

SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

Remikaf 1 mg powder for concentrate for solution for injection or infusion
Remikaf 2 mg powder for concentrate for solution for injection or infusion

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Remifentanil 1 mg powder for concentrate for solution for injection or infusion
1 vial contains 1 mg remifentanil (as remifentanil hydrochloride).

Remifentanil 2 mg powder for concentrate for solution for injection or infusion
1 vial contains 2 mg remifentanil (as remifentanil hydrochloride).

After reconstitution the solution contains 1 mg/ml, if prepared as recommended (see section 6.6).

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Powder for concentrate for solution for injection or infusion. White to off white, powder

4. CLINICAL PARTICULARS

4.1. Therapeutic indications⁴

Remifentanil is indicated as an analgesic agent for use during induction and/or maintenance of general anaesthesia.

Remifentanil is indicated for provision of analgesia in mechanically ventilated intensive care patients of 18 years of age and over.

This medicinal product is exclusive for ICU or operating theater setting.

Clinical studies in children are only available for pediatric patients aged 3 – 8 years old.

Efficacy data for special population are not established.

4.2. Posology and method of administration

Remifentanil shall be administered only in a setting fully equipped for the monitoring and support of respiratory and cardiovascular function, and by persons specifically trained in the use of anaesthetic drugs and the recognition and management of the expected adverse effects of potent opioids, including respiratory and cardiac resuscitation. Such training must include the establishment and maintenance of a patent airway and assisted ventilation.

Continuous infusions of remifentanil must be administered by a calibrated infusion device into a fast flowing IV line or via a dedicated IV line. This infusion line should be connected at, or close to, the venous cannula and primed to minimise the potential dead space (see section 6.6 for additional information, including tables with examples of infusion rates by body weight to help titrate remifentanil to the patient's anaesthetic needs).

Remifentanyl may be given by target controlled infusion (TCI) with an approved infusion device incorporating the Minto pharmacokinetic model with covariates for age and lean body mass (LBM)

Care should be taken to avoid obstruction or disconnection of infusion lines and to adequately clear the lines to remove residual remifentanyl after use (see section 4.4).

Remifentanyl is for intravenous use only and must not be administered by epidural or intrathecal injection (see section 4.3).

The content of one vial is for single use only.

Dilution

Remifentanyl must be further diluted after reconstitution (see section 6.4 and 6.6 for storage conditions of the reconstituted/diluted product and the recommended diluents).

For manually-controlled infusion remifentanyl can be diluted to concentrations of 20 to 250 micrograms/ml (50 micrograms/ml is the recommended dilution for adults and 20 to 25 micrograms/ml for paediatric patients aged 3 year and over).

For TCI the recommended dilution of **Remikaf** is 20 to 50 micrograms/ml.

General Anaesthesia

The administration of remifentanyl must be individualised based on the patient's response.

Adults

Administration by Manually-Controlled Infusion

The following table summarises the starting injection/infusion rates and dose range.

Dosing guidelines for adults:

Indication	Bolus Injection (micrograms/kg/min)	Continuous Infusion (micrograms/kg)	
		Starting Rate	Range
Induction of anaesthesia	1 (give over not less than 30 seconds)	0.5 to 1	-
Maintenance of anaesthesia in ventilated patients			
Nitrous oxide (66%)	0.5 to 1	0.4	0.1 to 2
Isoflurane (starting dose 0.5 MAC)	0.5 to 1	0.25	0.05 to 2
Propofol (Starting dose 100 micrograms/kg/min)	0.5 to 1	0.25	0.05 to 2

When given by bolus injection remifentanyl should be administered over not less than 30 seconds.

At the doses recommended above, remifentanyl significantly reduces the amount of hypnotic agent required to maintain anaesthesia. Therefore, isoflurane and propofol should be administered as recommended above to avoid an increase of haemodynamic effects such as hypotension and bradycardia (see in section 4.2: Concomitant medication below).

The following tables give guidelines for infusion rates of remifentanyl for manually-controlled infusion:

Table 1: Remifentanyl – Infusion Rates (ml/kg/h)

Drug Delivery Rate (µg/kg/min)	Infusion Rate (ml/kg/h) for Solution Concentrations of			
	20µg/ml 1mg/50ml	25µg/ml 1mg/40ml	50µg/ml 1mg/20ml	250µg/ml 10 mg/40ml
0.0125	0.038	0.03	0.015	Not recommended
0.025	0.075	0.06	0.03	Not recommended
0.05	0.15	0.12	0.06	0.012
0.075	0.23	0.18	0.09	0.018
0.1	0.3	0.24	0.12	0.024
0.15	0.45	0.36	0.18	0.036
0.2	0.6	0.48	0.24	0.048
0.25	0.75	0.6	0.3	0.06
0.5	1.5	1.2	0.6	0.12
0.75	2.25	1.8	0.9	0.18
1.0	3.0	2.4	1.2	0.24
1.25	3.75	3.0	1.5	0.3
1.5	4.5	3.6	1.8	0.36
1.75	5.25	4.2	2.1	0.42
2.0	6.0	4.8	2.4	0.48

Table 2: Remifentanyl - Infusion Rates (ml/h) for a 20µg/ml Solution

Infusion Rate (µg/kg/min)	Patient Weight (kg)						
	5	10	20	30	40	50	60
0.0125	0.188	0.375	0.75	1.125	1.5	1.875	2.25
0.025	0.375	0.75	1.5	2.25	3.0	3.75	4.5
0.05	0.75	1.5	3.0	4.5	6.0	7.5	9.0
0.075	1.125	2.25	4.5	6.75	9.0	11.25	13.5
0.1	1.5	3.0	6.0	9.0	12.0	15.0	18.0

0.15	2.25	4.5	9.0	13.5	18.0	22.5	27.0
0.2	3.0	6.0	12.0	18.0	24.0	30.0	36.0
0.25	3.75	7.5	15.0	22.5	30.0	37.5	45.0
0.3	4.5	9.0	18.0	27.0	36.0	45.0	54.0
0.35	5.25	10.5	21.0	31.5	42.0	52.5	63.0
0.4	6.0	12.0	24.0	36.0	48.0	60.0	72.0

Table 3: Remifentanyl – Infusion Rates (ml/h) for a 25 µg/ml Solution

Infusion Rate (µg/kg/min)	Patient Weight (kg)									
	10	20	30	40	50	60	70	80	90	100
0.0125	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
0.025	0.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0
0.05	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0
0.075	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.0
0.1	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
0.15	3.6	7.2	10.8	14.4	18.0	21.6	25.2	28.8	32.4	36.0
0.2	4.8	9.6	14.4	19.2	24.0	28.8	33.6	38.4	43.2	48.0

Table 4: Remikaf Injection Infusion Rates (ml/h) for a 50 µg/ml Solution

Infusion Rate (µg/kg/min)	Patient Weight (kg)							
	30	40	50	60	70	80	90	100
0.025	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
0.05	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0
0.075	2.7	3.6	4.5	5.4	6.3	7.2	8.1	9.0
0.1	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0
0.15	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.0
0.2	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
0.25	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0
0.5	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0
0.75	27.0	36.0	45.0	54.0	63.0	72.0	81.0	90.0
1.0	36.0	48.0	60.0	72.0	84.0	96.0	108.0	120.0
1.25	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
1.5	54.0	72.0	90.0	108.0	126.0	144.0	162.0	180.0
1.75	63.0	84.0	105.0	126.0	147.0	168.0	189.0	210.0
2.0	72.0	96.0	120.0	144.0	168.0	192.0	216.0	240.0

