Remifentanil Intravenous for adults

Who can administer

Administration RESTRICTED - see Appendix 1

Important information

- **Stored in CD press,** MDA regulations apply (storage and recording requirements)
- Remifentanil should only be administered by **experienced physicians** in a setting fully equipped for the monitoring and support of respiratory and cardiovascular function.
- Should ONLY BE GIVEN **in an environment when the airway can be controlled** by qualified personnel
- **Remifentanil should NOT be used as an analgesic in procedures where patients remain conscious or do not receive any airway support during the procedure**
- Administration must be into a **fast flowing line** or a dedicated line which is removed when remifentanil is discontinued
- **Do not flush** as there is sufficient remifentanil in the dead space to cause respiratory depression. After the infusion is discontinued, disconnect the giving set, aspirate the cannula contents and then flush with Sodium chloride 0.9% (ref 1)
- **Dosage tables** are provided for the end user to double check flow rates ONLY. They **are not intended to guide the user in the rate at which doses are increased or decreased.**
- For Y-site compatibility see below

Available preparations

Remifentanil 2 mg powder for concentrate for solution for injection or infusion

Remifentanil 5 mg powder for concentrate for solution for injection or infusion

Reconstitution

Water for Injection or Sodium chloride 0.9 %

- Dilute each 2mg vial with 2ml
- Dilute each 5mg vial with 5ml

Dilute further prior to administration

Infusion fluids

Sodium chloride 0.9% or Glucose 5%

Methods of intravenous administration

Slow intravenous Injection

- Administer over at least 30 seconds to reduce muscle rigidity (but usually given within 60 seconds (ref 1))

Continuous intravenous infusion (Administer using an electronically controlled infusion device)

- Dilute to a final concentration of 20 to 250 micrograms per ml
    - Dilute 5mg **to** 50ml (100 micrograms per ml)
    - Dilute 10mg **to** 50ml (200 micrograms per ml)
- Higher concentration may be used if required (unlicensed [ref 2])
    - Dilute 20mg **to** 50ml (400 micrograms per ml)

Dose in adults

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

General Anaesthesia

- As per anaesthetics
- Full information may be obtained from the SPC- available on www.hpra.ie

Intensive Care - used to provide analgesia in mechanically ventilated intensive care patients

- **Usage longer than three days is not recommended**
- Initial Infusion rate 0.1micrograms/kg/min to 0.15micrograms/kg/min
- Titrate at increments of 0.025micrograms/kg/min
- Allow a period of at least 5 minutes between dose adjustments
- The level of sedation and analgesia should be carefully monitored and the remifentanil infusion rate adjusted as required
- If an infusion rate of 0.2 micrograms /kg/min is reached and the desired level of sedation is not achieved, it is recommended that dosing with an appropriate sedative agent is initiated. The dose of the sedative agent should be titrated to obtain the desired level of sedation - see table below (two pages later) for appropriate starting dose of other sedatives
- Further increases to the remifentanil infusion rate in increments of 0.025 micrograms /kg/min may be made if additional analgesia is required
- Normal ranges are 0.006 to 0.74 micrograms /kg/min: **see tables overleaf to find rates of administration**
- Bolus doses of remifentanil are not recommended in the intensive care setting

Rate in ml/HOUR of a solution containing 5mg in 50ml (100 micrograms per ml)												
Dose in micrograms/kg/minute	**0.006**	**0.05**	**0.1**	**0.125**	**0.15**	**0.175**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.74**
Body weight below												
40kg	0.1	1.2	2.4	3	3.6	4.2	4.8	7.2	9.6			
45kg	0.2	1.4	2.7	3.4	4.1	4.7	5.4	8.1				
50kg	0.2	1.5	3	3.8	4.5	5.3	6	9				
55kg	0.2	1.7	3.3	4.1	5	5.8	6.6	9.9				
60kg	0.2	1.8	3.6	4.5	5.4	6.3	7.2					
65kg	0.2	2	3.9	4.9	5.9	6.8	7.8					
70kg	0.3	2.1	4.2	5.3	6.3	7.4	8.4					
75kg	0.3	2.3	4.5	5.6	6.8	7.9	9					
80kg	0.3	2.4	4.8	6	7.2	8.4	9.6					
85kg	0.3	2.6	5.1	6.4	7.7	8.9						
90kg	0.3	2.7	5.4	6.8	8.1	9.5						

