

Metoprolol Succinate Extended-Release Tablets, USP

Rx only

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use metoprolol succinate extended-release tablets safely and effectively. See full prescribing information for metoprolol succinate extended-release tablets.

Metoprolol Succinate Extended-Release Tablets, USP for Oral Use

INITIAL US APPROVAL: 1992

WARNING: ISCHEMIC HEART DISEASE
<i>(See Full Prescribing Information for complete boxed warning)</i>
Following abrupt cessation of therapy with beta-blocking agents, exacerbations of angina pectoris and myocardial infarction have occurred. Warn patients against interruption or discontinuation of therapy without the physician's advice. (5.1)

-----**INDICATIONS AND USAGE**-----

Metoprolol succinate, is a beta₁-selective adrenoceptor blocking agent.

Metoprolol succinate extended-release tablets are indicated for the treatment of:

- Hypertension (1.1)
- Angina Pectoris (1.2)
- Heart Failure - for the treatment of stable, symptomatic (NYHA Class II or III) heart failure of ischemic, hypertensive, or cardiomyopathic origin.(1.3)

-----**DOSAGE AND ADMINISTRATION**-----

- Administer once daily. Dosing of metoprolol succinate extended-release tablets should be individualized. (2)
- Heart Failure: Recommended starting dose is 12.5 mg or 25 mg doubled every two weeks to the highest dose tolerated or up to 200 mg. (2,3)
- Hypertension: Usual initial dosage is 25 to 100 mg once daily. The dosage may be increased at weekly (or longer) intervals until optimum blood pressure reduction is achieved. Dosages above 400 mg per day have not been studied. (2,1)
- Angina Pectoris: Usual initial dosage is 100 mg once daily. Gradually increase the dosage at weekly intervals until optimum clinical response has been obtained or there is an unacceptable bradycardia. Dosages above 400 mg per day have not been studied. (2,2)
- Switching from immediate release metoprolol to metoprolol succinate extended-release tablets: use the same total daily dose of metoprolol succinate extended-release tablets. (2)

-----**DOSAGE FORMS AND STRENGTHS**-----

- Metoprolol Succinate Extended-Release Tablets: 25mg, 50 mg and 100 mg. (3)

-----**CONTRAINDICATIONS**-----

- Known hypersensitivity to product components. (4)
- Severe bradycardia. (4)
- Heart block greater than first degree. (4)
- Cardiogenic shock. (4)
- Decompensated cardiac failure. (4)
- Sick sinus syndrome without a pacemaker. (4)

-----**WARNINGS AND PRECAUTIONS**-----

- Heart Failure: Worsening cardiac failure may occur. (5,2)
- Bronchospastic Disease: Avoid beta blockers. (5,3)
- Pheochromocytoma: If required, first initiate therapy with an alpha blocker. (5,4)
- Major Surgery: Avoid initiation of high-dose extended release metoprolol in patients undergoing non-cardiac surgery because it has been associated with bradycardia, hypotension, stroke and death. Do not routinely withdraw chronic beta blocker therapy prior to surgery. (5,5, 6,1)
- Diabetes and Hypoglycemia: May mask tachycardia occurring with hypoglycemia (5,6)
- Patients with Hepatic Impairment: (5,7)
- Thyrototoxicosis: Abrupt withdrawal in patients with thyrotoxicosis might precipitate a thyroid storm (5,8)
- Anaphylactic Reactions: Patients may be unresponsive to the usual doses of epinephrine used to treat allergic reaction (5,9)
- Peripheral Vascular Disease: Can aggravate symptoms of arterial insufficiency (5,10)
- Calcium Channel Blockers: Because of significant inotropic and chronotropic effects in patients treated with beta-blockers and calcium channel blockers of the verapamil and diltiazem type, caution should be exercised in patients treated with these agents concomitantly (5,11).