Table 5: Remikaf Injection Infusion Rates (ml/h) for a 250 µg/ml Solution

Infusion Rate (µg/kg/min)	Patient Weight (kg)							
	30	40	50	60	70	80	90	100
0.1	0.72	0.96	1.20	1.44	1.68	1.92	2.16	2.40
0.15	1.08	1.44	1.80	2.16	2.52	2.88	3.24	3.60
0.2	1.44	1.92	2.40	2.88	3.36	3.84	4.32	4.80
0.25	1.80	2.40	3.00	3.60	4.20	4.80	5.40	6.00
0.5	3.60	4.80	6.00	7.20	8.40	9.60	10.80	12.00

0.75	5.40	7.20	9.00	10.80	12.60	14.40	16.20	18.00
1.0	7.20	9.60	12.00	14.40	16.80	19.20	21.60	24.00
1.25	9.00	12.00	15.00	18.00	21.00	24.00	27.00	30.00
1.5	10.80	14.40	18.00	21.60	25.20	28.80	32.40	36.00
1.75	12.60	16.80	21.00	25.20	29.40	33.60	37.80	42.00
2.0	14.40	19.20	24.00	28.80	33.60	38.40	43.20	48.00

The following table provides the equivalent blood remifentanyl concentration using a TCI approach for various manually-controlled infusion rates at steady state:

Table 6: Remifentanyl Blood Concentrations (nanograms/ml) estimated using the Minto (1997) Pharmacokinetic Model in a 70 kg, 170 cm, 40 Year Old Male Patient for Various Manually-Controlled Infusion rates (micrograms/kg/min) at Steady State.

Remifentanyl Infusion Rate (micrograms/kg/min)	Remifentanyl Blood Concentration (nanograms/ml)
0.05	1.3
0.10	2.6
0.25	6.3
0.40	10.4
0.50	12.6
1.0	25.2
2.0	50.5

No data are available for dosage recommendations for simultaneous use of other hypnotics other than those listed in the table with remifentanyl.

Induction of anaesthesia:

Remifentanyl should be administered with a standard dose of hypnotic agent, such as propofol, thiopental, or isoflurane, for the induction of anaesthesia.

Remifentanyl can be administered at an infusion rate of 0.5 to 1 micrograms/kg/min, with or without an initial bolus injection of 1 micrograms/kg given over not less than 30 seconds. If endotracheal intubation is to occur more than 8 to 10 minutes after the start of the infusion of remifentanyl, then a bolus injection is not necessary.

Maintenance of anaesthesia in ventilated patients:

After endotracheal intubation, the infusion rate of remifentanyl should be decreased, according to anaesthetic technique, as indicated in the above table.

Due to the fast onset and short duration of action of remifentanyl, the rate of administration during anaesthesia can be titrated upward in 25% to 100% increments or downward in 25% to 50% decrements, every 2 to 5 minutes to attain the desired level of μ -opioid response. In response to light anaesthesia, supplemental bolus injections may be administered every 2 to 5 minutes.

Anaesthesia in spontaneously breathing anaesthetised patients with a secured airway (e.g. laryngeal mask anaesthesia):

In spontaneously breathing anaesthetised patients with a secured airway respiratory depression is likely to occur. There is also a risk that muscle rigidity may occur. Special

care is needed to adjust the dose to the patient requirements and ventilatory support and/or urgent intubation may be required. The recommended starting infusion rate for supplemental analgesia in spontaneously breathing anaesthetised patients is 0.04 micrograms/kg/min with titration to effect. A range of infusion rates from 0.025 to 0.1 micrograms/kg/min has been studied.

Bolus injections are not recommended in spontaneously breathing anaesthetised patients. Remifentanyl should not be used as an analgesic in procedures where patients remain conscious or do not receive any airway support during the procedure.

Concomitant medication:

Remifentanyl decreases the amounts or doses of inhaled anaesthetics, hypnotics and benzodiazepines required for anaesthesia (see *section 4.5*).

Doses of the following agents used in anaesthesia: isoflurane, thiopentone, propofol and temazepam have been reduced by up to 75% when used concurrently with remifentanyl.

Guidelines for discontinuation/ continuation into the immediate post-operative period:

Due to the very rapid offset of action of remifentanyl no residual opioid activity will be present within 5 to 10 minutes after discontinuation. For those patients undergoing surgical procedures where post-operative pain is anticipated, analgesics should be administered prior to discontinuation of remifentanyl. Sufficient time must be allowed to reach the maximum effect of the longer acting analgesic. The choice of analgesic should be appropriate for the patient's surgical procedure and the level of post-operative care.

Care should be taken to avoid inadvertent administration of remifentanyl remaining in IV lines and cannulae (see *section 4.4*).

In the event that longer acting analgesia has not been established prior to the end of surgery, remifentanyl may need to be continued to maintain analgesia during the immediate post-operative period until longer acting analgesia has reached its maximum effect.

Guidance on use in mechanically ventilated intensive care patients is provided in *section 4.2: Use in Intensive Care*.

In patients who are breathing spontaneously, the infusion rate of remifentanyl should initially be decreased to a rate of 0.1 micrograms/kg/min. The infusion rate may then be increased or decreased by not greater than 0.025 micrograms/kg/min every five minutes, to balance the patient's level of analgesia and respiratory rate.

Remifentanyl should only be used in a setting fully equipped for the monitoring and support of respiratory and cardiovascular function, under the close supervision of persons specifically trained in the recognition and management of the respiratory effects of potent opioids.

The use of bolus injections of remifentanyl to treat pain during the postoperative period is not recommended in patients who are breathing spontaneously.

Administration by Target-Controlled Infusion

Induction and maintenance of anaesthesia in ventilated patients:

Remifentanyl TCI should be used in association with an intravenous or inhalational hypnotic agent during the induction and maintenance of anaesthesia in ventilated adult

patients (see *Dosing Guidelines for Adults* in section 4.2: *General Anaesthesia / Adults - Administration by Manually - Controlled Infusion*). In association with these agents, adequate analgesia for induction of anaesthesia and surgery can generally be achieved with target blood remifentanyl concentrations ranging from 3 to 8 nanograms/ml.

Remifentanyl should be titrated to individual patient response. For particularly stimulating surgical procedures target blood concentrations up to 15 nanograms/ml may be required.

At the doses recommended above, remifentanyl significantly reduces the amount of hypnotic agent required to maintain anaesthesia. Therefore, isoflurane and propofol should be administered as recommended above to avoid an increase of haemodynamic effects such as hypotension and bradycardia (see *Dosing Guidelines for Adults* and *Concomitant Medication* in section 4.2: *General Anaesthesia/ Adults/ Administration by Manually - Controlled Infusion*).

For information on blood remifentanyl concentrations achieved with manually controlled infusion see *Table 6*.

As there are insufficient data, the administration of remifentanyl by TCI for spontaneous ventilation anaesthesia is not recommended.

Guidelines for discontinuation/continuation into the immediate post-operative period:

At the end of surgery when the TCI infusion is stopped or the target concentration reduced, spontaneous respiration is likely to return at calculated remifentanyl concentrations in the region of 1 to 2 nanograms/ml. As with manually-controlled infusion, post-operative analgesia should be established before the end of surgery with longer acting analgesics (see *Guidelines for discontinuation* in section 4.2: *General Anaesthesia / Adults / Administration by Manually-Controlled Infusion*).

