Sussex Partnership NHS
NHS Foundation Trust

Calculating equivalent doses of oral benzodiazepines

Background

Benzodiazepines are the most commonly used anxiolytics and hypnotics (1). There are major differences in potency between different benzodiazepines and this difference in potency is important when switching from one benzodiazepine to another (2). Benzodiazepines also differ markedly in the speed in which they are metabolised and eliminated. With repeated daily dosing accumulation occurs and high concentrations can build up in the body (mainly in fatty tissues) (2). The degree of sedation that they induce also varies, making it difficult to determine exact equivalents (3).

Answer

Advice on benzodiazepine conversion

NB: Before using Table 1, read the notes below and the Limitations statement at the end of this document.

Switching benzodiazepines may be advantageous for a variety of reasons, e.g. to a drug with a different half-life pre-discontinuation (4) or in the event of non-availability of a specific benzodiazepine. With relatively short-acting benzodiazepines such as alprazolam and lorazepam, it is not possible to achieve a smooth decline in blood and tissue concentrations during benzodiazepine withdrawal. These drugs are eliminated fairly rapidly with the result that concentrations fluctuate with peaks and troughs between each dose. It is necessary to take the tablets several times a day and many people experience a "mini-withdrawal", sometimes a craving, between each dose. For people withdrawing from these potent, short-acting drugs it has been advised that they switch to an equivalent dose of a benzodiazepine with a long half life such as diazepam (5). Diazepam is available as 2mg tablets which can be halved to give 1mg doses. This means the dose can be reduced in stages of 1mg every 1-4 weeks or more. It is difficult to obtain such low doses of other benzodiazepines (6).

Extra precautions apply in patients with hepatic dysfunction as diazepam and other longer-acting drugs may accumulate to toxic levels. Diazepam substitution may not be appropriate in this group of patients (3).
Concomitant kidney or liver failure should be taken into consideration when prescribing all benzodiazepines.
While there is broad agreement in the literature about equivalent doses, clonazepam has a wide variety of reported equivalences and particular care is needed with this drug (4).

If you require this document in another format, ie easy read, large text, audio, Braille or a community language please contact the Pharmacy Team on 01243 623349 (Text Relay calls welcome)

Table 1: Approximate equivalent doses of oral benzodiazepines licensed in the UK (see advice above).

Drug	BNF(1)	Maudsley(3)	Bazire(4)[a]	DoH(7)	Ashton Manual (2)[b]
Diazepam	5mg	5mg	5mg	5mg	5mg
Alprazolam	250 micrograms		500 micrograms (0.25-0.5mg)		250 micrograms
Chlordiazepoxide	12.5mg	12.5mg	15mg (10-25mg)	15mg	12.5mg
Clobazam	10mg		10mg		10mg
Clonazepam	250 micrograms	0.5-1mg	500 micrograms (0.25-4mg)		250 micrograms
Flurazepam	7.5-15mg		7.5-15mg		7.5-15mg
Loprazolam	0.5-1mg		0.5-1mg	500 micrograms	0.5-1mg
Lorazepam	500 micrograms	500 micrograms	500 micrograms	500 micrograms	500 micrograms
Lormetazepam	0.5-1mg	500 micrograms	0.5-1mg		0.5-1mg
Nitrazepam	5mg	5mg	5mg (2.5-20mg)	5mg	5mg
Oxazepam	10mg	15mg	15mg (10-40mg)	15mg	10mg
Temazepam	10mg	10mg	10mg	10mg	10mg

a. Inter-patient variability and differing half-lives mean the figures can never be exact and should be interpreted using clinical and pharmaceutical knowledge.
b. These equivalents do not agree with those used by some authors. They are firmly based on clinical experience but may vary between individuals. Ashton also provides equivalent doses of benzodiazepines not prescribed in the UK.

Limitations

- The effect of drug interactions affecting benzodiazepine pharmacodynamics and pharmacokinetics is not covered in this Medicine Q&A.
- Detailed guidance on the management of benzodiazepine dependence and withdrawal is not provided in this Medicine Q&A.

Acknowledgement

This guidance is based on a Medicines Q&As paper (Q&A 293.3) prepared by UK Medicines Information (UKMi) pharmacists in June 2014. It was made available to the NHS in July 2014.

Jed Hewitt
Chief Pharmacist – Governance & Professional Practice.
July 2014

Approved by the Drugs & Therapeutics Group – April 2010.
Reviewed and updated, July 2014.

Date for next review: July 2017

References

1. Joint Formulary Committee. British National Formulary. [Online] May 2014. London: BMJ Group and Pharmaceutical Press; Accessed via http://www.evidence.nhs.uk/ on 20/5/2014
2. Ashton CH. Benzodiazepines: How they work and how to withdraw (aka The Ashton Manual) 2002 Chapter I. http://www.benzo.org.uk/bzmono.htm accessed on 20/5/2014
3. Taylor D, Paton C, Kapur S. The Maudsley Prescribing Guidelines in Psychiatry. 11th Edition. Wiley-Blackwell; 2012 p. 307-8
4. Bazire S. Benzodiazepine equivalent doses. Psychotropic Drug Directory 2014. Lloyd-Reinhold Communications.
5. Ashton CH. Benzodiazepines: How they work and how to withdraw (aka The Ashton Manual) 2002 Chapter II. http://www.benzo.org.uk/bzmono.htm accessed on 20/5/2014
6. Ashton CH. Benzodiazepines: Reasons for a diazepam (Valium) taper. April 2001 http://www.benzo.org.uk/ashvtaper.htm accessed on 20/5/2014
7. Department of Health (England) and the devolved administrations (2007). *Drug Misuse and Dependence: UK Guidelines on Clinical Management*. London: Department of Health (England), the Scottish Government, Welsh Assembly Government and Northern Ireland Executive.