
RAPIFEN[®]

DATA SHEET

1. NAME OF THE MEDICINE

RAPIFEN[™] alfentanil 0.5 mg/mL injection

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each mL of RAPIFEN contains alfentanil hydrochloride 544 micrograms, equivalent to 500 micrograms alfentanil base.

Excipient(s) with known effect:

Sodium chloride 9 mg/mL

For a full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for injection

4. CLINICAL PARTICULARS

4.1. Therapeutic indications

RAPIFEN is indicated in adults and children aged above one year for use as:

- an opioid analgesic in general or regional anaesthesia for both short (bolus injections) and long (bolus, supplemented by increments or by continuous infusion) surgical procedures.
- an anaesthetic induction agent.

Due to its rapid and short-lasting action, RAPIFEN is particularly suited as an opioid analgesic for short procedures and outpatient surgery. It is also useful as an analgesic supplement for procedures of medium and long duration, since periods of very painful stimuli can easily be overcome by small increments of RAPIFEN or by adapting its infusion rate.

4.2. Dose and method of administration

RAPIFEN should be administered intravenously. Other routes of administration have not been evaluated.

The dosage of RAPIFEN should be individualised according to age, body weight, physical status, underlying pathological condition, use of other medicines, type of anaesthesia and type and duration of the surgical procedure. As a general principle, the lowest effective dose should be used.

To avoid bradycardia, a small intravenous dose of an anti-cholinergic agent (e.g. atropine), be administered just before induction may be administered. Droperidol may be given to prevent nausea and vomiting. However, it is preferable not to administer droperidol to outpatients since it may lengthen their recovery period.

Use as an induction agent

An intravenous bolus dose of ≥ 120 micrograms/kg (17 mL/70 kg) of RAPIFEN will induce hypnosis and analgesia while maintaining good cardiovascular stability in patients with adequate muscle relaxation.

For short procedures and use in outpatients

Small doses of RAPIFEN are suitable for minor, short but painful surgical procedures and for outpatients, provided good monitoring equipment is available.

An intravenous bolus dose of 7 to 15 micrograms/kg (1 to 2 mL/70 kg) will suffice for procedures lasting less than 10 minutes. Should the duration of the procedure exceed 10 minutes, further increments of 7 to 15 micrograms/kg (1 to 2 mL/70 kg) should be given every 10 to 15 minutes or as required.

Spontaneous respiration may be maintained in most instances with a dose of 7 micrograms/kg (1 mL/70 kg) or less, slowly injected. Suggested increments with this technique are 3.5 micrograms/kg (0.5 mL/70 kg).

It is preferable not to administer droperidol or benzodiazepines to outpatients as these medicines may lengthen the recovery period (see **Interactions with other medicines and other forms of interaction**). In outpatients, the use of an anticholinergic agent, a short-acting induction hypnotic, RAPIFEN and N₂O/O₂ is a preferred technique.

When post-operative nausea occurs, it is of relatively short duration and easily controlled by conventional measures.

For procedures of medium duration

The initial intravenous bolus dose should be adapted to the expected duration of the surgical procedure as follows:

Duration of the Procedure (minutes)	RAPIFEN I.V. bolus dose	
	micrograms/kg	mL/70 kg
10-30	20-40	3-6
30-60	40-80	6-12
> 60	80-150	12-20

Continuous infusion is preferred for procedures of more than 60 minutes duration.

When surgery is prolonged or more traumatic, analgesia can be maintained by either of the following:

- increments of 15 micrograms/kg (2 mL/70 kg) of RAPIFEN when required. To avoid postoperative respiratory depression, the last dose of RAPIFEN should not be administered within the last 10 minutes of surgery, or
- infusion of RAPIFEN at a rate of 1 micrograms/kg/minute (0.14 mL/70 kg/minute) until 5 to 10 minutes before the completion of surgery.

Periods of very painful stimuli can be easily overcome by small increments of RAPIFEN or by temporarily increasing the infusion rate. When RAPIFEN is used without N₂O/O₂ or other inhalation anaesthetic agents, the maintenance dose of RAPIFEN should be increased.

