2 April, 2020

Guidance on adaptations to standard UK critical care medication prescribing and administration practices during pandemic emergency pressures

The COVID-19 pandemic has affected services in many ways. The increased number of patients needing critical care will increase the demand for drugs used in both anaesthesia and critical care and this demand will need to be managed carefully. The Faculty of Intensive Care Medicine, working closely with the Chief Pharmaceutical Officer at NHS England, have produced this guidance which summarises potential mitigations to be used in the management of such demand. Although direct alternative drugs are offered the options identified are not exhaustive.

Operational principles for critical care units

- Critical Care and Departments of Anaesthesia should work together to review and reallocate medicine stock supplies from areas where clinical demand has reduced.
- Prepare to adapt and guide local practice, where demand for certain products is high. Consider combining sedatives (e.g. midazolam & morphine, propofol & alfentanil) following discussion with pharmacists.
- Regularly review whether intravenous medicines can be changed to an alternative route, particularly enteral.
- Reduce waste and work with clinical pharmacists to devise safe ways to use all the contents of drug vials and ampoules. Standards of aseptic preparation should be maintained. Liaise with Pharmacy department aseptics/ CIVAS units to prioritise and maximise ready to administer intravenous medicines. Minimising wastage of critical medicines during COVID-19.
- Approach, via Pharmacy departments, local private hospitals or treatment centres that may have excess stocks of priority medicines.
- Consider the local implementation of teams to administer IV medicines (e.g. roles for doctors who are re-deployed from other clinical areas).
- Consider bolus dosing / administration of medicines where possible (e.g. magnesium, certain antibiotics).
- Administration (i.e. if a person in PPE already, doctor or nurse, to check which other professional group role needs to be done in any given timeline).

Alternative techniques

First line drugs / priority clinical indications	Alternative drugs
Sedation	
propofol	midazolam
alfentanil	morphine
Neuromuscular blockade - intubation	
rocuronium	suxamethonium
Neuromuscular blockade – continuous	
atracurium / cisatracurium	rocuronium / pancuronium
Vasopressors	
noradrenaline	metaraminol
vasopressin / terlipressin	
Inotropes	
adrenaline	
Non-opioid analgesia / antipyretics	
paracetamol i.v.	paracetamol oral or suppository
ibuprofen (NB caution as per guidance)	
Hypoglycaemics	
Soluble (short acting insulin) i.v.	long acting insulin s.c. when appropriate

Sedation

- Prioritise shorter acting analgesics and sedatives for those patients not requiring deeper or more prolonged sedation.
- Be prepared to use morphine and/or midazolam to help minimise use of alfentanil/ fentanyl and propofol.
- Commence adjunctive analgesics and sedatives to limit use of any one agent.
- Introduce adjunctive sedatives e.g. lorazepam enterally to reduce the need for intravenous administration.
- Ensure regular sedation holds, where appropriate, to mitigate the effects of longer acting agents.
- Consider the use of inhalational sedation (e.g. isoflurane) if using anaesthetic machines for emergency ventilator capacity. Adequate scavenging must be available.

Paralysis

- Consider whether deep sedation and paralysis is absolutely indicated as an intravenous infusion.
- Reserve for use in severe hypoxic respiratory/ ventilator failure, prone positioning, or persistent ventilatory dysynchrony for safety until a senior review.
  - Atracurium or cisatracurium use may need to alternate according to stock availability.
- Use bolus doses of neuromuscular blocking agents such as rocuronium (or pancuronium if appropriate and available) to:
  - achieve ventilator synchrony
  - ensure patient and staff safety during potentially aerosol generating procedures.

Vasoactive drugs

- For sedation related hypotension, consider using metaraminol or phenylephrine (peripherally or centrally dependent on available access).
- For vasoplegia, consider the use of vasopressin or terlipressin as noradrenaline sparing agents. However, beware that these are less titratable.

Antibiotics

- Consider not commencing antibiotics empirically at presentation.
- Continue to follow local antimicrobial policies unless specific shortages occur.
- Continue to practice good antimicrobial stewardship with regular review to stop, de-escalate or switch to oral/ enteral route.

Stress ulcer prophylaxis

- If standard practice is intravenous ranitidine consider switching to PPI if unavailable or stopping once enteral feed is established.

For more information, guidance and resources supporting your understanding and management of Coronavirus (COVID-19), visit: www.icmanaesthesiacovid-19.org

ENDS