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INTRODUCING
NORCURON®
(vecuronium bromide for injection)

A new standard
for safety
and predictability
in
neuromuscular
blockade...
INTRODUCING

NORCURON®

(vecuronium bromide for injection)

does only what

A new nondepolarizing neuromuscular blocking agent

☐ Good to excellent conditions for intubation within 2.5 to 3 minutes

☐ Rapid reversal… rapid recovery

☐ Not dependent on physiologic temperature or pH for metabolism

☐ No refrigeration necessary
you want it to...

A new standard for safety and predictability

☐ Freedom from clinically significant cardiovascular effects as observed in clinical trials

☐ Histamine release unlikely to occur as shown by preliminary clinical experience

☐ Little or no cumulative effect

☐ Minimal dependence on renal system for elimination

☐ Can be used in all ages seven weeks and above

(See Precautions section of full prescribing information)

Please see last page of this advertisement for full prescribing information.
INTRODUCING NORCURON® (vecuronium bromide for injection)

does only what

No more

Freedom from clinically significant cardiovascular effects as observed in clinical trials Numerous studies have confirmed that NORCURON® (vecuronium bromide for injection) is free of vagolytic and cardiodepressive effects. Even a very large dose of 0.28 mg/kg (up to 12 x ED₉₀ under halothane anesthesia) produces only minimal changes in heart rate or blood pressure.

Time-course of percent change in mean arterial pressure (MAP) and heart rate (HR) after bolus injections of relaxants. ⊿ = value before induction of anesthesia; ◆ = value immediately before injection of relaxant. Adapted from Krieg, Crul, Booij.
Predictable performance  A moderately rapid onset, short duration of action and lack of cardiovascular side effects make NORCURON a logical alternative to succinylcholine for smooth intubation.

Repeated administration of maintenance doses of NORCURON has little or no cumulative effect on the duration of neuromuscular blockade. Therefore, repeat doses can be administered at relatively regular intervals with predictable results.

NORCURON produces prompt neuromuscular blockade of short duration without a range of unwanted effects seen with other neuromuscular blockers. It produces no ganglionic blockade and no vagolytic response.

Good to excellent intubation conditions within 2.5 to 3 minutes.  Endotracheal intubation was performed after injection of NORCURON in 30 patients. Intubating conditions were excellent in 15 and good in 15, the latter group having paralyzed cords but slight diaphragmatic movements when the tube was introduced into the trachea.

The intubating dose is approximately $2 \times ED_{90}$ (0.08-0.1 mg/kg). Lower doses may prolong time to intubation; however, greater doses may not significantly reduce intubation time. Intubation may be accomplished within 2.5 minutes, before complete abolition of twitch response.
Pharmacokinetics  After IV injection, NORCURON is rapidly distributed and has a relatively short elimination half-life compared to pancuronium. Clearance is approximately three times faster. The differences in elimination half-life and clearance rates are statistically significant. Thus, the shorter duration and the more rapid recovery from neuromuscular blockade with vecuronium is explained on a pharmacokinetic basis.³

Rapid reversal...rapid recovery  Once spontaneous recovery has started, the neuromuscular block produced by NORCURON is readily reversed with anticholinesterase agents, e.g., pyridostigmine, neostigmine or edrophonium, in conjunction with an anticholinergic agent such as atropine or glycopyrrolate. There have been no reports of recurarization following satisfactory reversal of NORCURON-induced neuromuscular blockade; rapid recovery is a finding consistent with its short elimination half-life.

Reversal Comparison of Vecuronium with Pancuronium

Dose of neostigmine needed for 20, 50 and 80 percent recovery of control muscle twitch tension for vecuronium and pancuronium (Mean ± SEM).

Adapted from Fahey, Morris, Miller, et al.⁶
Minimal dependence on renal function for elimination. Not dependent on physiologic pH for metabolism. In patients with normal renal function and those in renal failure, onset time, duration and recovery time—even at large doses—were similar.7

<table>
<thead>
<tr>
<th>Patient group</th>
<th>Number of Patients</th>
<th>Onset (min)</th>
<th>Duration (min)</th>
<th>Recovery (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal renal function</td>
<td>4</td>
<td>2.1 ± 0.6</td>
<td>103.8 ± 12.9</td>
<td>20.7 ± 2.5</td>
</tr>
<tr>
<td>Impaired renal function</td>
<td>4</td>
<td>1.8 ± 0.7</td>
<td>104.1 ± 45.7</td>
<td>28.7 ± 22.7</td>
</tr>
</tbody>
</table>

Indices of neuromuscular blockade by NORCURON (0.14 mg/kg) in patients with and without renal failure

Adapted from Fahey, Morris, Miller, et al.7

Documented in a wide variety of procedures and patient types—including infants 7 weeks or older NORCURON may be used in most types of surgery, including cardiovascular surgery, and in patients with various disease states, including renal insufficiency and cardiovascular disease. It is safely used in all age groups 7 weeks and older; duration of blockade is 1.5 times longer in infants under one year of age. NORCURON is suitable for all anesthetic regimens. (See Precautions section of full prescribing information.) Potent inhalational anesthetics increase the potency of NORCURON slightly.