RAPIFEN may be administered as an infusion for more prolonged procedures with the following infusion solutions:

- 0.9% sodium chloride injection
- 5.0% glucose injection
- compound sodium lactate intravenous injection (Ringer Lactate Injection)

WARNING: The prepared infusion should commence as soon as possible after its preparation and within 24 hours of preparation. Any storage of the prepared solution should be at 2 - 8°C. RAPIFEN must not be mixed with any products other than those listed above.

For long procedures

RAPIFEN may be used as the analgesic component of anaesthesia for long lasting surgical procedures, especially when rapid extubation is indicated. Optimum analgesia and stable autonomic condition are maintained through an individually adapted initial intravenous dose, and by adjusting the infusion rate to the severity of the surgical stimuli and the reactions of patients.

Special populations

Paediatric Use

The safety of RAPIFEN in children younger than one year has not been established. The usual children's dose of RAPIFEN is identical to that used in adults, however, some cases may require a higher or more frequent dosing due to RAPIFEN having a shorter half-life in children.

Elderly and debilitated patients

The initial dose should be appropriately reduced in the elderly (>65 years of age) and in debilitated patients. The effect of the initial dose should be taken into account in determining supplemental doses.

4.3. Contraindications

RAPIFEN is contraindicated in those with a known intolerance or sensitivity to alfentanil, or to other opioid analgesics.

4.4. Special warnings and precautions for use

RAPIFEN should be administered only by persons specifically trained in the use of intravenous and general anaesthetic agents, and in the management of respiratory effects of potent opioids.

An opioid antagonist, oxygen, and resuscitative and intubation equipment should be readily available. Due to the possibility of delayed respiratory depression, monitoring of the patient must continue until well after surgery in an approved recovery facility.

Respiratory Depression

As with other potent opioids, profound analgesia is accompanied by marked respiratory depression and loss of consciousness, which can persist or recur in the post-operative period. Respiratory depression is dose related, and can be reversed by specific opioid antagonists such as naloxone. Naloxone administration may need to be repeated because the respiratory depression may last longer than the duration of action of the opioid antagonist. Recovery room staff should be aware that marked respiratory depression has been reported as occurring after periods of up to several hours after the patient has been perceived to be alert, conversing coherently, and with normal respiration. For this reason, patients should remain under appropriate surveillance. Resuscitation equipment and opioid antagonists should be readily available. Hyperventilation during anaesthesia may alter the patient's responses to CO₂, thus affecting respiration postoperatively.

Risk from concomitant use of Central Nervous System (CNS) depressants, especially benzodiazepines or related drugs

Concomitant use of RAPIFEN and CNS depressants especially benzodiazepines or related drugs in spontaneous breathing patients, may increase the risk of profound sedation, respiratory depression, coma and death. If a decision is made to administer RAPIFEN concomitantly with a CNS depressant, especially a benzodiazepine or a related drug, the lowest effective dose of both drugs should be administered, for

the shortest period of concomitant use. Patients should be carefully monitored for signs and symptoms of respiratory depression and profound sedation. In this respect, it is strongly recommended to inform patients and their caregivers to be aware of these symptoms (see **Interactions with other medicines and other forms of interaction**).

Muscle Rigidity

Induction of muscle rigidity, which may also involve the thoracic muscles can occur, but can be avoided by the following measures:

- slow intravenous injection, especially when higher doses are indicated
- premedication with benzodiazepines
- administration of muscle relaxants prior to a dose of RAPIFEN.

Non-epileptic (myo)clonic movements can occur.

Cardiac Effects

Bradycardia and possibly cardiac arrest can occur if the patient has received an insufficient amount of anticholinergic agent, or when RAPIFEN is combined with non-vagolytic muscle relaxants. Bradycardia can be treated with atropine.

RAPIFEN may induce hypotension, especially in hypovolaemic patients. Appropriate measures to maintain a stable arterial pressure should be taken.

Use in Patients with Compromised Intracerebral Compliance

The use of rapid bolus injections of opioids should be avoided in patients with compromised intracerebral compliance. In such patients, the transient decrease in the mean arterial pressure has occasionally been accompanied by a short lasting reduction of the cerebral perfusion pressure.

Use in the Elderly

It is recommended that the dose of RAPIFEN be reduced in the elderly, because of reduced clearance. The dosage should be individualised based on clinical response.