Rate in ml/HOUR of a solution containing 10mg in 50ml (200 micrograms per ml)												
Dose in micrograms/kg/minute	**0.006**	**0.05**	**0.1**	**0.125**	**0.15**	**0.175**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.74**
Body weight below												
50kg			1.5	1.9	2.3	2.6	3	4.5	6	7.5	9	
55kg			1.7	2.1	2.5	2.9	3.3	5	6.6	8.3	9.9	
60kg			1.8	2.3	2.7	3.2	3.6	5.4	7.2	9		
65kg		1	2	2.4	2.9	3.4	3.9	5.9	7.8	9.8		
70kg		1.1	2.1	2.6	3.2	3.7	4.2	6.3	8.4			
75kg		1.1	2.3	2.8	3.4	3.9	4.5	6.8	9			
80kg		1.2	2.4	3	3.6	4.2	4.8	7.2	9.6			
85kg		1.3	2.6	3.2	3.8	4.5	5.1	7.7				
90kg		1.4	2.7	3.4	4.1	4.7	5.4	8.1				
95kg		1.4	2.9	3.6	4.3	5	5.7	8.6				

Rate in ml/HOUR of a solution containing 20mg in 50ml (400 micrograms per ml)												
Dose in micrograms/kg/minute	**0.006**	**0.05**	**0.1**	**0.125**	**0.15**	**0.175**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.74**
Body weight below												
60kg				1.1	1.4	1.6	1.8	2.7	3.6	4.5	5.4	6.7
65kg			1	1.2	1.5	1.7	2	2.9	3.9	4.9	5.9	7.2
70kg			1.1	1.3	1.6	1.8	2.1	3.2	4.2	5.3	6.3	7.8
75kg			1.1	1.4	1.7	2	2.3	3.4	4.5	5.6	6.8	8.3
80kg			1.2	1.5	1.8	2.1	2.4	3.6	4.8	6	7.2	8.9
85kg			1.3	1.6	1.9	2.2	2.6	3.8	5.1	6.4	7.7	9.4
90kg			1.4	1.7	2	2.4	2.7	4.1	5.4	6.8	8.1	10
95kg			1.4	1.8	2.1	2.5	2.9	4.3	5.7	7.1	8.6	10.5
100kg			1.5	1.9	2.3	2.6	3	4.5	6	7.5	9	11.1

Dosage tables are provided for the end user to double check flow rates ONLY. They **are not intended to guide the user in the rate at which doses are increased or decreased.**

If there is no rate marked in above tables - then use a stronger or weaker concentration table instead.

RECOMMENDED STARTING DOSE OF SEDATIVE AGENTS, IF REQUIRED		
Sedative agent	**Bolus (mg per kg)**	**Infusion rate (mg per kg per hour)**
Propofol	Up to 0.5	0.5
Midazolam	Up to 0.03	0.03

Elderly (>65 years of age)

- Use during anaesthesia: dose reductions recommended (see SPC)
- Use in Intensive care: no initial dose reduction required. Titrate dose to patient needs

Establishment of alternative analgesia prior to discontinuation of Remifentanil

- Due to the very rapid offset of action of remifentanil, no residual opioid activity will be present within 5 to 10 minutes after discontinuation
- Prior to discontinuation of Remifentanil, 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

Monitoring

- Close monitoring in a critical care ward required

Storage

- Store below 25^{0}C

References

SPC October 2018

1. Injectable Medicines Administration Guide, Medusa, downloaded 10/05/2022

2: Minimum infusion volumes 4th Edition, Dec 2012 UKCPA

Therapeutic classification

Opioid anaesthetics