As there are insufficient data, the administration of remifentanyl by TCI for the management of post-operative analgesia is not recommended.

Paediatric patients (3 to 12 years of age)

Co-administration of remifentanyl and an intravenous anaesthetic agent for induction of anaesthesia has not been studied in detail and is therefore not recommended.

Remifentanyl TCI has not been studied in paediatric patients and therefore administration of remifentanyl by TCI is not recommended in these patients.

The following doses of remifentanyl are recommended for maintenance of anaesthesia:

Dosing Guidelines for paediatric patients (3 to 12 years of age)

*Concomitant Anaesthetic Agent	Bolus Injection (micrograms/kg)	Continuous Infusion (micrograms/kg/min)	
		Starting Rate	Range
Halothane (starting dose 0.3 MAC)	1	0.25	0.05 to 1.3
Sevoflurane (starting dose 0.3 MAC)	1	0.25	0.05 to 0.9
Isoflurane (starting dose 0.5 MAC)	1	0.25	0.06 to 0.9

*co-administered with nitrous oxide/oxygen in a ratio of 2:1

When given by bolus injection, remifentanyl should be administered over not less than 30 seconds. Surgery should not commence until at least 5 minutes after the start of remifentanyl infusion, if a simultaneous bolus dose has not been given. For sole administration of nitrous oxide (70%) with remifentanyl, typical maintenance infusion rates should be between 0.4 and 3 micrograms/kg/min, and although not specifically studied, adult data suggest that 0.4 micrograms/kg/min is an appropriate starting rate. Paediatric patients should be monitored and the dose titrated to the depth of analgesia appropriate for the surgical procedure.

Concomitant medication:

At the doses recommended above, remifentanyl significantly reduces the amount of hypnotic agent required to maintain anaesthesia. Therefore, isoflurane, halothane and sevoflurane should be administered as recommended above to avoid an increase of haemodynamic effects such as hypotension and bradycardia. No data are available for dosage recommendations for simultaneous use of other hypnotics other than those listed in the table with remifentanyl (see in *section 4.2: General Anaesthesia / Adults – Concomitant medication*).

Guidelines for patient management in the immediate post-operative period:

Establishment of alternative analgesia prior to discontinuation of remifentanyl:

Due to the very rapid offset of action of remifentanyl, no residual activity will be present within 5 to 10 minutes after discontinuation. For those patients undergoing surgical procedures where post-operative pain is anticipated, analgesics should be administered prior to discontinuation of remifentanyl.

Sufficient time must be allowed to reach the therapeutic effect of the longer acting analgesic. The choice of agent(s), the dose and the time of administration should be planned in advance and individually tailored to be appropriate for the patient's surgical procedure and the level of post-operative care anticipated (see *section 4.4*).

Cardiac anaesthesia

Administration by Manually-Controlled Infusion

Dosing Guidelines for Cardiac Anaesthesia:

Indication	Bolus Injection (µg/kg)	Continuous Infusion (µg/kg/min)	
		Starting Rate	Typical Infusion Rates
Induction of anaesthesia	Not recommended	1	-
Maintenance of anaesthesia - Isoflurane (starting dose 0.4 MAC)	0.5-1	1	0.003-4
- Propofol (starting dose 50 µg/kg/min)	0.5-1	1	0.01 to 4.3

Continuation of postoperative analgesia, prior to extubation	Not recommended	1	0 to 1
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Remifentanyl is not recommended for use in patients with poor left ventricular function (left ventricular ejection fraction less than 0.35), since the safe use of the product in this patient group has not been established. There are no data available on use in patients under 18 years of age undergoing cardiac surgery.

Induction period of anaesthesia:

After administration of hypnotic to achieve loss of consciousness, remifentanyl should be administered at an initial infusion rate of 1 µg/kg/min. The use of bolus injections of remifentanyl during induction in cardiac surgical patients is not recommended. Endotracheal intubation should not occur until at least 5 minutes after the start of the infusion.

Maintenance period of anaesthesia:

After endotracheal intubation the infusion rate of remifentanyl should be titrated according to patient need. Supplemental slow bolus doses may also be given as required. High risk cardiac patients, such as those with poor ventricular function or undergoing valve surgery, should be administered a maximum bolus dose of 0.5 micrograms/kg.

These dosing recommendations also apply during hypothermic cardiopulmonary bypass (see section 5.2).

Concomitant medication:

At the doses recommended above, remifentanyl significantly reduces the amount of hypnotic agent required to maintain anaesthesia. Therefore, isoflurane and propofol should be administered as recommended above to avoid an increase of haemodynamic effects such as hypotension and bradycardia. No data are available for dosage recommendations for simultaneous use of other hypnotics other than those listed in the table with remifentanyl (see section 4.2: *General Anaesthesia / Adults/ Concomitant medication*).

Guidelines for post-operative patient management

Continuation of remifentanyl post-operatively to provide analgesia prior to weaning for extubation:

It is recommended that the infusion of remifentanyl should be maintained at the final intra-operative rate during transfer of patients to the post-operative care area. Upon arrival into this area, the patient's level of analgesia and sedation should be closely monitored and the remifentanyl infusion rate adjusted to meet the individual patient's requirements (see in section 4.2: *Use in Intensive Care* for further information on management of intensive care patients).

Establishment of alternative analgesia prior to discontinuation of remifentanyl:

Due to the very rapid offset of action of remifentanyl, no residual opioid activity will be present within 5 to 10 minutes after discontinuation. Prior to discontinuation of remifentanyl, patients must be given alternative analgesic and sedative agents at a

sufficient time in advance to allow the therapeutic effects of these agents to become established. It is therefore recommended that the choice of agent(s), the dose and the time of administration are planned, before weaning the patient from the ventilator.

Guidelines for discontinuation of remifentanyl:

Due to the very rapid offset of action of remifentanyl, hypertension, shivering and aches have been reported in cardiac patients immediately following discontinuation of remifentanyl (see *section 4.8*). To minimise the risk of these occurring, adequate alternative analgesia must be established (as described above), before the remifentanyl infusion is discontinued. The infusion rate should be reduced by 25% decrements in at least 10-minute intervals until the infusion is discontinued.

During weaning from the ventilator the remifentanyl infusion should not be increased and only down titration should occur, supplemented as required with alternative analgesics. Haemodynamic changes such as hypertension and tachycardia should be treated with alternative agents as appropriate.

When other opioid agents are administered as part of the regimen for transition to alternative analgesia, the patient must be carefully monitored. The benefit of providing adequate post-operative analgesia must always be balanced against the potential risk of respiratory depression with these agents.

Administration by Target-Controlled Infusion

Induction and maintenance of anaesthesia:

Remifentanyl TCI should be used in association with an intravenous or inhalational hypnotic agent during the induction and maintenance of anaesthesia in ventilated adult patients (see the *table in Dosing Guidelines for Cardiac Anaesthesia* in *section 4.2: Cardiac anaesthesia / Administration by Manually-Controlled Infusion*). In association with these agents, adequate analgesia for cardiac surgery is generally achieved at the higher end of the range of target blood remifentanyl concentrations used for general surgical procedures. Following titration of remifentanyl to individual patient response, blood concentrations as high as 20 nanograms/ml have been used in clinical studies. At the doses recommended above, remifentanyl significantly reduces the amount of hypnotic agent required to maintain anaesthesia. Therefore, isoflurane and propofol should be administered as recommended above to avoid an increase of haemodynamic effects such as hypotension and bradycardia (see *table in Dosing Guidelines for Cardiac Anaesthesia and Concomitant medication paragraph* in *section 4.2: Cardiac anaesthesia / Administration by Manually-Controlled Infusion*).

