Lidocaine (lignocaine) Intravenous for Adults

Who can administer

Administration RESTRICTED - see Appendix 1

Important information

- See 'Monitoring requirements' overleaf
- With regards to the unlicensed (systemic) use in acute pain management note that **adjust dose for BMI greater than 30kg/m^2. CAP dose for obese patients (see below)**[ref 4]
- Unlicensed for the indications given below

Available preparations

Lidocaine 2% ampoule 100mg per 5mL (20mg per ml)

Lidocaine 2% ampoule 400mg per 20mL (20mg per ml)

Lidocaine 1% ampoule 50mg per 5ml (10mg per ml)

Lidocaine 1% ampoule 200mg per 20ml (10mg per ml)

Reconstitution

Already in solution

Infusion fluids

Glucose 5% or Sodium chloride 0.9%

Methods of intravenous administration

Bolus intravenous injection (FOR USE IN CARDIOLOGY)

- Administer required dose at a rate of 25 to 50mg per minute [ref 1]

Continuous intravenous infusion (FOR USE IN CARDIOLOGY) (administer using an electronically controlled infusion device)

- To prepare an 0.2% infusion[ref 1]:
- Remove 50ml from a Glucose 5% or Sodium chloride 0.9% 500ml infusion bag and discard. Add 50ml of the lidocaine 2% solution to the bag

- This solution then contains **1000mg lidocaine in 500ml** - 2mg/ml **(0.2%)**
- Adjust rate as per 'Dose'

Bolus intravenous injection (FOR USE IN PAIN MANAGEMENT)

- Refer to the GUH Guideline for Intravenous Lidocaine Infusion for Acute pain- available on QPulse CLN-NM-0541
- The guideline recommends a 1 to 1.5mg/kg slow IV injection to be administered over three to five minutes then see continuous infusion below

Continuous intravenous infusion (FOR USE IN PAIN MANAGEMENT) (administer using an electronically controlled infusion device)

- Refer to Guideline for Intravenous Lidocaine Infusion for Acute pain- available on QPulse CLN-NM-0541
- Prepare syringe by drawing up 50ml of 1% Lidocaine (10mg/ml) in a 50 ml syringe. **This will be a lidocaine solution of 500mg in 50ml**
- Administer via a syringe driver

Dose in adults

VENTRICULAR ARRYTHMIAS, especially after myocardial infarction in patients without gross circulatory collapse [ref 1]

- Give 100mg as a **bolus injection** over a few minutes (50mg in lighter patients, or those whose circulation is severely impaired)

Followed immediately by an **intravenous infusion:**

- Give 4mg per minute for thirty minutes (= 120ml/hour of 0.2% infusion),
- then 2mg per minute for two hours (= 60ml/hour of 0.2% infusion),
- then 1mg per minute (= 30ml/hour of 0.2% infusion);
- **STOP** as soon as cardiac rhythm normalises or toxicity is noticed (and inform team)
- Reduce concentration further if infusion continued beyond twenty four hours
- **Important: ECG monitoring and specialist advice required for infusion**
- If an intravenous infusion is not immediately available the initial intravenous injection can be repeated if necessary once or twice at intervals of not less than 10 minutes

PAIN CONTROL (unlicensed indication) (refer to Q pulse document CLN-NM-0541: Intravenous lidocaine infusion for acute pain management)

- **May only be prescribed by Pain team or relevant anaesthetist**
- Give a bolus dose of **1 to 1.5mg/kg** over 3 to 5 minutes **(cap dose for obese patients - see table 2)** as a slow intravenous injection
- Follow with a continuous infusion. Start with 1mg/kg/hour **CAP dose in obesity** (speak to your anasthesia consultant, pain team or critical care pharmacist before exceeding **100mg/hour**)
- **Do not** re-bolus
- Consult with the Pain team before making any increases (ref 3)
- Infusion rate can vary from 0.5mg/kg/hour to 1.5mg/kg/hour
- Duration: 48 to 72 hours usually, but longer durations have been used

Table 1: Lidocaine STARTING doses for PAIN MANAGEMENT INDICATION ONLY

500mg Lidocaine in 50ml (10mg/ml). Based on dose of 1mg/kg/hr with BMI < 30kg/m^2

Weight (kg)	Rate of infusion	Weight (kg)	Rate of infusion
50kg	50mg/hr (5ml/hr)	80kg	80mg/hr (8ml/hr)
55kg	55mg/hr (5.5ml/hr)	85kg	85mg/hr (8.5ml/hr)
60kg	60mg/hr (6ml/hr)	90kg	90mg/hr (9ml/hr)
65kg	65mg/hr (6.5ml/hr)	95kg	95mg/hr (9.5ml/hr)
70kg	70mg/hr (7ml/hr)	100kg	100mg/hr (10ml/hr)
75kg	75mg/hr (7.5ml/hr)		

Renal impairment: Use with caution in patients with severe renal impairment as it may accumulate

Hepatic impairment: Use with caution due to increased risk of side-effects (ref 1). The manufacturer advise dose reduction in such cases.

Monitoring

- ECG monitoring required for infusion and resuscitation facilities should be available
- Monitor for excessive dose: (drowsiness or dizziness) (ref 4)
- Common or very common side effects (may indicate serious toxicity): bradycardia and hypotension (may lead to cardiac arrest); dizziness, drowsiness and paraesthesia (particularly if injection is too rapid); confusion, convulsions. In all such circumstances contact a senior physician. (ref 4)
- **Pain management:** refer to lidocaine pain guidelines QPulse document CLN-NM-0541: Intravenous lidocaine infusion for acute pain management

Further information

- Following **intravenous injection** lidocaine has a short duration of action (lasting for 15 to 20 minutes)

Table 2: Dosing weight if BMI of 30kg/m^2 or more

Height	Dosing weight if BMI of 30kg/m2 or more, with 100kg cap	Maximum starting infusion rate (ml/hour) of a 500mg/50mL (10mg/mL) solution (1mg/kg/hour dose)
140cm	59kg	5.9
145cm	63kg	6.3
150cm	68kg	6.8
155cm	72kg	7.2
160cm	77kg	7.7
165cm	82kg	8.2
170cm	87kg	8.7
175cm	92kg	9.2
180cm	97kg	9.7
185cm	100kg	10
190cm	100kg	**10**

195cm	100kg	**10**
200cm	100kg	**10**

Storage

Store below 25^{0}C

References

SPC 1% w/v Lidocaine March 2023

SPC 2% w/v Lidocaine March 2023

1: BNF accessed online 11/12/2024

2: Injectable Medicines Guide Medusa - accessed online 11/12/2024

3: Email correspondence with Dr O Finnerty on 26/1/18

4: QPulse document CLN-NM-0541

Therapeutic classification

Class 1 Antiarrhythmic agent