

NICU: Atracurium

Presentation:	10mg/ml solution for injection, 2.5ml ampoules. Stored in a refrigerator																														
Indication:	Neuromuscular blockade of ventilated babies in intensive care																														
Dose:	<p>IV bolus: 300-500 microgram/kg to obtain prompt paralysis. A single dose provides almost complete muscle paralysis within 2 minutes and for about 15-35 minutes Additional doses of 100-200micrograms/kg may be given if required</p> <p>IV infusion: 300-400 micrograms / kg / hour Doses up to 600micrograms / kg / hour may be needed for babies > one month of age*</p> <p>*[Can use up to 1200mcg/kg/hour, but this is based on tertiary centre practice and doses are higher than stated in the BNFC – must be discussed with a consultant]</p>																														
Route of administration:	<p>Intravenous bolus over at least one minute and continuous infusion via SMART pump.</p> <p>Atracurium has a low pH and may cause venous irritation and tissue damage in cases of extravasation. If a central venous access device is unavailable, administer via as large a peripheral vein as possible monitoring insertion site closely.</p>																														
Instructions for preparation:	<p><u>Preparation of atracurium syringe:</u></p> <ul style="list-style-type: none"> Total number of mg of atracurium = 60 x baby's weight (kg) – rounded to the nearest 1mg Dilute the atracurium with sodium chloride 0.9% or glucose 5%* to a final volume of 50ml A dose of 300 micrograms/kg/hour will be provided by an infusion rate of 0.25ml/hour <p>*If diluted in glucose 5% the syringe will only be stable for 8 hours. If diluted in sodium chloride 0.9% it will be stable for 24 hours.</p> <p>Slow IV bolus of 300-480 microgram/kg (contained in 0.25ml – 0.4ml of syringe prepared as above) over 5-10 minutes via SMART pump</p> <p>Followed, if necessary, by continuous IV infusion via SMART pump</p>																														
Prescribing	<p>Prescribe on paper drug chart (see below example for 2kg baby)</p> <p>**Please ensure concentration (in mg/ml) is completed to enable use of SMART pumps**</p> <p>To calculate concentration of infusion for SMART pumps (in mg/ml) divide total mg in infusion by total volume of infusion (mls):</p> <p>e.g. 120mg in 50mls = $\frac{120\text{mg}}{50\text{mls}} = 2.4\text{mg/ml}$</p> <table border="1"> <tr> <td>Drug</td> <td>Atracurium</td> <td>Drug amount in syringe</td> <td>120mg</td> <td>Diluent</td> <td>glucose 5%</td> <td>Total volume (ml)</td> <td>50ml</td> <td>Route</td> <td>IV</td> </tr> <tr> <td>Start date</td> <td>6/3/18</td> <td>Drug concentration per ml</td> <td>2.4mg/ml</td> <td>Infusion range</td> <td>300micrograms/kg/hour</td> <td>Max</td> <td>400micrograms/kg/hour</td> <td>Name, Sig, Bleep</td> <td>A.Doctor</td> </tr> <tr> <td>Pharm</td> <td></td> <td></td> <td></td> <td>ml/hr</td> <td>0.25</td> <td></td> <td>0.33</td> <td></td> <td>#1234</td> </tr> </table>	Drug	Atracurium	Drug amount in syringe	120mg	Diluent	glucose 5%	Total volume (ml)	50ml	Route	IV	Start date	6/3/18	Drug concentration per ml	2.4mg/ml	Infusion range	300micrograms/kg/hour	Max	400micrograms/kg/hour	Name, Sig, Bleep	A.Doctor	Pharm				ml/hr	0.25		0.33		#1234
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Known compatibility issues	Please see Y-Site compatibility chart
SMART pump directions.	<ul style="list-style-type: none"> • Load Syringe, prime line using the pump for accurate dosing. • Open 'NICU' folder then open 'Atracurium' programme. • Using DATA chevrons enter concentration in mg/ml and confirm • Enter Childs weight in kg and confirm • Enter loading dose in mcg/kg (zero if not required) • Enter/Confirm Loading Time in minutes • Enter the dose in mcg/kg/h • Visually confirm the rate (mls/h) against the prescribed dose (mcg/kg/h) • Perform STOP moment with medical team (Pump against prescription) • Connect to Baby • Press start button
Additional Comments:	<p>Neonates may be more sensitive to the effects of atracurium. Doses at the lower end of the dose ranges quoted may be sufficient.</p> <p>If presented with a restless baby that seems to be "fighting the ventilator", do not paralyse without first checking whether pain, correctable hypoxia, respiratory acidosis, inadequate respiratory support, or inappropriate respiratory rate is the cause.</p> <p>Antidote: Antidote is seldom required due to short half-life of atracurium. If necessary effects can be reversed by giving 50 micrograms/kg neostigmine as a slow IV bolus after or with glycopyrronium (10 micrograms/kg) or atropine (20 micrograms/kg) as a slow IV bolus.</p>

Note: The contents of this monograph should be read in conjunction with information available in the BNFC and Medusa regarding cautions, contraindications etc.

References:

- BNF for children online - Atracurium Neuromuscular blockade during intensive care Neonatal dose– last accessed via <https://www.medicinescomplete.com/#/content/bnfc/547155940?hspl=atracurium> 13.5.2020
- Evelina London Paediatric Formulary online – last accessed via <http://cms.ubqo.com/public/d2595446-ce3c-47ff-9dcc-63167d9f4b80> 13.5.2020
- Medusa online – paediatric monograph for Atracurium via <https://inimed.wales.nhs.uk/IVGuideDisplay.asp> – last accessed 13.5.2020
- Medicines.org.uk – Electronic Medicines Compendium Summary of Product Characteristics for Consilient, Hospira and Hameln brands –last accessed 13.5.2020
- BMJ books. Neonatal Formulary 2015 – 7th edition. Wiley Blackwell.
- Yorkshire and Humber Neonatal Operational Delivery Network – Atracurium monograph – accessed online via <https://www.networks.nhs.uk/nhs-networks/yorkshire-humber-neonatal-odn/guidelines-1/formulary/atracurium> 13.5.2020
- Nottingham University Hospitals, Neonatal Intensive Care Unit Pharmacopeia, Atracurium Besilate. Reviewed Jan 19. Last accessed 22.09.20

Document control sheet

GUIDELINE NUMBER	AtracuriumNICU Version 2
AREA IN WHICH THIS MONOGRAPH APPLIES	NICU

DIVISIONAL AUTHORISATION	
GROUP	DATE
Paediatric monograph review group	08.07.20
Clinical Director – Paediatric BU	24/11/2020
Divisional Clinical Governance Committee – Women & Children's	24/11/2020

AUTHORS		
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If review:

	Position	Date
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Change history:

Changes Reference	Change details	Date
	Caveat added for doses up to 1200mcg/kg/hour as per QMC nad consultant requests/experiences	23.09.20