For information on blood remifentanyl concentrations achieved with manually controlled infusion see *Table 6*.

Guidelines for discontinuation/continuation into the immediate post-operative period:

At the end of surgery when the TCI infusion is stopped or the target concentration reduced, spontaneous respiration is likely to return at calculated remifentanyl concentrations in the region of 1 to 2 nanograms/ml. As with manually-controlled infusion, post-operative analgesia should be established before the end of surgery with longer acting analgesics (see *Guidelines for discontinuation* in *section 4.2: Cardiac anaesthesia / Administration by Manually-Controlled Infusion*).

As there are insufficient data, the administration of remifentanyl by TCI for the management of post-operative analgesia is not recommended.

Use in Intensive Care

Remifentanyl can be used for provision of analgesia in mechanically ventilated intensive care patients. Sedative agents should be added as appropriate.

The safety and efficacy from well-controlled clinical trials of remifentanyl in mechanically ventilated intensive care patients has been established for durations up to 3 days (see in *section 4.2: Use in Intensive Care/ Renally impaired intensive care patients* and *section 5.2*). Therefore, the use of remifentanyl is not recommended for a duration of treatment greater than 3 days.

Remifentanyl TCI has not been studied in intensive care patients and therefore administration of remifentanyl by TCI is not recommended in these patients.

In adults, it is recommended that remifentanyl is initiated at an infusion rate of 0.1 micrograms/kg/min (6 micrograms/kg/h) to 0.15 micrograms/kg/min (9 micrograms/kg/h). The infusion rate should be titrated in increments of 0.025 micrograms/kg/min (1.5 micrograms/kg/h) to achieve the desired level of analgesia. A period of at least 5 minutes should be allowed between dose adjustments.

The level of sedation and analgesia should be carefully monitored, regularly reassessed and the remifentanyl infusion rate adjusted accordingly. If an infusion rate of 0.2 micrograms/kg/min (12 micrograms/kg/h) is reached and the desired level of sedation is not achieved, it is recommended that dosing with an appropriate sedative agent is initiated (see below)

The dose of sedative agent should be titrated to obtain the desired level of sedation. Further increases to the remifentanyl infusion rate in increments of 0.025 micrograms/kg/min (1.5 micrograms/kg/h) may be made if additional analgesia is required.

The following table summarises the starting infusion rates and typical dose range for provision of analgesia in individual patients:

Dosing Guidelines for use of remifentanyl within the intensive care setting:

Continuous Infusion micrograms/kg/min (micrograms/kg/h)	
Starting Rate	Range
0.1 (6) to 0.15 (9)	0.006 (0.38) to 0.74 (44.6)

Bolus doses of remifentanyl are not recommended in the intensive care setting.

The use of remifentanyl will reduce the dosage requirement of any concomitant sedative agents. Typical starting doses for sedative agents, if required, are given below.

Recommended starting dose of sedative agents, if required:

Sedative Agents	Bolus (mg/kg)	Infusion (mg/kg/h)
Propofol	Up to 0.5	0.5
Midazolam	Up to 0.03	0.03

To allow separate titration of the respective agents, sedative agents should not be administered as an admixture.

Additional analgesia for ventilated patients undergoing stimulating procedures:

An increase in the existing Remifentanyl infusion rate may be required to provide additional analgesic cover for ventilated patients undergoing stimulating and/or painful procedures such as endotracheal suctioning, wound dressing and physiotherapy. It is recommended that a remifentanyl infusion rate of at least 0.1 micrograms/kg/min (6 micrograms/kg/h) should be maintained for at least 5 minutes prior to the start of the stimulating procedure. Further dose adjustments may be made every 2 to 5 minutes in increments of 25% to 50% in anticipation of, or in response to, additional requirement for analgesia. A mean infusion rate of 0.25 micrograms/kg/min (15 micrograms/kg/h), maximum 0.75 micrograms/kg/min (45 micrograms/kg/h), has been administered for provision of additional analgesia during stimulating procedures.

Establishment of alternative analgesia prior to discontinuation of remifentanyl:

Due to the very rapid offset of action of Remifentanyl, no residual opioid activity will be present within 5 to 10 minutes after discontinuation regardless of the duration of infusion. Following administration of Remifentanyl, the possibility of tolerance and hyperalgesia should be considered. Therefore, prior to discontinuation of remifentanyl, patients must be given alternative analgesic and sedative agents to prevent hyperalgesia and associated haemodynamic changes. These agents must be given at a sufficient time in advance to allow the therapeutic effects of these agents to become established. The range of options for analgesia includes long acting oral, intravenous, or regional analgesics controlled by the nurse or the patient. These techniques should always be titrated to individual patient needs as the infusion of remifentanyl is reduced. It is therefore recommended that the choice of agent(s), the dose and the time of administration are planned prior to discontinuation of Remifentanyl.

There is a potential for the development of tolerance with time during prolonged administration of μ -opioid agonists.

Guidelines for extubation and discontinuation of Remikaf:

In order to ensure a smooth emergence from a remifentanyl-based regimen it is recommended that the infusion rate of remifentanyl is titrated in stages to 0.1 micrograms/kg/min (6 micrograms/kg/h) over a period up to 1 hour prior to extubation.

Following extubation, the infusion rate should be reduced by 25% decrements in at least 10-minute intervals until the infusion is discontinued. During weaning from the ventilator the remifentanyl infusion should not be increased and only down titration should occur, supplemented as required with alternative analgesics.

Upon discontinuation of remifentanyl, the IV cannula should be cleared or removed to prevent subsequent inadvertent administration.

When other opioid agents are administered as part of the regimen for transition to alternative analgesia, the patient must be carefully monitored. The benefit of providing adequate analgesia must always be balanced against the potential risk of respiratory depression with these agents.

Paediatric intensive care patients

The use of remifentanyl in intensive care patients under the age of 18 years is not recommended as there are no data available on the use in paediatric patients.

Renally-impaired intensive care patients

Efficacy data for special population is not established.

Special patient populations

Efficacy data for special population is not established.

4.3. Contraindications

As glycine is present in the formulation, remifentanyl is contra-indicated for epidural and intrathecal use (see also *section 5.3*).

Remifentanyl is contra-indicated in patients with hypersensitivity to the active substance or other fentanyl analogues or to any of the excipients listed in section 6.1.

Remifentanyl is contra-indicated for use as the sole agent for induction of anaesthesia.

4.4. Special warnings and precautions for use

Remifentanyl shall be administered only in a setting fully equipped for the monitoring and support of respiratory and cardiovascular function, and by persons specifically trained in the use of anaesthetic drugs and the recognition and management of the expected adverse effects of potent opioids, including respiratory and cardiac resuscitation. Such training must include the establishment and maintenance of a patent airway and assisted ventilation.

The use of remifentanyl in mechanically ventilated intensive care patients is not recommended for a duration of treatment greater than 3 days.

