SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Ketamidor 100 mg/ml solution for injection

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

1 ml contains:

Active substance:
Ketamine (as hydrochloride) 100 mg

Excipient:
Benzethonium chloride 0.1 mg

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for injection.
Clear, colourless to almost colourless solution.

4. CLINICAL PARTICULARS

4.1 Target species

Horse, cattle, pig, dog, cat.

4.2 Indications for use, specifying the target species

To be used as a sole agent for restraint and minor surgical procedures in the cat, where muscle relaxation is not required.
To be used to induce anaesthesia:
a) in combination with detomidine in the horse.
b) in combination with xylazine in the horse, in cattle, dog and in the cat.
c) in combination with azaperone in the pig.
d) in combination with medetomidine in the dog and cat.
e) in combination with diazepam in the dog.

4.3 Contraindications

Do not use:
- in animals with severe cardiac de-compensation, suspected pulmonary disease, apparent high blood pressure, or cerebrovascular insults.
- in animals with pre-existing liver and kidney pathology.
- in eclampsia, pre-eclampsia, glaucoma and seizure disorders (e.g. epilepsy).
- for surgical intervention on pharynx, larynx, trachea or bronchial tree, if sufficient relaxation is not ensured by administration of a muscle relaxant (intubation obligatory).

- in animals undergoing a myelogram procedure.

Do not use in cases of hypersensitivity to the active substance or to the excipient.
Do not use the product as a sole anaesthetic agent in any other species apart from the cat.

4.4 Special warnings for each target species

For very painful and major surgical interventions, as well as for maintenance of anaesthesia, a combination with injectable- or inhalation-anaesthetics is necessary. As muscle relaxation required for surgical procedures cannot be achieved with ketamine alone, additional muscle-relaxants should be used concomitantly. For improvement of anaesthesia or prolongation of effect ketamine can be combined with α_2-receptor-agonists, anaesthetics, neuroleptanalgesics, tranquilizers and inhalational anaesthetic agents.
A small proportion of animals have been reported to be unresponsive to ketamine as an anaesthetic agent at normal dosages.
It should be noted that time-to-full-effect may be prolonged when using the subcutaneous administration route in cat.

4.5 Special precautions for use

Special precautions for use in animals
Do not reverse ketamine-medetomidine combinations in dogs and cats with atipamezole until 45 minutes after ketamine administration, when ketamine action has ceased.

Pre-surgical preparation:
As for all anaesthetics animals should be fasted for 12 hours before ketamine anaesthesia.

Anaesthetic period:
Under ketamine anaesthesia the eyes of treated animals remain open, therefore to prevent desiccation in case of longer lasting procedures they should be protected accordingly (by use of appropriate ointments).

Recovery period:
It is important that both premedication and recovery should occur in quiet and calm surroundings. Recovery usually is complete after 2 hours, but may occasionally take longer. In dogs, states of psychomotoric excitation with howling can rarely be observed.

Special precautions to be taken by the person administering the veterinary medicinal product to animals
People with known hypersensitivity to ketamine or to the excipient should avoid contact with the veterinary medicinal product.
Avoid contact with the skin and eyes. Wash any splashes from skin and eyes immediately with large amounts of water.
Adverse effects on the foetus cannot be excluded. Pregnant women should avoid handling the product.
This is a potent drug - particular care should be taken to avoid accidental self-

administration.
In cases of accidental self-injection or if symptoms occur after ocular/oral contact, seek medical advice immediately and show the package leaflet or the label to the physician, but
DO NOT DRIVE.

Advice to doctor:
Do not leave patient unattended. Maintain airways and give symptomatic and supportive treatment.

4.6 Adverse reactions (frequency and seriousness)

Use of the intramuscular route of administration may be associated with pain.
Increased muscle tonus (due to disinhibition of the extra pyramidal system), rarely tachycardia and increase of blood pressure, salivation (due to brainstem stimulation).
When no concomitant muscle relaxant is administered the increased muscle tonus may cause tremors or tonic-clonic convulsions. Concomitant effects of ketamine use may be motoric excitations, opened eyes, nystagmus (rhythmic eye movement), mydriasis (dilation of pupil) as well as increased sensibility especially against acoustic stimuli during anaesthesia and in the recovery period.
Ketamine causes a dose-related respiratory depression, which may lead to respiratory arrest particularly in cats. Combination with respiratory depressant products may increase this respiratory effect.

The frequency of adverse reactions is defined using the following convention:
- very common (more than 1 in 10 animals treated displaying adverse reaction(s))
- common (more than 1 but less than 10 animals in 100 animals treated)
- uncommon (more than 1 but less than 10 animals in 1,000 animals treated)
- rare (more than 1 but less than 10 animals in 10,000 animals treated)
- very rare (less than 1 animal in 10,000 animals treated, including isolated reports).

