

## **Ketamine myths**

### **How dangerous is ketamine?**

#### **Ketamine myths and misconceptions**

#### **Does ketamine cause brain damage?**

There is currently no published evidence of brain damage due to ketamine in either the human or monkey brain. Alarm was sparked by a report in 1989 that ketamine could cause toxic changes in the rat brain. Over a decade later, there are still no published studies showing that these changes can be produced in monkeys or humans. Ketamine can, in some cases, actually prevent brain damage from low oxygen, low blood sugar, epilepsy, strokes, trauma and heart attacks. In 1989, psychiatry professor John Olney reported that ketamine caused reversible changes in two small areas of the rat brain. 40mg/kg resulted in fluid-filled bags ('vacuoles') appearing inside cells. The bags disappeared after several days. It is extremely unlikely that ketamine would cause changes like this in humans, because of fundamental differences in metabolism between the rat and human brain.

#### **Does ketamine cause bad experiences?**

One newspaper article, with the headline 'Drug Users Adopt Bad Trip Anaesthetic' claimed that 'bored young people' were using the drug for the 'bad trip experiences it can produce', while another said that ketamine was 'a trip to nowhere'. While ketamine can sometimes give rise to nightmares, it can also be experienced by users as being enjoyable. It is important to understand this in order to gain a realistic grasp of why people take the drug.

#### **Is ketamine non-addictive?**

Although ketamine does not give rise to physical dependence like that seen with heroin and alcohol, it is linked with a powerful psychological addiction- like that seen with cocaine- which can lead to people using the drug in intense binges. John Lilly's book 'The Scientist' contains an account of his very serious dependence on ketamine. There are accounts of serious dependence, and supporting animal studies, in the scientific literature.

#### **Is ketamine only given to animals?**

The media have often stated that ketamine is a horse, cat, or elephant tranquilliser. The truth is that ketamine can be found in the anaesthetics department of almost every general hospital in the world. It is very definitely given to humans, in both industrialised and developing countries. In most countries around the world, including the United States, the European Union and Australia, Ketalar is sometimes given as an anaesthetic to children, the infirm, the aged, persons having severe asthmatic crises, women who are giving birth or having operations, burns patients who may be given the drug repeatedly for days, and persons with chronic pain who may swallow it for years. The first use listed in the current Ketalar data sheet from the manufacturers Parke-Davis (now part of Pfizer) is 'sole anaesthetic' for human surgery. Ketamine has also been used as a psychotherapeutic aid in humans.

#### **Is ketamine legal?**

As of January 1st 2006 Ketamine is a class C Drug under the Misuse of Drugs Act 1971.

### **How dangerous is ketamine?**

When used in hospitals anaesthetists see ketamine as a relatively safe drug. There is a wide margin between the highest dosages used medically and a lethal dose, meaning deaths from Ketalar (in medicine) are rare.

Non-medical doses are usually only 10-25% of surgical doses, given by the same route for the same person. At these levels, it behaves more like a stimulant than a sedative and does not suppress the breathing or heart rate, although exceptions do occur. At very high doses, ketamine behaves more like other anaesthetics and will 'switch off' parts of the brain and suppress breathing, perhaps even stopping it completely.

Very few deaths by pure overdose have been recorded (i.e. in the absence of other drugs, especially alcohol). However outside of the medical setting, the main physical dangers stem much more from the context of use than the direct physical harms of the drug.

An anaesthetic leaves the taker far more helpless than most 'recreational' drugs (apart from large doses of alcohol). Disconnection from the body can be dangerous in almost any situation other than lying down, and even that has risks such as nerve compression in the arm if the body is lying on it (a problem classically linked with an excessive alcohol intake known as 'Saturday night paralysis').

## References

**Auer RN et al. (1996) Postischaemic therapy with MK-801 (dizocilpine) in a primate model of transient focal brain ischaemia.** Molecular and Chemical Neuropathology 29 (2-3) 193-210.

**Beardsley PM, Balster RL (1987) Behavioral dependence upon phencyclidine and ketamine in the rat.** Journal of Pharmacology and Experimental Therapeutics 242, 203-211.

**Bergman SA (1999) Ketamine: review of its pharmacology and its use in pediatric anesthesia.** Anesthesia Progress 46 (1) 10-20.

**Green SM, Clem KJ, Rothrock SG (1996) Ketamine safety profile in the developing world: survey of practitioners.** Acad. Emergency Medicine 3 (6) 598-604.

**Hall CH, Cassidy J (1992) Young drug users adopt 'bad trip' anaesthetic.** The Independent, 2 April, page 5.

**Hurt PH, Ritchie EC (1994) A case of ketamine dependence.** American J Psychiatry 151, 779. Jansen, KLR (2001) Ketamine: Dreams and Realities. Multidisciplinary Association for Psychedelic Studies, Florida. Available from [www.maps.org](http://www.maps.org)

**Kamaya H, Krishna PR (1987) Ketamine addiction.** Anesthesiology 67, 861-862.

**Krupitsky EM, Grinenko AY (1997) Ketamine psychedelic therapy (KPT): a review of the results of ten years of research.** Journal of Psychoactive Drugs 29 (2) 165-183.

**Lilly JC (1978) The Scientist: A Novel Autobiography.** New York, Bantam Books/J. B. Lippincott(now published in updated form by Ronin Publishing. )

**McCarthy DA, Harrigan SE (1976). Dependence producing capacity of ketamine in Macaca mulatta.** Anesthesiology 399, 160-168.

**Olney JW, Labruyere J, Price MT (1989) Pathological changes induced in cerebrocortical neurons by phencyclidine and related drugs.** Science 244, 1360-1362.

**Parke-Davis Product Information Sheet: Ketalar (1999-2000) ABPI Compendium of Data Sheets and Summaries of Product Characteristics, 1999-2000.** Datapharm Publications, (write to: 12 Whitehall, London SW1A 2DY) p 1120-22.

**Rothman, S. M. & J. W. Olney (1987) 'Excitotoxicity and the NMDA receptor'.** Trends in Neurosciences 10: 299-302.

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