Use in Hepatic or Renal Impairment

It is recommended that the dose of RAPIFEN be reduced in those patients with chronic liver or kidney disease, because of decreased plasma protein concentrations and reduced clearance. Due to the variable pharmacokinetics and pharmacodynamics, the dosage should be titrated individually and adjusted on the basis of the clinical response.

Use in Hypothyroidism

It is recommended that the dose of RAPIFEN be reduced in those patients with hypothyroidism, because of reduced clearance. The dosage should be individualised based on clinical response.

Others

Patients on chronic opioid therapy or with a history of opioid abuse may require higher doses.

RAPIFEN should be titrated with caution in those with any of the following conditions: pulmonary disease, decreased respiratory reserve and alcoholism. Such patients also require prolonged post-operative monitoring.

As is the case with any opioid analgesic, RAPIFEN should not be used in patients who may be particularly susceptible to respiratory depression such as comatose patients who may have head injury or brain tumour.

4.5. Interactions with other medicines and other forms of interaction

Anaesthetic Agents

As with other opioids, the respiratory depressant and cardiovascular depressant effects of RAPIFEN may be potentiated by halogenated inhalation agents such as propofol. When patients have received such agents, the dose of RAPIFEN required will be less than usual.

Central Nervous System (CNS) depressants

Medicines such as barbiturates, benzodiazepines or related drugs, phenothiazine derivatives, neuroleptics, general anaesthetics, and other non-selective CNS depressants (e.g. alcohol) may potentiate the respiratory depressant and cardiovascular depressant effects of opioids. When patients have received such CNS depressants, the dose of RAPIFEN required will be less than usual. Concomitant use with RAPIFEN in spontaneously breathing patients may increase the risk of respiratory depression, profound sedation, coma, and death (see **Special warnings and precautions for use**).

Likewise, Following the administration of RAPIFEN, the dose of other CNS-depressant medicines should be reduced. This is particularly important after surgery, because profound analgesia is accompanied by marked respiratory depression, which can persist or recur in the postoperative period. Administration of a CNS depressant, such as a benzodiazepine or related drugs, during this period may disproportionately increase the risk for respiratory depression (see **Special warnings and precautions for use**).

Cytochrome P450 3A4 (CYP3A4) inhibitors

Alfentanil is metabolised mainly *via* the human cytochrome P450 3A4 enzyme. *In vitro* data suggest that potent cytochrome P450 3A4 enzyme inhibitors (e.g., ketoconazole, itraconazole, ritonavir) may inhibit the metabolism of alfentanil. Available human pharmacokinetic data indicate that the metabolism of alfentanil is inhibited by fluconazole, voriconazole, erythromycin, diltiazem, and cimetidine (known cytochrome P450 3A4 enzyme inhibitors). This could increase the risk of prolonged or delayed respiratory depression. The concomitant use of such medicines requires special patient care and observation. In particular, it may be necessary to lower the dose of RAPIFEN.

Monoamine Oxidase Inhibitors (MAOI)

As monoamine oxidase inhibitors have been reported to potentiate the effects of opioid analgesics, the use of RAPIFEN in patients who have received MAO inhibitors within two weeks should be avoided.

Serotonergic medicines

Coadministration of alfentanil with a serotonergic agent, such as Selective Serotonin Reuptake Inhibitors (SSRIs), Serotonin Norepinephrine Reuptake Inhibitors (SNRIs), or Monoamine Oxidase Inhibitors (MAOIs), may increase the risk of serotonin syndrome, a potentially life-threatening condition.

Effect of Alfentanil on the Metabolism of Other Medicines

In combination with RAPIFEN, the blood concentrations of propofol are 17% higher than in the absence of RAPIFEN. The concomitant use of alfentanil and propofol may require a lower dose of RAPIFEN.

4.6. Fertility, pregnancy and lactation

Pregnancy

The intravenous use of opioid analgesics during labour (including caesarean section) can cause respiratory depression in the newborn infant since RAPIFEN crosses the placenta. Therefore, RAPIFEN should only be used during labour after weighing the needs of the mother against the risk to the foetus. If RAPIFEN is administered, assisted ventilation equipment must be immediately available for use if required for the mother and infant. An opioid antagonist for the child must always be available. The half-life of the opioid

antagonist may be shorter than the half-life of alfentanil, therefore, repeated administration of the opioid antagonist may be necessary.

