New Intravenous Anaesthetics and Neuromuscular Blocking Drugs
A Review of Their Properties and Clinical Use

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Contents

Summary ............................................................................................................... 98
1. Vecuronium ........................................................................................................ 99
1.1 Pharmacokinetic Properties ............................................................................. 100
1.2 Pharmacodynamic Properties .......................................................................... 101
1.3 Clinical Use ..................................................................................................... 105
1.4 Drug Interactions ............................................................................................ 106
1.5 Adverse Effects ............................................................................................... 107
1.6 Dosage ............................................................................................................. 107
1.7 Comparison with Other Neuromuscular Blocking Drugs .............................. 107
2. Atracurium ....................................................................................................... 107
2.1 Pharmacokinetic Properties ............................................................................. 108
2.2 Pharmacodynamic Properties .......................................................................... 110
2.3 Clinical Use ..................................................................................................... 112
2.4 Drug Interactions ............................................................................................ 113
2.5 Adverse Effects ............................................................................................... 113
2.6 Dosage ............................................................................................................. 113
2.7 Comparison with Other Neuromuscular Blocking Drugs .............................. 113
3. Edrophonium .................................................................................................. 114
4. Propofol (Disoprofol) ...................................................................................... 115
4.1 Pharmacokinetic Properties ............................................................................. 115
4.2 Pharmacodynamic Properties .......................................................................... 116
4.3 Clinical Use ..................................................................................................... 118
4.4 Adverse Effects ............................................................................................... 118
4.5 Comparison with Other Induction Agents ...................................................... 119
5. Midazolam ....................................................................................................... 119
5.1 Pharmacokinetic Properties ............................................................................. 120
5.2 Pharmacodynamic Properties .......................................................................... 120
5.3 Clinical Use ..................................................................................................... 124
5.4 Adverse Effects ............................................................................................... 125
5.5 Comparisons with Other Anaesthetic Agents ................................................ 125
6. Ketamine ......................................................................................................... 125
6.1 Intrathecal Use ............................................................................................... 125
6.2 Extradural Use ............................................................................................... 126
6.3 Use in Intravenous Regional Anaesthesia ...................................................... 126
Summary

The newer neuromuscular blocking drugs include vecuronium and atracurium. Vecuronium is a competitive neuromuscular blocking drug with a steroid nucleus. A dose of 0.1 mg/kg has an onset time of 2 minutes and provides surgical paralysis for 20 minutes. Recovery to 90% twitch height occurs in 40 to 50 minutes. Vecuronium has few adverse effects and its use is associated with cardiovascular stability. Atracurium is a competitive neuromuscular blocking drug which undergoes Hofmann degradation and ester hydrolysis in plasma. A dose of 0.6 mg/kg has an onset time of around 2 minutes and provides surgical paralysis for 20 to 30 minutes. Recovery to 90% twitch height occurs in 60 to 80 minutes. Histamine release, usually only localised, has been reported in association with the use of atracurium. The organ-independent metabolism of atracurium allows its use in standard dosage in patients with renal or hepatic disease.

Edrophonium, although not a new drug, has recently been re-evaluated for reversal of neuromuscular blockade. In a dose of 0.5 mg/kg it has been shown to be as effective as neostigmine at reversing neuromuscular blockade after recovery has started (> 25% twitch height recovery). However, if blockade is profound (< 10% recovery), edrophonium is less effective.

Among the newer intravenous anaesthetics are propofol (disoprofol) and midazolam. In a dose of 1.5 to 2.5 mg/kg, propofol produces sleep rapidly with a prompt recovery in 4 to 6 minutes. Induction of anaesthesia may be associated with a transient apnoea and a fall in systolic pressure. The rapid recovery has led to its use for maintenance of anaesthesia. Midazolam is a water-soluble benzodiazepine which has been used as an anaesthetic agent. The dose needed to induce sleep varies widely (0.15 to 0.5 mg/kg); onset is slow (1.5 to 5 minutes), and recovery may be prolonged. Midazolam is also used in lower doses as a sedative. Ketamine, an intravenous induction agent, has recently been used intrathecally and extradurally to provide analgesia.