-----**ADVERSE REACTIONS**-----

- Most common adverse reactions: tiredness, dizziness, depression, shortness of breath, bradycardia, hypotension, diarrhea, pruritus, rash (6,1)

To report SUSPECTED ADVERSE REACTIONS, contact Wockhardt USA LLC., at 1-800-346-6854 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

-----**DRUG INTERACTIONS**-----

- Catecholamine-depleting drugs may have an additive effect when given with beta-blocking agents (7,1)
- CYP2D6 Inhibitors are likely to increase metoprolol concentration (7,2)
- Concomitant use of glycosides, clonidine, and diltiazem and verapamil with beta-blockers can increase the risk of bradycardia (7,3)
- Beta-blockers including metoprolol, may exacerbate the rebound hypertension that can follow the withdrawal of clonidine (7,3)

-----**USE IN SPECIFIC POPULATIONS**-----

- Pregnancy: There are no adequate and well-controlled studies in pregnant women. Use this drug during pregnancy only if clearly needed. (8,1)
- Nursing Mothers: Consider possible infant exposure. (8,3)
- Pediatrics: Safety and effectiveness have not been established in patients < 6 years of age. (8,4)
- Geriatrics: No notable difference in efficacy or safety vs. younger patients. (8,5)
- Hepatic Impairment: Consider initiating metoprolol succinate extended-release tablets therapy at low doses and gradually increase dosage to optimize therapy, while monitoring closely for adverse events. (8,6)

---**SEE 17 FOR PATIENT COUNSELING INFORMATION**---

08/2011

Full Prescribing Information: Contents*	7 DRUG INTERACTIONS
1 INDICATIONS AND USAGE	7.1 Catecholamine Depleting Drugs
1.1 Hypertension	7.2 CYP2D6 Inhibitors
1.2 Angina Pectoris	7.3 Digitalis, Clonidine, and Calcium Channel Blockers
1.3 Heart Failure	8 USE IN SPECIFIC POPULATIONS
2 DOSAGE AND ADMINISTRATION	8.1 Pregnancy
2.1 Hypertension	8.3 Nursing Mothers
2.2 Angina Pectoris	8.4 Pediatric Use
2.3 Heart Failure	8.5 Geriatric Use
3 DOSAGE FORMS AND STRENGTHS	8.6 Hepatic Impairment
4 CONTRAINDICATIONS	8.7 Renal Impairment
5 WARNINGS AND PRECAUTIONS	10 OVERDOSAGE
5.1 Ischemic Heart Disease	11 DESCRIPTION
5.2 Heart Failure	12 CLINICAL PHARMACOLOGY
5.3 Bronchospastic Disease	12.1 Mechanism of Action
5.4 Pheochromocytoma	12.2 Pharmacodynamics
5.5 Major Surgery	12.3 Pharmacokinetics
5.6 Diabetes and Hypoglycemia	13 NONCLINICAL TOXICOLOGY
5.7 Hepatic Impairment	13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility
5.8 Thyrotoxicosis	14 CLINICAL STUDIES
5.9 Anaphylactic Reaction	14.1 Angina Pectoris
5.10 Peripheral Vascular Disease	14.2 Heart Failure
5.11 Calcium Channel Blockers	16 HOW SUPPLIED/STORAGE AND HANDLING
6 ADVERSE REACTIONS	17 PATIENT COUNSELING INFORMATION
6.1 Clinical Trials Experience	*Sections or subsections omitted from the full prescribing information are not listed
6.2 Post-Marketing Experience	
6.3 Laboratory Test Findings	

FULL PRESCRIBING INFORMATION

WARNING: ISCHEMIC HEART DISEASE: Following abrupt cessation of therapy with certain beta-blocking agents, exacerbations of angina pectoris and, in some cases, myocardial infarction have occurred. When discontinuing chronically administered metoprolol succinate extended-release tablets, particularly in patients with ischemic heart disease, the dosage should be gradually reduced over a period of 1 - 2 weeks and the patient should be carefully monitored. If angina markedly worsens or acute coronary insufficiency develops, metoprolol succinate extended-release tablets administration should be reinstated promptly, at least temporarily, and other measures appropriate for the management of unstable angina should be taken. Warn patients against interruption or discontinuation of therapy without the physician's advice. Because coronary artery disease is common and may be unrecognized, it may be prudent not to discontinue metoprolol succinate extended-release tablets therapy abruptly even in patients treated only for hypertension (5.1).