4.7 Use during pregnancy, lactation or lay

Pregnancy:
Ketamine crosses the placental barrier. Use only according to the benefit-risk assessment by the responsible veterinarian. Ketamine should not be used in the periparturient period.

Lactation:
Use during lactation only according to the benefit-risk assessment by the responsible veterinarian.

4.8 Interaction with other medicinal products and other forms of interaction

Neuroleptanalgesics, tranquilizers, morphine analogues, cimetidine and chloramphenicol potentiate ketamine anaesthesia.
Barbiturates and opiates or diazepam can prolong the recovery period. Effects may be additive; dosage reduction of one or both agents may be required. Potential for increased risk for arrhythmias when used in combination with thiopental or halothane. Halothane prolongs the half-life of ketamine. Simultaneously administered

intravenous spasmolytics can provoke a collapse.
Theophylline with ketamine can cause an increased incidence of seizures.
The use of detomidine in combination with ketamine gives a slow recuperation.

4.9 Amounts to be administered and administration route

Ketamine can show large inter-individual variation in effect, and therefore dose rates administered should be tailored to the individual animal, dependent on factors such as age, condition, and the depth and duration of anaesthesia required.
Prolongation of effect is possible by repeated administration of an optionally reduced initial dose.
Administration is possible intravenously (horse, cattle, dog and cat), intramuscularly (pig, dog and cat) or in cats also subcutaneously.
For combination use: before ketamine is administered, please ensure that the animals are adequately sedated.

HORSE
Pre-medication with a sedative is required for a sufficient anaesthetic effect:

To induce anaesthesia
With detomidine:
Detomidine 20 µg/kg IV, after 5 minutes
Ketamine 2.2 mg/kg fast IV (2.2 ml/100 kg)
Onset of action is gradual, taking approximately 1 minute to attain recumbency, with duration of anaesthetic effect lasting approximately 10 - 15 minutes.

With xylazine:
Xylazine 1.1 mg/kg IV, followed by
Ketamine 2.2 mg/kg IV (2.2 ml/100 kg)
Onset of action is gradual, taking approximately 1 minute, with duration of anaesthetic effect being variable and lasting 10 - 30 minutes but usually less than 20 minutes.

After injection the horse lays down spontaneously without any further help. If a distinct muscle relaxation is required simultaneously, muscle relaxants can be administered to the recumbent animal, until the horse shows first symptoms of relaxation.

CATTLE
To avoid uncontrolled lying down and possible symptoms of excitation or for potentiation of anaesthesia a sedative premedication is recommended. To avoid hypoxia due to lateral or dorsal recumbency, oxygen can be administered through a nasal tube.

To induce anaesthesia
With xylazine
Xylazine 0.14 - 0.22 mg/kg IV/IM, followed by
Ketamine 2 - 5 mg/kg IV (2 - 5 ml/100 kg)
Onset of action is approximately 1 minute, with duration of anaesthetic effect lasting approximately 30 minutes.

The lower end of the stated dose range should be used when administering xylazine via the intravenous route.

PIG

To induce anaesthesia

With azaperone

Ketamine 15 - 20 mg/kg IM (1.5 - 2 ml/10 kg) and 2 mg/kg azaperone IM.
In 4 – 5 month old pigs, following administration of 2 mg/kg azaperone and 20 mg/kg ketamine IM, the onset of anaesthesia took on average 29 minutes and duration of effect lasted about 27 minutes.

DOG

Ketamine cannot be used as a mono-anaesthetic in dogs, as it causes an increased muscle tone and uncoordinated muscle contractions.

To induce anaesthesia

With medetomidine

Medetomidine 40 µg/kg IM, followed by
Ketamine 5 - 7.5 mg/kg IM (0.5 - 0.75 ml/10 kg)
Duration of effect varies between 30 - 50 minutes and is dose related.

With xylazine

Xylazine 2 mg/kg IM, after 10 minutes
Ketamine 10 mg/kg IM (1 ml/10 kg).
In dogs weighing more than 25 kg bodyweight reduce xylazine dosage to 1.3 mg/kg.
Onset of action is usually within 10 minutes and duration of effect lasts for approximately 30 minutes.

With diazepam

Administer diazepam 0.25 mg/kg IV, immediately followed by
Ketamine 5 mg/kg IV (0.5 ml/10 kg).
Ketamine should be injected slowly and generally administered to effect, when used intravenously.
Appropriate premedication should be used to ensure adequate sedation before administration of the diazepam-ketamine combination and to facilitate intubation. The optimal dosing regimen should be individually based on the pre-medication used.
Average duration of effect is 10-20 minutes.