Rapid offset of action/ Transition to alternative analgesia:

Due to the very rapid offset of action of remifentanyl, no residual opioid activity will be present within 5-10 minutes after the discontinuation of remifentanyl. For those patients undergoing surgical procedures where post-operative pain is anticipated, analgesics should be administered prior to discontinuation of remifentanyl. The possibility of tolerance, hyperalgesia and associated haemodynamic changes should be considered when used in Intensive Care Unit. Prior to discontinuation of remifentanyl, patients must be given alternative analgesic and sedative agents. Sufficient time must be allowed to reach the therapeutic effect of the longer acting analgesic. The choice of agent(s), the dose and the time of administration should be planned in advance and individually tailored to be appropriate for the patient's surgical procedure and the level of post-operative care anticipated. When other opioid agents are administered as part of the regimen for transition to alternative analgesia, the benefit of providing adequate post-operative analgesia must always be balanced against the potential risk of respiratory depression with these agents.

Discontinuation of treatment:

Symptoms following withdrawal of remifentanyl including tachycardia, hypertension and agitation have been reported infrequently upon abrupt cessation, particularly after prolonged administration of more than 3 days.

Where reported, re-introduction and tapering of the infusion has been beneficial. The use of remifentanyl in mechanically ventilated intensive care patients is not recommended for duration of treatment greater than 3 days.

Muscle rigidity - prevention and management:

At the doses recommended muscle rigidity may occur. As with other opioids, the incidence of muscle rigidity is related to the dose and rate of administration. Therefore, slow bolus injections should be administered over not less than 30 seconds.

Muscle rigidity induced by remifentanyl must be treated in the context of the patient's clinical condition with appropriate supporting measures. Excessive muscle rigidity occurring during the induction of anaesthesia should be treated by the administration of a neuromuscular blocking agent and/or additional hypnotic agents. Muscle rigidity seen during the use of remifentanyl as an analgesic may be treated by stopping or decreasing the rate of administration of remifentanyl. Resolution of muscle rigidity after discontinuing the infusion of remifentanyl occurs within minutes. Alternatively an opioid antagonist may be administered; however this may reverse or attenuate the analgesic effect of remifentanyl.

Respiratory depression – prevention and management:

As with all potent opioids, profound analgesia is accompanied by marked respiratory depression. Therefore, remifentanyl should only be used in areas where facilities for monitoring and dealing with respiratory depression are available. Special care should be taken in patients with respiratory dysfunction.

The appearance of respiratory depression shall be managed appropriately, including decreasing the rate of infusion by 50%, or by a temporary discontinuation of the infusion. Unlike other fentanyl analogues, remifentanyl has not been shown to cause recurrent respiratory depression, even after prolonged administration. However, as many factors may affect post-operative recovery it is important to ensure that full consciousness and adequate spontaneous ventilation are achieved before the patient is discharged from the recovery area.

Theoretically, the risk of late depression should be absent with remifentanyl, however in the presence of confounding factors (inadvertent administration of bolus doses (see section below) and administration of concomitant longer acting opioids), respiratory depression occurring up to 50 minutes after discontinuation of infusion has been reported.

Cardiovascular effects

The risk of cardiovascular effects such as hypotension and bradycardia, which may rarely lead to asystole/cardiac arrest (see section 4.5 and 4.8) may be reduced by lowering the rate of infusion of remifentanyl or the dose of concurrent anaesthetics or by using IV fluids, vasopressor or anticholinergic agents as appropriate.

Debilitated, hypovolaemic, hypotensive and elderly patients may be more sensitive to the cardiovascular effects of remifentanyl.

Inadvertent administration

A sufficient amount of remifentanyl may be present in the dead space of the IV line and/or cannula to cause respiratory depression, apnoea and/or muscle rigidity if the line is flushed with IV fluids or other drugs. This may be avoided by administering remifentanyl into a fast flowing IV line or via a dedicated IV line which is removed when remifentanyl is discontinued.

Drug abuse

As with other opioids remifentanyl may produce dependency.

4.5. Interaction with other medicinal products and other forms of interaction

Remifentanyl is not metabolised by plasmacholinesterase, therefore, interactions with drugs metabolised by this enzyme are not anticipated. As with other opioids remifentanyl, whether given by manually-controlled infusion or TCI, decreases the amounts or doses of inhaled and IV anaesthetics, and benzodiazepines required for anaesthesia (see *section 4.2*). If doses of concomitantly administered CNS depressant drugs are not reduced patients may experience an increased incidence of adverse effects associated with these agents.

The cardiovascular effects of remifentanyl (hypotension and bradycardia – see *section 4.4 and 4.8*), may be exacerbated in patients receiving concomitant cardiac depressant drugs, such as beta-blockers and calcium channel blocking agents.

The concurrent administration of remifentanyl may exacerbate the sympatholytic/vagotonic effects of other drugs.

4.6. Fertility, pregnancy and lactation

There are no adequate and well-controlled studies in pregnant women.

Remifentanyl should be used during pregnancy only if the potential benefit justifies the potential risk to the foetus.

It is not known whether remifentanyl is excreted in human milk. However, because fentanyl analogues are excreted in human milk and remifentanyl-related material was found in rat milk after dosing with remifentanyl, nursing mothers should be advised to discontinue breast feeding for 24 hours following administration of remifentanyl.

Labour and delivery

The safety profile of remifentanyl during labour or delivery has not been demonstrated. There are insufficient data to recommend remifentanyl for use during labour and Caesarean section. Remifentanyl crosses the placental barrier and fentanyl analogues can cause respiratory depression in the child.

4.7. Effects on ability to drive and use machines

After anaesthesia with remifentanyl the patient should not drive or operate machinery. The physician should decide when these activities may be resumed.

This medicine can impair cognitive function and can affect a patient's ability to drive safely or use machines, as it reduces the capability to react. Patients should be warned not to drive or use machines until the effects of anesthesia and the immediate effects of surgery disappear.

It is advisable that the patient is accompanied when returning home and that alcoholic drink is avoided.

4.8. Undesirable effects

The most common undesirable effects associated with remifentanyl are direct extensions of μ -opioid agonist pharmacology. These adverse events resolve within minutes of discontinuing or decreasing the rate of remifentanyl administration.

Undesirable effects are listed below by system organ class and frequency.

Frequencies below are defined as very common ($\geq 1/10$), common ($\geq 1/100$ to $< 1/10$), uncommon ($\geq 1/1,000$ and $< 1/100$), are rare ($\geq 1/10,000$ to $< 1/1,000$), very rare ($< 1/10,000$) and not known (cannot be estimated from the available data)

Immune system disorders

Rare: Allergic reactions including anaphylaxis have been reported in patients receiving remifentanyl in conjunction with one or more anaesthetic agents.

Psychiatric disorders

Not known: Drug dependence

Nervous system disorders

Very common: Skeletal muscle rigidity

Rare: Sedation (during recovery from general anaesthesia)

Not known: Convulsions

Cardiac disorders

Common: Bradycardia

Rare: Asystole/cardiac arrest, usually preceded by bradycardia, has been reported in patients receiving remifentanyl in conjunction with other anaesthetic agents.

Not known: Atrioventricular block

Vascular disorders

Very common: Hypotension

Common: Post-operative hypertension

Respiratory, thoracic and mediastinal disorders

Common: Acute respiratory depression, apnoea

Uncommon: Hypoxia

Gastrointestinal disorders

Very common: Nausea, vomiting

Uncommon: Constipation

Skin and subcutaneous tissue disorders

Common: Pruritus

General disorders and administration site conditions

Common: Post-operative shivering

Uncommon: Post-operative aches

Not known: Drug tolerance

Discontinuation of treatment

Symptoms following withdrawal of remifentanyl including tachycardia, hypertension and agitation have been reported infrequently upon abrupt cessation, particularly after prolonged administration of more than 3 days (see section 4.4).