1 INDICATIONS AND USAGE

1.1 Hypertension
Metoprolol succinate extended-release tablets are indicated for the treatment of hypertension. It may be used alone or in combination with other antihypertensive agents *(see Dosage and Administration (2)).*

1.2 Angina Pectoris

Metoprolol succinate extended-release tablets are indicated in the long-term treatment of angina pectoris, to reduce angina attacks and to improve exercise tolerance.

1.3 Heart Failure

Metoprolol succinate extended-release tablets are indicated for the treatment of stable, symptomatic (NYHA Class II or III) heart failure of ischemic, hypertensive, or cardiomyopathic origin. It was studied in patients already receiving ACE inhibitors, diuretics, and, in the majority of cases, digitalis. In this population, metoprolol succinate extended-release tablets decreased the rate of mortality plus hospitalization, largely through a reduction in cardiovascular mortality and hospitalizations for heart failure.

2 DOSAGE AND ADMINISTRATION

Metoprolol succinate extended-release is an extended release tablet intended for once daily administration. For treatment of hypertension and angina, when switching from immediate release metoprolol to metoprolol succinate extended-release tablets, use the same total daily dose of metoprolol succinate extended-release tablets. Individualize the dosage of metoprolol succinate extended-release tablets. Titration may be needed in some patients.

Metoprolol succinate extended-release tablets are scored and can be divided; however, do not crush or chew the whole or half tablet.

2.1 Hypertension

Adults: The usual initial dosage is 25 to 100 mg daily in a single dose. The dosage may be increased at weekly (or longer) intervals until optimum blood pressure reduction is achieved. In general, the maximum effect of any given dosage level will be apparent after 1 week of therapy. Dosages above 400 mg per day have not been studied.

Pediatric Hypertensive Patients ≥ 6 Years of age: Due to AstraZeneca's marketing exclusivity rights, this generic drug product is not labeled for pediatric use. Dosage and administration information in pediatric patients 6 years and older is approved for AstraZeneca's metoprolol succinate extended-release tablets.

2.2 Angina Pectoris

Individualize the dosage of metoprolol succinate extended-release tablets. The usual initial dosage is 100 mg daily, given in a single dose. Gradually increase the dosage at weekly intervals until optimum clinical response has been obtained or there is a pronounced slowing of the heart rate. Dosages above 400 mg per day have not been studied. If treatment is to be discontinued, reduce the dosage gradually over a period of 1 - 2 weeks *(see Warnings and Precautions (5)).*

2.3 Heart Failure

Dosage must be individualized and closely monitored during up-titration. Prior to initiation of metoprolol succinate extended-release tablets, stabilize the dose of other heart failure drug therapy. The recommended starting dose of metoprolol succinate extended-release tablet is 25 mg once daily for two weeks in patients with NYHA Class II heart failure and 12.5 mg once daily in patients with more severe heart failure. Double the dose every two weeks to the highest dosage level tolerated by the patient or up to 200 mg of metoprolol succinate extended-release tablets. Initial difficulty with titration should not preclude later attempts to introduce metoprolol succinate extended-release tablets. If patients experience symptomatic bradycardia, reduce the dose of metoprolol succinate extended-release tablets. If transient worsening of heart failure occurs, consider treating with increased doses of diuretics, lowering the dose of metoprolol succinate extended-release tablets or temporarily discontinuing it. The dose of metoprolol succinate extended-release tablets should not be increased until symptoms of worsening heart failure have been stabilized.