Although no teratogenic or acute embryotoxic effects have been observed in animal experiments, insufficient data are available to evaluate any harmful effects in man. Consequently, it is necessary to consider the possible risks and potential advantages before administering this medicine to pregnant patients.

Breastfeeding

RAPIFEN may be excreted in human milk. Therefore, breastfeeding or use of expressed breast milk is not recommended during the 24 hours following the administration of RAPIFEN.

4.7. Effects on ability to drive and use of machines

Driving and the operation of machines can be resumed when sufficient time has elapsed following administration of RAPIFEN. Individual reactions vary greatly. It is recommended that patients not drive or use machines for at least 24 hours after administration of RAPIFEN.

4.8. Undesirable effects

Clinical Trial Data

The safety of RAPIFEN was evaluated in 1157 subjects who participated in 18 clinical trials. RAPIFEN was administered as an anaesthetic induction agent or as an analgesic/anaesthesia adjuvant to regional and general anaesthesia, in short, medium, and long surgical procedures. These subjects took at least one dose of RAPIFEN and provided safety data. Adverse Drug Reactions (ADRs) that were reported for $\geq 1\%$ of RAPIFEN-treated subjects in these trials are shown in Table 1.

Table 1. Adverse Drug Reactions Reported by $\geq 1\%$ of RAPIFEN-treated Subjects in 18 Clinical Trials of RAPIFEN

System / Organ Class Adverse Reaction	RAPIFEN (n=1157) %
Psychiatric Disorders	
Euphoric mood	1.8
Nervous System Disorders	
Movement disorder	7.9
Dizziness	2.4
Sedation	1.5
Dyskinesia	1.4
Eye Disorders	
Visual disturbance	1.1
Cardiac Disorders	
Bradycardia	5.4
Tachycardia	1.0
Vascular Disorders	
Hypotension	4.1
Hypertension	2.2
Blood pressure decreased	1.3
Blood pressure increased	1.0
Respiratory, Thoracic and Mediastinal Disorders	
Apnoea	8.6

System / Organ Class Adverse Reaction	RAPIFEN (n=1157) %
Gastrointestinal Disorders	
Nausea	17.0
Vomiting	14.0
Musculoskeletal and Connective Tissue Disorders	
Muscle rigidity	3.1
General Disorders and Administration Site Conditions	
Fatigue	2.0
Chills	1.8
Injection site pain	1.6
Injury, Poisoning, and Procedural Complications	
Procedural pain	1.1

Additional ADRs that occurred in <1% of RAPIFEN-treated subjects in the 18 clinical trials are listed below in Table 2.

Table 2. Adverse Drug Reactions Reported by <1% of RAPIFEN-treated Subjects in 18 Clinical Trials of RAPIFEN

System / Organ Class Adverse Reaction	
Psychiatric Disorders	
Agitation	
Crying	
Nervous System Disorders	
Headache	
Somnolence	
Unresponsive to stimuli	
Cardiac Disorders	
Arrhythmia	
Heart rate decreased	
Vascular Disorders	
Vein pain	
Respiratory, Thoracic and Mediastinal Disorders	
Bronchospasm	
Hiccups	
Hypercapnia	
Laryngospasm	
Epistaxis	
Respiratory depression	
Skin and Subcutaneous Tissue Disorders	
Dermatitis allergic	
Hyperhidrosis	
Pruritus	
General Disorders and Administration Site Conditions	
Pain	
Injury, Poisoning and Procedural Complications	
Confusion postoperative	
Agitation postoperative	
Airway complication of anaesthesia	
Anaesthetic complication neurological	
Procedural complication	

System / Organ Class
Adverse Reaction
Endotracheal intubation complication

Post-marketing Data

Adverse drug reactions first identified during post-marketing experience with RAPIFEN are included in Table 3. The frequencies are provided according to the following convention:

Very common	≥1/10
Common	≥1/100 and <1/10
Uncommon	≥1/1,000 and <1/100
Rare	≥1/10,000, <1/1,000
Very rare	<1/10,000, including isolated reports

In Table 3, ADRs are presented by frequency category based on spontaneous reporting rates.

