.

Preparations

BP 2008: Pentamidine Injection.

Proprietary Preparations (details are given in Part 3)
Austria: Pentacarinat; ***Belg.:*** Pentacarinat; ***Braz.:*** Pentacarinat; Sideron†; ***Canad.:*** Pentacarinat†; ***Denm.:*** Pentacarinat; ***Fin.:*** Pentacarinat†; ***Fr.:*** Pentacarinat; ***Ger.:*** Pentacarinat; ***Gr.:*** Pentacarinate; Pentam; ***Irl.:*** Pentacarinat; ***Israel:*** Pentacarinat†; ***Ital.:*** Pentacarinat; ***Neth.:*** Pentacarinat; ***NZ:*** Pentacarinat; ***Port.:*** Pentacarinat†; Pentamina; ***Spain:*** Pentacarinat; ***Swed.:*** Pentacarinat; ***Switz.:*** Pentacarinat; ***Thai.:*** Pentacarinat; ***UK:*** Pentacarinat; ***USA:*** NebuPent; Pentacarinat; Pentam.

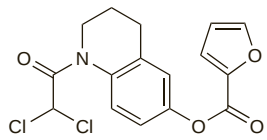
Quinfamide *(USAN, rINN)*

Quinfamida; Quinfamidum; Win-40014. 1-(Dichloroacetyl)-1,2,3,4-tetrahydroquinolin-6-ol 2-furoic acid ester.

Хинфамид

$C_{16}H_{13}Cl_2NO_4$ = 354.2.

CAS — 62265-68-3.



Profile

Quinfamide is a luminal amoebicide. It is given orally for intestinal amoebiasis in a dose of 300 mg, either as a single dose or as three divided doses over 24 hours.

Preparations

Proprietary Preparations (details are given in Part 3)
Mex.: Amefin; Amefur; Amenox; Amofur; Bisidim; Celemin; Doffler; Falacid; Luminovag; Protosin; Quocel; Serphamida.

Multi-ingredient: ***Mex.:*** Amibriz†; Amoebriz; Oxal; Vermox-Plus.

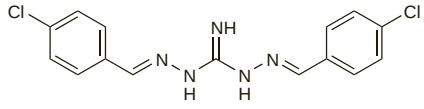
Robenidine Hydrochloride *(BANM, USAN, rINNM)*

CL-78116; Hidrocloruro de robenidina; Robénidine, Chlorhydrate de; Robenidini Hydrochloridum; Robenzidene Hydrochloride. 1,3-Bis(4-chlorobenzylideneamino)guanidine hydrochloride.

Робенидина Гидрохлорид

$C_{15}H_{13}Cl_2N_5$,HCl = 370.7.

CAS — 25875-51-8 (robenidine); 25875-50-7 (robenidine hydrochloride).



(robenidine)

Profile

Robenidine is an antiprotozoal used as the hydrochloride in veterinary practice for the prevention of coccidiosis in poultry and rabbits.

Ronidazole *(BAN, USAN, pINN)*

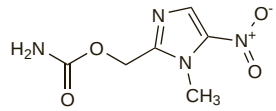
Ronidazol; Ronidazolum. (1-Methyl-5-nitroimidazol-2-yl)methyl carbamate.

Ронидазол

$C_6H_8N_4O_4$ = 200.2.

CAS — 7681-76-7.

ATC Vet — QP51AA08.



Pharmacopoeias. In *BP(Vet)*.

BP(Vet) 2008 (Ronidazole). A white to yellowish-brown, odourless or almost odourless powder. Slightly soluble in water, in alcohol, and in chloroform; very slightly soluble in ether. Protect from light.

Profile

Ronidazole is a 5-nitroimidazole antiprotozoal that is used in veterinary practice for the control of trichomoniasis in cage birds and pigeons. It has also been added to turkey feeding stuffs and has been used for the control of swine dysentery.

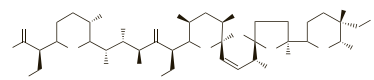
Salinomycin Sodium *(BANM, rINNM)*

AHR-3096 (salinomycin); K-364 (salinomycin); K-748364A (salinomycin); Natrii Salinomycinum; Salinomicina sódica; Salinomycine Sodique. Sodium (2*R*)-2-{(2*R*,5*S*,6*R*)-6-[(1*S*,2*S*,3*S*,5*R*)-5-{(2*S*,5*S*,7*R*,9*S*,10*S*,12*R*,15*R*)-2-[(2*R*,5*R*,6*S*)-5-ethyltetrahydro-5-hydroxy-6-methylpyran-2-yl]-15-hydroxy-2,10,12-trimethyl-1,6,8-trioxadispiro[4.1.5.3]pentadec-13-en-9-yl}-2-hydroxy-1,3-dimethyl-4-oxoheptyl]tetrahydro-5-methylpyran-2-yl}butyrate.

Натрий Салиномицин

$C_{42}H_{69}NaO_{11}$ = 773.0.

CAS — 53003-10-4 (salinomycin); 55721-31-8 (salinomycin sodium).



(salinomycin)

Profile

Salinomycin, an antibiotic produced by *Streptomyces albus*, is an antiprotozoal used as the sodium salt in veterinary practice for the prevention of coccidiosis in poultry and as a growth promotor in pigs.

Secnidazole *(BAN, rINN)*

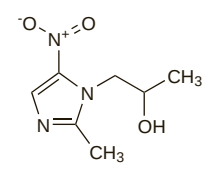
PM-185184; 14539-RP; RP-14539; Secnidazol; Secnidazolum; Seknidazol. 1-(2-Methyl-5-nitroimidazol-1-yl)propan-2-ol.

Секнидазол

$C_7H_{11}N_3O_3$ = 185.2.

CAS — 3366-95-8.

ATC — P01AB07.



Profile

Secnidazole is a 5-nitroimidazole derivative with properties similar to those of metronidazole (p.837), apart from a much longer plasma half-life of 20 hours or more. It is used in the treatment of amoebiasis, giardiasis, and trichomoniasis.

Secnidazole is given orally, usually as a single dose of 2 g in adults or 30 mg/kg in children. In invasive (hepatic) amoebiasis