4.9. Overdose

As with all potent opioid analgesics, overdose would be manifested by an extension of the pharmacologically predictable actions of remifentanyl. Due to the very short duration of action of remifentanyl, the potential for deleterious effects due to overdose are limited to the immediate time period following drug administration. Response to discontinuation of the drug is rapid, with return to baseline within ten minutes.

In the event of overdose or suspected overdose, take the following actions: discontinue administration of remifentanyl, maintain a patent airway, initiate assisted or controlled ventilation with oxygen and maintain adequate cardiovascular function. If depressed respiration is associated with muscle rigidity, a neuromuscular blocking agent may be required to facilitate assisted or controlled respiration.

Intravenous fluids and vasopressor for the treatment of hypotension and other supportive measures may be employed.

Intravenous administration of an opioid antagonist such as naloxone may be given as a specific antidote to manage severe respiratory depression and muscle rigidity. The duration of respiratory depression following overdose with remifentanyl is unlikely to exceed the duration of action of the opioid antagonist.

5. PHARMACOLOGICAL PROPERTIES

5.1. Pharmacodynamic properties

Pharmacotherapeutic group: Nervous system; anesthetics, Opioid anesthetics, ATC code: N01AH06

Remifentanyl is a selective μ -opioid agonist with a rapid onset and very short duration of action. The μ -opioid activity of remifentanyl is antagonized by narcotic antagonists, such as naloxone.

Assays of histamine in patients and normal volunteers have shown no elevation in histamine levels after administration of remifentanyl in bolus doses up to 30 micrograms/kg.

- **Renal Impairment**
There are insufficient data on the safety and efficacy for patients with renal impairment.
- **Hepatic Impairment**
There are insufficient data on the safety and efficacy for patients with hepatic impairment.
- **Elderly**
There are insufficient data on the safety and efficacy for patients with renal impairment.

5.2. Pharmacokinetic properties

Following administration of the recommended doses of remifentanyl, the effective half-life is 3-10 minutes. The average clearance of remifentanyl in adolescents is 40ml/min/kg, the central volume of distribution is 100 ml/kg and the steady-state volume of distribution is 350 ml/kg. Blood concentrations of remifentanyl are proportional to the dose administered throughout the recommended dose range. For every 0.1 μ g/kg/min increase in infusion rate, the blood concentration of remifentanyl will rise 2.5ng/ml.

Remifentanyl is approximately 70% bound to plasma proteins.

Metabolism:

Remifentanyl is an esterase metabolised opioid that is susceptible to metabolism by non-specific blood and tissue esterases. The metabolism of remifentanyl results in the formation of a carboxylic acid metabolite which in dogs is 1/4600th as potent as remifentanyl. Studies in man indicate that all pharmacological activity is associated with the parent compound. The activity of this metabolite is therefore not of any clinical consequence. The half life of the metabolite in healthy adults is 2 hours.

In patients with normal renal function, the time for 95% elimination of the primary metabolite of remifentanyl by the kidneys, is approximately 7 to 10 hours. Remifentanyl is not a substrate for plasma cholinesterase.

Placental and milk transfer:

Placental transfer studies in rats and rabbits showed that pups are exposed to remifentanyl and/or its metabolites during growth and development.

Remifentanyl-related material is transferred to the milk of lactating rats. In a human clinical trial, the concentration of remifentanyl in foetal blood was approximately 50% of that in maternal blood. The foetal arterio-venous ratio of remifentanyl concentrations was approximately 30%, suggesting metabolism of remifentanyl in the neonate.

Cardiac Anaesthesia:

The clearance of remifentanyl is reduced by approximately 20% during hypothermic (28°C) cardiopulmonary bypass. A decrease in body temperature lowers elimination clearance by 3% per degree centigrade.

Renal impairment:

In the clinical studies conducted to date, the rapid recovery from remifentanyl based analgesia appears unaffected by renal status.

The pharmacokinetics of remifentanyl are not significantly changed in patients with varying degrees of renal impairment even after administration for up to 3 days in the intensive care setting.

The clearance of the carboxylic acid metabolite is reduced in patients with renal impairment.

In intensive care patients with moderate/severe renal impairment, the concentration of the carboxylic acid metabolite is expected to reach approximately 100-fold the level of remifentanyl at steady-state. Clinical data demonstrates that accumulation of the metabolite does not result in clinically relevant μ -opioid effects even after administration of remifentanyl infusions for up to 3 days in these patients. There are no data available on the safety and pharmacokinetic profile of the metabolite following infusions of remifentanyl for durations greater than 3 days.

There is no evidence that remifentanyl is extracted during renal replacement therapy.

The carboxylic acid metabolite is extracted during haemodialysis by at least 30%.

Hepatic impairment:

The pharmacokinetics of remifentanyl are not changed in patients with severe hepatic impairment awaiting liver transplant, or during the anhepatic phase of liver transplant surgery. Patients with severe hepatic impairment may be slightly more sensitive to the respiratory depressant effects of remifentanyl. These patients should be closely monitored.

Paediatric patients:

The average clearance and steady state of volume of distribution of remifentanyl are increased in younger children and decline to adolescents values by age 17. The elimination half-life of remifentanyl in neonates is not significantly different from that of adolescents. Changes in analgesic effect after changes in infusion rate of remifentanyl should be rapid and similar to those seen in adolescents. The pharmacokinetics of the carboxylic acid metabolite in paediatric patients 3-17 years of age are similar to those seen in adults after correcting for differences in body weight.

5.3. Preclinical safety data

Remifentanyl, like other opioid agonists, produced increases in action potential duration (APD) in dog isolated Purkinje fibres. For remifentanyl, the effects were seen at concentrations of 1 μ M or higher (which are higher than plasma concentrations seen in clinical practice). There were no effects at a concentration of 0.1 μ M. The major metabolite remifentanyl acid had no effect on APD up to the maximum tested concentration of 10 μ M.

Acute toxicity

Expected signs of μ -opioid intoxication were observed in non-ventilated mice, rats, and dogs after large single bolus intravenous doses of remifentanyl. In these studies, the most sensitive species, the male rat, survived following administration of 5mg/kg.

Hypoxia-induced brain microhaemorrhages observed in dogs were reversed within 14 days after completion of dosing.

Repeat dose toxicity

Bolus doses of remifentanyl administered to non-ventilated rats and dogs resulted in respiratory depression in all dose groups, and in reversible brain microhaemorrhages in dogs.

It is to be derived from preclinical studies that respiratory depression and associated sequelae are the most likely cause of potentially serious adverse events in humans.

Reproductive toxicity studies

Remifentanyl has been shown to reduce fertility in male rats when administered daily by intravenous injection for at least 70 days at a dose of 0.5 mg/kg, or approximately 250 times the maximum recommended human bolus dose of 2 micrograms/kg. The fertility of female rats was not affected at doses up to 1 mg/kg when administered for at least 15 days prior to mating. No teratogenic effects have been observed with remifentanyl at doses up to 5 mg/kg in rats and 0.8 mg/kg in rabbits. Administration of remifentanyl to rats throughout late gestation at doses up to 5 mg/kg IV had no significant effect on the survival, development, or reproductive performance of the F1 generation.

Genotoxicity:

Remifentanyl was devoid of genotoxicity activity in bacteria and in rat liver or mouse bone marrow cells in vivo. However, a positive response was seen in vitro in different mammalian cell system in the presence of a metabolic activation system. This activity

was seen only at concentrations more than three orders of magnitude higher than therapeutic blood levels.

