Fact file on ketamine

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Key facts

- Ketamine is an essential medicine used for anaesthesia and analgesia (pain relief) in adults and children, having been listed on the WHO Essential Medicines List since 1985.
- Ketamine is safer to administer than other types of anaesthetic agents and pain relief as it does not depress breathing or lower blood pressure and does not require expensive patient-monitoring equipment.
- Its high level of safety makes it indispensable for surgery in low- and middle-income countries, disaster situations and conflict zones – where anaesthesiologists are scarce, and where running water, electricity and oxygen are unreliable.
- Ketamine is the anaesthetic of choice in veterinary surgery.
- There has been significant research into ketamine's use in treating depression and other mental illnesses in the last decade.
- The illicit use of ketamine has been reported on a relatively small global scale for several decades. Ketamine dependence or overdose is rare, however chronic abuse can cause side effects including urinary tract problems.
- The WHO Expert Committee on Drug Dependence has recommended that ketamine should not be controlled under the international drug control conventions due to its essential role in surgery in low-resource countries and in emergencies.

Ketamine is a versatile medicine and possibly the most widely used anaesthetic in the world.[1] It is listed as an essential medicine, meaning that it should be available at all times in adequate amounts for health care needs. It was added to the WHO Model List of Essential Medicines in 1985 and is also on the Model List of Essential Medicines for Children. Ketamine is also effective for relieving pain. In addition, it is the most widely used anaesthetic in veterinary surgery. In recent years, there has been extensive research into the potential use of ketamine as a treatment for depressive disorders and in epilepsy.

Why is ketamine used instead of other types of anaesthetic?

In many parts of the world, there is no choice: ketamine is often the only anaesthetic at hand. Ketamine is extremely safe because, unlike other anaesthetic agents, it does not depress breathing or blood pressure. This means it is relatively easy to administer, and is an excellent anaesthetic for patients who have lost a lot of blood or who have dangerously low blood flow due to septic shock.

Ketamine's high level of safety also makes it unique amongst other anaesthetics, as it does not require reliable electricity supply, oxygen, highly trained staff or monitoring systems to administer. That makes it critical in surgery in low- and middle-income countries and in conflict and disaster zones where such resources are often unavailable.

[1] Thirty-sixth WHO Expert Committee on Drug Dependence agenda item 6.2. Letter from the World Society of Intravenous Anaesthesia to the WHO Expert Committee on Drug Dependence. Geneva, WHO, 2014 (http://www.who.int/entity/medicines/areas/quality_safety/SUPPORT_Ketamine.pdf?ua=1, accessed 1 March 2016).

50 years of ketamine in medicine	
1962	First synthesized
1963	Patented as a human anaesthetic in Belgium
1966	Patented as a human anaesthetic in the United States
1970	Approved for use in anaesthesia by the US Food and Drug Administration
1960s-70s	The most widely-used battlefield anaesthetic in the Vietnam War
1970s	Use of ketamine in veterinary medicine began
1985	Added to the WHO Essential Medicines List as an intravenous anaesthetic
2000	Research started on the use of ketamine to treat depression

Ketamine illicit use, dependence and harm

Illicit use of ketamine has been reported for several decades. There is no compelling evidence, however, to suggest that it is becoming a global trend. The UN Office on Drugs and Crime World Drug Report of 2015 noted that 58 countries have reported the presence of ketamine on the illicit drugs market for several years. The number of ketamine and phencyclidine-type substances reported by countries represent one per cent of the total number of 'new psychoactive substances' (illicit drugs which are not controlled by the international drug control conventions) reported to UNODC's early warning advisory in 2014.

The UNODC World Drug Report 2014 noted that ketamine use appeared to be stabilising in Asia, while in the United Kingdom of Great Britain and Northern Ireland its use was decreasing. In the United Kingdom, the percentage of the population who used ketamine declined from 0.6 per cent to 0.4 per cent in the adult population from 2011/12 to in 2012/13. It declined from 1.8 per cent to 0.8 per cent among young adults in the same period.

The risk of fatal intoxication associated with ketamine is very low. A European Monitoring Centre for Drugs and Drug Addiction report identified 12 deaths in which ketamine was identified between 1987 and 2000, with three involving ketamine as the sole substance.[2] Frequent, high-dose abuse of ketamine may have harmful side effects. Recent research has suggested chronic abuse is linked with adverse physical effects, particularly urinary tract problems.

Ketamine and drug control

Some countries have decided to put ketamine under national control because of the risk of illicit use in their country. These laws may impose restrictions on its storage, distribution and use to prevent theft or non-medical use. However, ketamine is not scheduled under the international drug control conventions. In 2015, the WHO Expert Committee on Drug Dependence reviewed the latest evidence on the potential harm to health and dependence-producing properties of ketamine and upheld its previous recommendations (of 2014, 2012 and 2006) that ketamine should not be scheduled. The Expert Committee has acknowledged the concerns raised by some countries and UN organizations about ketamine abuse, but has found it currently does not appear to pose a significant enough global public health risk to warrant scheduling. It said countries with serious abuse problems may decide to introduce or maintain national control measures, but should ensure ready access to ketamine for surgery and anaesthesia for human and veterinary care.

[2] Report on the risk assessment of ketamine in the framework of the joint action on new synthetic drugs. Lisbon, European Monitoring Centre for Drugs and Drug Addiction, 2002.