

TITLE: METOPROLOL (IV) ADMINISTRATION in NON-CRITICAL AREAS	NUMBER: 311 - 034
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Applies To:	

POLICY

Abrupt discontinuation after prolonged chronic beta-blockade may lead to severe exacerbation of angina, occurrence of MI, or ventricular arrhythmia in angina patients. This policy prescribes the conditions under which metoprolol may be safely administered in non-critical care areas where continuous EKG monitoring is not available.

PROCEDURE

Patient selection

Patients with known heart disease requiring beta-blocker therapy (most commonly Metoprolol or atenolol), undergoing a surgical procedure which will require NPO days.

Timing of last oral dose

For patients maintained on once-daily beta-blocker therapy, the last oral dose of beta-blocker should be administered the day prior to surgery as usual. For patients maintained on twice daily (or more frequent) beta-blocker therapy, the last oral dose should be administered with a sip of water on the evening before surgery. IV replacement doses should be administered on the day of surgery and on the NPO days following.

Dosage calculation and first IV dose titration

The IV infusion dose can be calculated based on a conversion factor of 2.5:1 oral-to-IV ratio for metoprolol (for dose conversion from other oral beta-blockers, see chart below). The total daily oral dose is converted to IV equivalent. This total daily IV dose is then divided into four equal doses and administered as an intermittent infusion over 15 to 30 minutes at six hour intervals (maximum recommended single dose: 15 mg).

The first IV infusion dose of Metoprolol should be initiated on the morning of the day of surgery by the anaesthetist, based on the dose as calculated above, while the HR is > 55 bpm and SBP is > 100 mm/hg.

This dose should then be ordered to be administered as an intermittent infusion every six hours while patient is NPO and while HR is > 55 bpm and SBP is > 100 mm/hg.

Oral beta-blocker	Total daily oral dose	Approximate Metoprolol equivalent (single IV dose)	Approximate Metoprolol equivalent (total daily IV dose)
Metoprolol Lopressor®, Betaloc®	50 mg	5 mg	20 mg
	100 mg	10 mg	40 mg
	200 mg	15 mg	60 mg
Acebutolol (Monitan®, Sectral®)	200 mg	10 mg	40 mg
	400 mg	15 mg	60 mg
Atenolol (Tenormin®)	50 mg	10 mg	40 mg
	100 mg	15 mg	60 mg
Labetolol (Trandate®)	200 mg	10 mg	40 mg
	400 mg	15 mg	60 mg
Nadolol (Corgard®)	40 mg	5 mg	20 mg
	80 mg	10 mg	40 mg
	160 mg	15 mg	60 mg
Propranolol (Inderal®)	80 mg	10 mg	40 mg
	120 mg	15 mg	60 mg
	160 mg	15 mg	60 mg
Timolol (Blocadren®)	10 mg	10 mg	40 mg
	20 mg	15 mg	60 mg

Patient monitoring and dose administration

Blood pressure and pulse rate must be monitored before each dose; administer dose only if HR is > 55 bpm and SBP is > 100 mm/hg. Otherwise, hold dose and contact physician.

Recheck BP and pulse at the completion of the dose and again after 20 minutes.

Dilute dose in 50 ml of NS or D5W and administer over 15-30 minutes. Do not exceed a rate of 2 mg/min.

IV administration should continue for only as long as patient is strictly NPO; patient should be switched back to pre-op oral beta-blocker dose as soon as oral intake is started.

REFERENCES

Prince County Hospital Protocol, Summerside, Prince Edward Island.

McMaster University, Division of Cardiology, Salom Yusuf, letter 14 August 2002

Vancouver General Hospital Protocol, Vancouver, British Columbia