Table 3. Adverse Drug Reactions Identified During Post-Marketing Experience with RAPIFEN by Frequency Category Estimated from Spontaneous Reporting Rates

Immune System Disorders	
<i>Very rare</i>	Hypersensitivity (including anaphylactic reaction, anaphylactoid reaction, and urticaria)
Psychiatric Disorders	
<i>Very rare</i>	Disorientation
Nervous System Disorders	
<i>Very rare</i>	Loss of consciousness ^a , Convulsion, Myoclonus
Eye Disorders	
<i>Very rare</i>	Miosis
Cardiac Disorders	
<i>Very rare</i>	Cardiac arrest
Respiratory, Thoracic and Mediastinal Disorders	
<i>Very rare</i>	Respiratory arrest, Respiratory depression ^b , Cough
Skin and Subcutaneous Tissue Disorders	
<i>Very rare</i>	Erythema, Rash
General Disorders and Administration Site Conditions	
<i>Very rare</i>	Pyrexia

^a Postoperative period.

^b Including fatal outcome.

Although it is unlikely, alfentanil could cause opioid dependence, and has the potential for being abused. See also **Special warnings and precautions for use**.

4.9. Overdose

Signs and Symptoms

The manifestations of RAPIFEN overdose are an extension of its pharmacological actions. Depending on the individual sensitivity, the clinical picture is determined primarily by the degree of respiratory depression, which varies from bradypnoea to apnoea.

Treatment

In the presence of hypoventilation or apnoea, oxygen should be administered and respiration should be assisted or controlled as indicated. A specific opioid antagonist, such as naloxone, should be used as indicated to control respiratory depression. This does not preclude the use of more immediate countermeasures. The respiratory depression may last longer than the effect of the antagonist, therefore, additional doses of the latter may be required.

If depressed respiration is associated with muscular rigidity, an intravenous neuromuscular blocking agent may be required to facilitate assisted or controlled respiration.

The patient should be carefully observed, body warmth and adequate fluid intake should be maintained. If hypotension is severe or if it persists, the possibility of hypovolaemia should be considered, and if present, it should be controlled with appropriate parenteral fluid administration.

For advice on the management of overdose please contact the National Poisons Centre on 0800 POISON (0800 764 766).

5. PHARMACOLOGICAL PROPERTIES

5.1. Pharmacodynamic properties

Pharmacotherapeutic group: opioid anaesthetics, ATC Code: N01AH02

Mechanism of action

Alfentanil is a potent, short acting, opioid analgesic chemically related to fentanyl.

The onset of action of alfentanil is more rapid than that of an equianalgesic dose of fentanyl and the maximal analgesic and respiratory depressant effect occurs within 1 to 2 minutes.

The duration of action of alfentanil is shorter than that of an equianalgesic dose of fentanyl, and is dose-related. For analgesia lasting longer than 60 minutes, an infusion is preferable.

The depressant effect of alfentanil on respiratory rate and alveolar ventilation lasts for a shorter time than that of fentanyl. In most cases, the duration of analgesia exceeds that of the respiratory depression. The duration and degree of respiratory depression tend to be dose-related.

At higher doses (>120 micrograms/kg), alfentanil can be used as an anaesthetic induction agent. The induction is smooth, pain-free and devoid of cardiovascular and hormonal stress responses to intubation.

The safety margin of alfentanil is comparatively better than that of other opioid analgesics. In rats, the ratio of LD₅₀/ED₅₀ for the lowest level of analgesia for alfentanil is 1080 compared with 4.6, 69.5 and 277 for pethidine, morphine and fentanyl, respectively.

Depending upon the dose and speed of administration, alfentanil can cause muscle rigidity, as well as euphoria, miosis and bradycardia, which is common with other opioid analgesics.

At doses up to 200 micrograms/kg, alfentanil failed to produce a significant increase in histamine levels or any clinical evidence of histamine release.

Recovery after alfentanil administration is rapid and smooth, with a low incidence of post-operative nausea and vomiting.

