

- Nicotine increases catecholamines which, in turn, increase heart rate and blood pressure.
- Carboxyhemoglobin, formed from the inhalation of carbon monoxide in smoke, decreases delivery of blood and oxygen to the heart, decreases myocardial contractility, and increases the risks of life-threatening cardiac dysrhythmias (eg, ventricular fibrillation) during ischemic episodes.
- Both nicotine and carbon monoxide increase platelet adhesiveness and aggregation, thereby promoting thrombosis.
- Smoking increases the risks for myocardial infarction, sudden cardiac death, cerebrovascular disease (eg, stroke), peripheral vascular disease (eg, arterial insufficiency), and hypertension. It also reduces high-density lipoprotein, the “good” cholesterol.

Additional nonpharmacologic management strategies include surgical revascularization (eg, coronary artery bypass graft) and interventional procedures that reduce blockages (eg, percutaneous transluminal coronary angioplasty [PTCA], intracoronary stents, laser therapy, and rotoblators). However,

most clients still require antianginal and other cardiovascular medications to manage their disease.

ANTIANGINAL DRUGS

Drugs used for myocardial ischemia are the organic nitrates, the beta-adrenergic blocking agents, and the calcium channel blocking agents. These drugs relieve anginal pain by reducing myocardial oxygen demand or increasing blood supply to the myocardium. Nitrates and beta blockers are described in the following sections and dosage ranges are listed in *Drugs at a Glance: Nitrates and Beta Blockers*. Calcium channel blockers are described in a following section; indications for use and dosage ranges are listed in *Drugs at a Glance: Calcium Channel Blockers*.

Organic Nitrates

Organic nitrates relax smooth muscle in blood vessel walls. This action produces vasodilation, which relieves anginal pain

Drugs at a Glance: Nitrate and Beta-Blocker Antianginal Drugs

Generic/Trade Name	Indications for Use	Routes and Dosage Ranges
Nitrates		
Nitroglycerin (Nitro-Bid, others)	Relieve acute angina Prevent exercise-induced angina Long-term prophylaxis to decrease the frequency and severity of acute anginal episodes	PO Immediate-release tablets, 2.5–9 mg 2 or 3 times per day PO Sustained-release tablets or capsules, 2.5 mg 3 or 4 times per day SL 0.15–0.6 mg PRN for chest pain Translingual spray, one or two metered doses (0.4 mg/dose) sprayed onto oral mucosa at onset of anginal pain, to a maximum of 3 doses in 15 min Transmucosal tablet, 1 mg q3–5h while awake, placed between upper lip and gum or cheek and gum Topical ointment, ½–2 inches q4–8h; do not rub in Topical transdermal disc, applied once daily IV 5–10 mcg/min initially, increased in 10- to 20-mcg/min increments up to 100 mcg/min or more if necessary to relieve pain
Isosorbide dinitrate (Isordil, Sorbitrate)	Treatment and prevention of angina	SL 2.5–10 mg PRN or q2–4h PO Regular tablets, 10–60 mg q4–6h PO Chewable tablets, 5–10 mg q2–3h PO Sustained-release capsules, 40 mg q6–12h
Isosorbide mononitrate (Ismo, Imdur)	Treatment and prevention of angina	PO 20 mg twice daily, with first dose on arising and the second dose 7 h later PO Extended-release tablets (Imdur), 30–60 mg once daily in the morning, increased after several days to 120 mg once daily if necessary
Beta Blockers		
Propranolol (Inderal)	Long-term management of angina, to reduce frequency and severity of anginal episodes	PO 10–80 mg 2 to 4 times per day IV 0.5–3 mg q4h until desired response is obtained
Atenolol (Tenormin)	Same as propranolol	PO 50 mg once daily, initially, increased to 100 mg/d after 1 wk if necessary
Metoprolol (Lopressor)	Same as propranolol	PO 50 mg twice daily initially, increased up to 400 mg daily if necessary
Nadolol (Corgard)	Same as propranolol	PO 40–240 mg/d in a single dose