Carcinogenicity:

Long-term carcinogenicity studies were not performed.

6. PHARMACEUTICAL PARTICULARS

6.1. List of excipients

Glycine

Hydrochloric acid 37% (for pH-adjustment)

6.2. Incompatibilities

Remifentanyl must not be mixed with other medicinal products except those mentioned in section 6.6.

It should not be mixed with Lactated Ringer's Solution for Injection or Lactated Ringer's and Glucose 50 mg/ml (5%) Solution for Injection.

Remifentanyl should not be mixed with propofol in the same intravenous admixture solution.

Administration of remifentanyl into the same intravenous line with blood/serum/plasma is not recommended. Non-specific esterases in blood products may lead to the hydrolysis of remifentanyl to its inactive metabolite.

6.3. Shelf life

Vials:

Remifentanyl 1 mg: 18 months

Remifentanyl 2mg: 2 years

Shelf life after reconstitution:

Chemical and physical in-use stability has been demonstrated for 24 hours at 25°C.

From a microbiological point of view, the product should be used immediately. If not used immediately, in-use storage times and conditions prior to use are the responsibility of the user and would normally not be longer than 24 hours at 2 to 8°C, unless reconstitution has taken place in controlled and validated aseptic conditions.

Shelf life after dilution:

All mixtures with infusion fluids should be used immediately.

6.4. Special precautions for storage

Do not store above 25°C.

For storage conditions after reconstitution and dilution of the concentrate see *section 6.3*.

6.5. Nature and contents of container

Glass vial (type I) with chlorobutyl rubber stopper and flip-off cap

Pack size : 5 x 3 ml vials

: 5 x 6 ml vials

6.6. Special precautions for disposal

Remifentanil should be prepared for intravenous use by adding, as appropriate 1, 2 or 5ml of diluent to give a reconstituted solution with a concentration of 1 mg/ml remifentanil.

The reconstituted solution is clear, colourless and practically free from particulate material.

After reconstitution, visually inspect the product (where the container permits) for particulate material, discolouration or damage of container. Discard any solution where such defects are observed. Reconstituted product is for single use only. Any unused material should be discarded.

Remifentanil should not be administered by manually-controlled infusion without further dilution to concentrations of 20 to 250 micrograms/ml (50 micrograms/ml is the recommended dilution for adults and 20 to 25 micrograms/ml in paediatric patients aged 1 year and over).

Remifentanil should not be administered by target-controlled infusion (TCI) without further dilution (20 to 50 micrograms/ml is the recommended dilution for TCI).

The dilution is dependent upon the technical capability of the infusion device and the anticipated requirements of the patient.

Remifentanil has been shown to be compatible with the following intravenous fluids when administered into a running IV catheter:

- Water for Injections
- Glucose 50 mg/ml (5%) solution for injection
- Glucose 50 mg/ml (5%) and Sodium Chloride 9 mg/ml (0.9%) solution for injection
- Sodium Chloride 9 mg/ml (0.9%) solution for injection
- Sodium Chloride 4.5 mg/ml (0.45%) solution for injection

After dilution, the solution should be inspected visually to ensure it is clear, colourless, practically free from particulate matter and the container is undamaged. Any solution where such defects are observed must be discarded.

Remifentanil has been shown to be compatible with the following intravenous fluids when administered into a running IV catheter:

- Lactated Ringer's solution for injection
- Lactated Ringer's and Glucose 50 mg/ml (5%) solution for injection

Remifentanil has been shown to be compatible with propofol when administered into a running IV catheter.

7. MARKETING AUTHORISATION NUMBER(S)

- Remikaf 1 mg Injeksi (Dus, 5 vial) Reg No. DNI1849900144A1
- Remikaf 2 mg Injeksi (Dus, 5 vial) Reg No. DNI1849900144B1

8. MARKETING AUTHORIZATION HOLDER

Imported and Distributed by:

PT. Kimia Farma (Persero) Tbk.

Jalan Rawa Gelam V No. 1

Pulo Gadung Jakarta 13930

Jakarta – Indonesia



- 9. MANUFACTURER**
LABORATORIO REIG JOFRE S.A
C/Gran Capitán, 10,
Sant Joan Despí,
08970 Barcelona



- 10. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**
XX/XX/XXXX

- 11. DATE OF REVISION OF THE TEXT**
XX/XX/XXXX

- 12. DRUG OF CLASSIFICATION**
Narcotic



- 13. SPECIAL WARNING**
Prescription Only
“HARUS DENGAN RESEP DOKTER”

Informasi Produk untuk Pasien

REMIKAF

Serbuk Konsentrat untuk Larutan untuk Penggunaan Injeksi atau Infus

1 mg/ml

Baca informasi ini secara lengkap dan seksama sebelum anda mulai menggunakan obat ini

- Simpan selebaran ini. Anda mungkin perlu membacanya lagi.
- Jika Anda memiliki pertanyaan lebih lanjut, tanyakan kepada Dokter atau Apoteker Anda.
- Obat ini hanya diresepkan untuk Anda. Jangan berikan kepada orang lain. Hal ini bisa membahayakan mereka, meskipun tanda atau gejala penyakitnya sama dengan Anda.
- Jika Anda mengalami efek samping, konsultasikan dengan Dokter atau Apoteker Anda. Termasuk kemungkinan efek samping yang tidak tercantum dalam selebaran ini. Lihat bagian 4.

Isi selebaran ini:

1. Remifentanil dan kegunaannya
2. Yang perlu Anda ketahui sebelum menggunakan Remifentanil
3. Cara menggunakan Remifentanil
4. Kemungkinan efek samping
5. Cara menyimpan Remifentanil
6. Isi kemasan dan informasi lain

1. REMIFENTANIL DAN KEGUNAANNYA

Remikaf tersedia dalam vial, di mana setiap vial mengandung:

- 1 mg Remifentanil
- 2 mg Remifentanil

dalam bentuk serbuk konsentrat berwarna putih hingga putih pucat yang akan dilarutkan untuk penggunaan injeksi atau infus.

Remikaf merupakan obat golongan opioid. Obat-obatan ini digunakan secara luas sebagai anestesi dan/ atau untuk meringankan rasa sakit selama operasi berlangsung.

Remikaf diindikasikan:

- Sebagai analgesik yang digunakan selama induksi dan/ atau untuk pemeliharaan anestesi umum
- Sebagai analgesik untuk pasien berusia 18 tahun atau lebih yang mendapatkan ventilasi mekanis di unit perawatan intensif (ICU)

Obat ini khusus untuk ruang ICU dan ruang operasi.

Studi klinis pada anak-anak hanya tersedia untuk pasien anak-anak berusia 3 - 8 tahun.

Data efikasi untuk populasi khusus belum cukup meyakinkan.

Sangat penting bagi Anda untuk membaca brosur obat lainnya yang akan Anda gunakan bersama dengan Remifentanil. Apabila Anda mempunyai pertanyaan mengenai Remifentanil, tanyakan kepada Dokter atau Apoteker Anda.

2. YANG PERLU ANDA KETAHUI SEBELUM MENGGUNAKAN REMIFENTANIL

Beritahu dokter Anda sebelum diberi Remikaf. Pengobatan dengan Remifentanil hanya boleh dilakukan di bawah pengawasan Dokter.