A specific opioid antagonist, such as naloxone immediately and completely reverses all actions of alfentanil.

5.2. Pharmacokinetic properties

Alfentanil is a synthetic opioid with μ -agonist pharmacologic effects, used only intravenously.

Distribution

The sequential distribution half-lives of alfentanil are 0.4 - 2.2 minutes and 8 - 32 minutes, Plasma protein binding of alfentanil is about 92%. This and the low degree of ionisation (11% at pH = 7.4), contributes to a rapid but limited tissue distribution. Reported volumes of distribution are 1.27 - 4.81 L (volume of distribution of the central compartment) and 12.1 - 98.2 L (volume of distribution at steady state).

Metabolism

Alfentanil is metabolised mainly by the liver with only 1% of the active substance found unaltered in the urine. The metabolites are inactive and 70% to 80% of the metabolites are eliminated via the urine.

Elimination

Alfentanil is rapidly eliminated after intravenous administration. Terminal elimination half-lives of 83-223 min have been reported. The plasma clearance in young subjects averages 356 mL/min, and decreases with age. Only 1% of unchanged alfentanil is found in urine. Once steady state has been reached after infusion, the elimination half-life remains unaltered.

Patient recovery (i.e. return to consciousness) generally occurs rapidly on discontinuation of alfentanil.

Special Populations

Paediatrics

Protein binding in newborns is 75% and increases in children to 85%. The plasma clearance in newborns is approximately 7.2 ± 3.2 mL/kg/min and 4.7 ± 1.7 mL/kg/min in children between 4.5 to 7.75 years. The volume of distribution at steady state was 1230 ± 520 mL/kg in newborns and 163.5 ± 110 mL/kg in children. The half-life is 146 ± 57 minutes in newborns and 40.2 ± 8.9 minutes in children.

Hepatic Impairment

After administration of a single intravenous dose of 50 µg/kg, the terminal half-life in cirrhotic patients is significantly longer than in controls. The volume of distribution remains unchanged. The free fraction of alfentanil increases in cirrhotic patients to 18.5% compared with 11.5% in controls. This increase in free fraction together with a reduction in clearance from 3.06 mL/min/kg in controls to 1.60 mL/min/kg in cirrhotic patients will result in a more prolonged and pronounced effect (see **Special warnings and precautions for use**).

Renal Impairment

The volume of distribution and clearance of the free fraction is similar in renal failure patients and healthy controls. The free fraction of alfentanil in patients with renal failure is increased to 12.4 to 19 % compared with 10.3 to 11% in controls. This may result in an increase in clinical effect of alfentanil (see **Special warnings and precautions for use**).

6. PHARMACEUTICAL PARTICULARS

6.1. List of excipients

Sodium chloride

Water for injection

6.2. Incompatibilities

RAPIFEN must not be mixed with products other than those listed under **Dose and method of administration**.

6.3. Shelf Life

5 years

The prepared infusion should commence as soon as possible after its preparation and within 24 hours of preparation.

6.4. Special precautions for storage

Stored below 25°C.

Any storage of the prepared solution should be at 2 - 8°C.

6.5. Nature and contents of container

Colourless glass ampoules (PhEur, USP Type I)

1 mg/2 mL of alfentanil, in cartons of 5 ampoules.

6.6. Special precautions for disposal and other handling

Wear gloves while opening ampoule.

Accidental dermal exposure should be treated by rinsing the affected area with water. Avoid usage of soap, alcohol, and other cleaning materials that may cause chemical or physical abrasions to the skin.

7. MEDICINE SCHEDULE

Controlled Drug (B3)

8. SPONSOR

Janssen-Cilag (New Zealand) Ltd
Auckland, NEW ZEALAND
Telephone: 0800 800 806

9. DATE OF FIRST APPROVAL

29 November 1984

10. DATE OF REVISION OF THE TEXT

27 November 2018

Summary table of changes:

Section changes	Summary of new information
4.2	Add new sub-section " <i>Elderly and debilitated patients</i> "
4.4	Add new warning/precaution text related to concomitant use with benzodiazepines. Add information related to muscle rigidity.
4.5	Update information on Central Nervous System (CNS) depressant
4.7	Update information on effects on ability to drive and use of machines.