CAT

Mono-anaesthetic use of ketamine is possible, but to avoid undesired psychomotoric effects combined anaesthesia is recommended. Ketamine on its own may be used by intravenous injection, but intramuscular injection is the recommended route.
Ketamine should be injected slowly when administered intravenously.

As a sole agent

11 mg/kg ketamine IM/IV for minor restraint,
22 - 33 mg/kg ketamine IM/IV for minor surgery and restraint of fractious cats.
Duration of ketamine anaesthesia is 20 – 40 minutes and recovery takes place over a 1 – 4 hour period.

To induce anaesthesia (anaesthesia < 1 hour)
With medetomidine
Medetomidine 80 µg/kg IM, followed by
Ketamine 5 – 7.5 mg/kg IM (0.25 - 0.4 ml/5 kg)
Onset of action is usually 3 - 4 minutes and duration of effect varies between 30 - 60 minutes and is dose related.

With xylazine
Xylazine 1 - 2 mg/kg IM/SC and
Ketamine 10 - 20 mg/kg IM/SC (0.5 - 1 ml/5 kg)
The lowest dose of xylazine (1 mg/kg) should be used, if ketamine is used at the highest dose (20 mg/kg).
Onset of action is usually within 5 minutes of ketamine administration and duration of effect lasts for at least 30 minutes.

Due to low dose volumes, it is recommended to use an insulin type syringe to accurately measure dosages.

The rubber stopper can be punctured safely a maximum of 25 times.

4.10 Overdose (symptoms, emergency procedures, antidotes), if necessary

In cases of overdose cardiac arrhythmia and respiratory depression up to paralysis may occur. If necessary, suitable artificial aids to maintain ventilation and cardiac output should be used until sufficient detoxification has taken place. Pharmacological cardiac stimulants are not recommended, unless no other supportive measures are available.

4.11 Withdrawal periods

Horse and cattle:
Meat and offal: zero days
Milk: zero hours

Pig:
Meat and offal: zero days

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: General anaesthetics. ATC vet Code: QN01AX03.

5.1 Pharmacodynamic properties

Ketamine is a potent dissociative anaesthetic agent. The product induces a state of catalepsy with amnesia and analgesia: muscle tone is maintained including the pharyngeal and laryngeal reflexes. The heart rate, blood pressure and cardiac output are increased; respiratory depression is not a noticeable feature.
All these characteristics may be modified if the product is used in combination with other agents.

5.2 Pharmacokinetic particulars

Ketamine is distributed quickly and completely in the organism. It passes the placenta, but concentrations in the foetus are much lower than blood concentration in the dam. Protein binding in blood is about 50 %. Distribution in tissue is irregular, highest concentrations were found in liver and kidney. It is quickly and completely metabolised, but metabolism differs between individual animal species. Excretion is mainly renal.

In horses (after a single dose of 2.2 mg/kg IV ketamine) a C_{max} of 685 +/- 147 ng/ml is observed, with T_{max} being reached at 2h. In cattle (after a single dose of 5 mg/kg IV) C_{max} is 18,135 ng/ml, with T_{max} = 0.083 h. In pigs a C_{max} of 11.6 µg/ml is observed, with T_{max} being reached after 5 minutes after a single dose of 15 mg/kg IM. In the target animal species dog and cat after administration of 20 mg/kg IV, peak tissue levels are 42 % of the original dose, with T_{max} being reached within 10 minutes.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

- Benzethonium chloride
- Water for injections

6.2 Major incompatibilities

In the absence of compatibility studies, this veterinary product must not be mixed with other veterinary medicinal products.

6.3 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 3 years
Shelf life after first opening the immediate packaging: 28 days

6.4 Special precautions for storage

Keep the container in the outer carton in order to protect from light. After first opening do not store above 25 °C.

6.5 Nature and composition of immediate packaging

Clear glass vial, type I (Ph. Eur.) with bromobutyl-rubber stopper type I (Ph.Eur.) and aluminium cap, packed in a cardboard box.

Package sizes: 1 x 10 ml, 5 x 10 ml, 1 x 50 ml
Not all pack sizes may be marketed.

6.6 Special precautions for the disposal of unused veterinary medicinal product or waste materials derived from the use of such products

Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal product should be disposed of in accordance with local requirements.

7. MARKETING AUTHORISATION HOLDER

VetViva Richter GmbH
Durisolstrasse 14
4600 Wels
Austria

8. MARKETING AUTHORISATION NUMBER

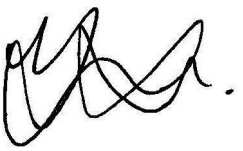
Vm 57446/4002

9. DATE OF FIRST AUTHORISATION

07 February 2013

10. DATE OF REVISION OF THE TEXT

January 2023



Approved: 23 January 2023