Please see last page of this advertisement for full prescribing information.
NORCuron® (NC-45)
Vancuron Bromide for Injection

This drug shall be administered by adequately trained individuals familiar with its actions. CAUTION:

DESCRIPTION: NORCuron® (vancuron bromide for injection) is a nondepolarizing neuromuscular blocking agent of the a-butyldipiperidinium type. Norcuron® (vecuronium bromide) is a globular crystalline white powder which may contain trace amounts of sodium chloride. It occurs as a yellowish-orange crystalline powder. The principal structural unit is a 2-ethyl-1-piperidinium ion, with an ethanandrostanic acid moiety. The formula is C23H31N3O6Cl2.

Norcuron® is supplied in a sterile, freeze-dried powdered form.

CLINICAL PHARMACOLOGY: Norcuron® is a nondepolarizing neuromuscular blocking agent possessing all of the characteristic pharmacological actions of this class of drugs (curariform). It acts by competitively blocking the actions of endogenous acetylcholine at the neuromuscular junction. Competitive blockade is established by the binding of Norcuron® to receptor sites on the motor end plate of skeletal muscle fibers. This binding, in turn, blocks the action of endogenous acetylcholine on the muscle fiber resulting in paralyzed neuromuscular transmission. The binding can be competitively displaced by large quantities of acetylcholine. Norcuron® is excreted by the kidneys and it is not known if Norcuron® is metabolized by the liver. Norcuron® is a nondepolarizing neuromuscular blocking agent that is reversible after discontinuation of use. Following its use, patients recover neuromuscular function in an orderly manner. Approximately 20% of the administered dose is excreted unchanged in the urine. After intravenous administration, the drug is eliminated rapidly from the body with a t1/2 of 7-10 minutes. The cessation of neuromuscular block depends on a balance between the rate of administration and the rate of metabolism and excretion. In the presence of renal failure, the blood levels of Norcuron® may be elevated and the rate of metabolism and excretion may be reduced. The elimination half-life of Norcuron® in adults has been reported to be 8-10 minutes in renal failure.

Norcuron® has been shown to be safe and effective in patients with renal failure. However, in patients with renal impairment, more careful monitoring of the neuromuscular blockade is necessary, and the dosage should be reduced accordingly.

Indications: Norcuron® (vecuronium bromide for injection) is indicated for use as a preoperative and postoperative neuromuscular blocking agent in conjunction with inhalation or other (e.g., nitrous oxide) anesthesia in the following types of surgical procedures: major cardiovascular surgery (e.g., coronary artery bypass grafting), major abdominal, orthopedic, thoracic, vascular, and plastic surgery. Norcuron® (vecuronium bromide for injection) may be administered at approximately 12 to 15-minute intervals. Halothane anesthesia increases the clinical recovery rate of Norcuron® and reduces the duration of neuromuscular blockade.

Extended Duration: Repeated administration of maintenance doses of Norcuron® has little or no cumulative effect on the clinical duration of neuromuscular blockade. The duration of neuromuscular blockade produced by repeated administrations of maintenance doses of Norcuron® may be shortened significantly when succinylcholine is used as a pre paralysis agent or added to a maintenance dose of Norcuron®. Norcuron® is compatible with succinylcholine and may be administered at approximately 10 to 15-minute intervals without increasing the risk of apnea.

Maintenance Dose: Maintenance doses of Norcuron® may be administered at approximately 12 to 15 minute intervals. Halothane anesthesia increases the clinical recovery rate of Norcuron® and reduces the duration of neuromuscular blockade.

How Supplied: 5 ml sterile vials containing 50 mg of vancuron bromide for injection. Each ml of solution contains: 10 mg vancuron bromide, 0.2 mg potassium chloride, and 0.035 mg sodium polysorbate 80. Store at 25°C (77°F) and protect from light. The solution may be stored at 1°C to 4°C (33°F to 39°F) for up to 14 days after reconstitution.

INFORMATION FOR PATIENTS: Norcuron® (vecuronium bromide for injection) is for intravenous administration only. Norcuron® (vecuronium bromide for injection) is contraindicated in patients with known hypersensitivity to Norcuron® or any of its components. Norcuron® is not recommended for use in patients with atrial fibrillation or atrial standstill. Norcuron® should be given to a pregnant woman only if clearly needed. Norcuron® does not induce or potentiate the muscle relaxant effect of succinylcholine or other depolarizing muscle relaxants. Norcuron® should not be administered within 5 minutes of the start of nitrous oxide or halothane anesthesia.

Pregnancy: Norcuron® is not known to affect the fetus. Norcuron® is compatible with nitrous oxide and may be administered at approximately 12 to 15-minute intervals to reduce the duration of neuromuscular blockade.

REFERENCES:
3. Krieg N, Crul JF, Booij LH: Relative potency of ORG NC45, pancuronium, alcuronium and tubocurarine in anaes-
thetized man.

Trivisortox
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The VSM 1 monitor has proved both dependable and adaptable in a variety of hospital settings, from surgery to patient transport. Features such as integral recorder, battery operation, and optional electrosurgical filter make it the most comprehensive vital signs monitor of its size on the market.

The new VSM 3 patient monitor continues the Physio-Control tradition of simplicity of operation, and space-saving design. Standard with ESU protection, the VSM 3 monitor can be used in the OR, ICU, CCU, ED, and for transport.

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