Remikaf tidak boleh diberikan:

- Jika Anda alergi (hipersensitif) terhadap Remikaf atau bahan lainnya dari obat ini (tercantum di bagian 6)
- Jika Anda alergi terhadap obat apa pun yang digunakan selama operasi atau jika Anda memiliki efek samping selama operasi berlangsung
- Melalui rute epidural atau intratekal, karena obat ini mengandung glisin.
- Sebagai obat tunggal untuk memulai anestesi.

Peringatan dan Perhatian

- Jika Anda memiliki masalah pernapasan
- Jika Anda memiliki irama jantung yang lambat atau tidak teratur
- Jika Anda memiliki tekanan darah yang lebih rendah dari tekanan darah normal
- Jika Anda berusia di atas 65 tahun
- Jika pasien berusia kurang dari satu tahun
- Jika Anda lemah
- Jika Anda mengalami hipovolemik (penurunan volume darah)
- Jika Anda pernah mengalami pendarahan atau dehidrasi
- Jika Anda merasa tidak enak badan

Obat lainnya dan Remikaf

Beritahu dokter Anda jika Anda mau minum atau baru saja minum obat lain.

Jika Anda akan minum atau baru saja minum obat seperti *beta-blocker* atau *calcium channel blocker* maka obat ini mungkin akan meningkatkan efek kardiovaskular. Selain itu beritahu dokter Anda jika Anda akan menggunakan produk narkotika lainnya.

Kehamilan dan Menyusui

Jika Anda hamil atau menyusui, berencana hamil atau untuk memiliki bayi, mintalah saran dari dokter Anda sebelum minum obat ini.

Dokter Anda akan menilai apakah memiliki obat ini diperlukan selama kehamilan atau menyusui.

Jika Anda tetap harus menggunakan obat ini, Anda tidak boleh menyusui hingga 24 jam setelah penggunaan obat ini.

Mengemudi dan Mengoperasikan Mesin

Setelah anestesi dengan Remikaf sebaiknya Anda tidak menyetir atau mengoperasikan mesin. Dokter harus memutuskan kapan aktivitas ini dapat dilanjutkan. Dianjurkan agar Anda ditemani saat pulang ke rumah dan minuman beralkohol harus dihindari.

Obat ini bisa mempengaruhi kemampuan Anda menyetir.

Jangan mengemudi selama penggunaan obat ini.

3. CARA MENGGUNAKAN REMIFENTANIL

Obat ini akan diberikan kepada Anda melalui orang yang terqualifikasi. Anda tidak diperbolehkan menggunakan obat ini secara langsung sendiri.

Sebelum menggunakan obat ini, serbuk tersebut harus dilarutkan dan kemudian diencerkan oleh orang yang terqualifikasi agar cairan yang tepat diberikan secara intravena.

Dosis yang diberikan untuk Anda bergantung pada jenis operasi yang akan Anda lakukan.

Jika Anda memiliki pertanyaan lebih lanjut mengenai penggunaan produk ini, tanyakan kepada Dokter atau Apoteker Anda.

4. KEMUNGKINAN EFEK SAMPING

Seperti obat lainnya, Injeksi Remikaf dapat menyebabkan efek samping meskipun tidak terjadi pada semua orang.

Efek samping yang timbul ini biasanya ringan sampai sedang.

Beberapa orang bisa alergi terhadap obat-obatan. Jika Anda memiliki beberapa gejala berikut setelah operasi berlangsung, segera beritahu dokter Anda.

- Mengi dan nyeri atau sesak dada
- Bengkak pada kelopak mata, wajah, bibir, mulut atau lidah
- Ruam kulit atau gatal di bagian tubuh

Beritahu dokter Anda jika Anda memiliki gejala berikut ini:

a. Sangat umum: (mempengaruhi > 1 dari 10 pasien)

- Otot kaku
- Mual
- Muntah
- Penurunan tekanan darah

b. Umum: (mempengaruhi 1-10 dari 100 pasien)

- Denyut jantung melambat
- Meningkatnya tekanan darah setelah operasi
- Gangguan nafas
- Menggigil
- Gatal

c. Jarang: (mempengaruhi 1-10 dari 1000 pasien)

- Rasa sakit selama proses operasi berlangsung
- Sembelit
- Penurunan oksigen dalam darah

- d. Langka: (mempengaruhi 1-10 dari 10.000 pasien)
 - Rasa kantuk setelah selesai operasi
 - Reaksi alergi, termasuk anafilaksis (reaksi alergi umum)
 - Gangguan fungsi jantung (*cardiac arrest*)
- e. Tidak diketahui: (frekuensi tidak dapat diperkirakan dari data yang tersedia)
 - Ketergantungan obat
 - Kejang-kejang
 - Blok atrioventrikular (blok jantung)
 - Toleransi obat

Jika Anda mendapatkan efek samping setelah penggunaan obat ini, laporkan kepada dokter Anda. Mungkin saja efek samping yang Anda alami belum tercantum dalam informasi untuk pasien ini.

5. CARA MENYIMPAN REMIFENTANIL

Jauhkan dari jangkauan anak-anak. Jangan gunakan obat ini setelah tanggal kadaluarsa yang tercantum pada vial dan dus. Tanggal kadaluarsa mengacu pada hari pada bulan yang tercantum.

Remikaf 1 mg dan 2 mg: jangan simpan di atas suhu 25°C

Masa Simpan Setelah Rekonstitusi

Stabilitas fisika dan kimia adalah selama 24 jam pada suhu 25°C.

Dari sudut pandang mikrobiologi, produk harus segera digunakan. Jika tidak digunakan segera, waktu dan kondisi penyimpanan yang digunakan sebelum digunakan adalah tanggung jawab pengguna dan biasanya tidak lebih dari 24 jam pada suhu 2-8°C.

Masa Simpan Setelah Pengenceran

Setelah dicampur dengan cairan infus, produk ini harus segera digunakan. Setelah rekonstitusi, larutan ini tidak boleh digunakan jika tidak jernih, tidak berwarna dan terdapat partikel yang terlihat. Tidak boleh dibuang melalui limbah cair atau limbah rumah tangga. Tanyakan pada Apoteker bagaimana cara membuang obat-obatan yang tidak diperlukan lagi. Langkah-langkah ini akan membantu menjaga lingkungan.

6. ISI KEMASAN DAN INFORMASI LAIN

Remifentanil tersedia dalam vial di mana setiap vial mengandung zat aktif:

- Remikaf 1 mg Injeksi (Dus, 5 vial) Reg No. DNI1849900144A1
- Remikaf 2 mg Injeksi (Dus, 5 vial) Reg No. DNI1849900144B1

Setelah proses rekonstitusi, larutan mengandung 1 mg/ml (jika direkonstitusi dengan benar)

Bahan tambahan yang digunakan antara lain:

- Glisin
- Asam Hidroklorida 37% (pengatur pH)

Remikaf dan Isi Kemasannya:

Remikaf memiliki pemerian berupa serbuk konsentrat berwarna putih hingga putih pucat yang akan dilarutkan untuk penggunaan injeksi atau infus.

Nama & Alamat Pendaftar

PT. Kimia Farma – Plant Jakarta

Jl. Rawa Gelam V No.1

Kawasan Industri Pulogadung

Jakarta 13930

Nama & Alamat Produsen

Laboratorio Reig Jofre, S.A.,

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08970 Sant Joan Despí,

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Untuk informasi mengenai produk obat ini, hubungi pendaftar

“HARUS DENGAN RESEP DOKTER”