3 DOSAGE FORMS AND STRENGTHS

25 mg tablets: White, oval, biconvex, film-coated scored tablet debossed with "W and 34"

50 mg tablets: White, circular, beveled edge, biconvex, film-coated scored tablet debossed with "W" 735

100 mg tablets: White, circular, beveled edge, biconvex, film-coated scored tablet debossed with "W" 736

4 CONTRAINDICATIONS

Metoprolol succinate extended-release tablets are contraindicated in severe bradycardia, second or third degree heart block, cardiogenic shock, decompensated cardiac failure, sick sinus syndrome (unless a permanent pacemaker is in place), and in patients who are hypersensitive to any component of this product.

5 WARNINGS AND PRECAUTIONS

5.1 Ischemic Heart Disease

Following abrupt cessation of therapy with certain beta-blocking agents, exacerbations of angina pectoris and, in some cases, myocardial infarction have occurred. When discontinuing chronically administered metoprolol succinate extended-release tablets, particularly in patients with ischemic heart disease gradually reduce the dosage over a period of 1 - 2 weeks and monitor the patient. If angina markedly worsens or acute coronary ischemia develops, promptly reinstate metoprolol succinate extended-release tablets, and take measures appropriate for the management of unstable angina. Warn patients not to interrupt therapy without their physician's advice. Because coronary artery disease is common and may be unrecognized, avoid abruptly discontinuing metoprolol succinate extended-release tablets in patients treated only for hypertension.

5.2 Heart Failure

Worsening cardiac failure may occur during up-titration of metoprolol succinate extended-release tablets. If such symptoms occur, increase diuretics and restore clinical stability before advancing the dose of metoprolol succinate extended-release tablets *(see Dosage and Administration (2)).* It may be necessary to lower the dose of metoprolol succinate extended-release tablets or temporarily discontinue it. Such episodes do not preclude subsequent successful titration of metoprolol succinate extended-release tablets.

5.3 Bronchospastic Disease

PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD, IN GENERAL, NOT RECEIVE BETA-BLOCKERS. Because of its relative beta₁ cardioselectivity, however, metoprolol succinate extended-release tablets may be used in patients with bronchospastic disease who do not respond to, or cannot tolerate, other antihypertensive treatment. Because beta₁-selectivity is not absolute, use the lowest possible dose of metoprolol succinate extended-release tablets. Bronchodilators, including beta₂-agonists, should be readily available or administered concomitantly *(see Dosage and Administration (2)).*

5.4 Pheochromocytoma

If metoprolol succinate extended-release tablets are used in the setting of pheochromocytoma, it should be given in combination with an alpha blocker, and only after the alpha blocker has been initiated. Administration of beta-blockers alone in the setting of pheochromocytoma has been associated with a paradoxical increase in blood pressure due to the attenuation of beta-mediated vasodilatation in skeletal muscle.

5.5 Major Surgery

Avoid initiation of a high-dose regimen of extended release metoprolol in patients undergoing non-cardiac surgery, since such use in patients with cardiovascular risk factors has been associated with bradycardia, hypotension, stroke and death.

Chronically administered beta-blocking therapy should not be routinely withdrawn prior to major surgery, however, the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

5.6 Diabetes and Hypoglycemia

Beta-blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected.

5.7 Hepatic Impairment

Consider initiating metoprolol succinate extended-release tablets therapy at doses lower than those recommended for a given indication; gradually increase dosage to optimize therapy, while monitoring closely for adverse events.

5.8 Thyrotoxicosis

Beta-adrenergic blockade may mask certain clinical signs of hyperthyroidism, such as tachycardia. Abrupt withdrawal of beta-blockade may precipitate a thyroid storm.

5.9 Anaphylactic Reaction

While taking beta-blockers, patients with a history of severe anaphylactic reactions to a variety of allergens may be more reactive to repeated challenge and may be unresponsive to the usual doses of epinephrine used to treat an allergic reaction.

5.10 Peripheral Vascular Disease

Beta-blockers can precipitate or aggravate symptoms of arterial insufficiency in patients with peripheral vascular disease.

5.11 Calcium Channel Blockers

Because of significant inotropic and chronotropic effects in patients treated with beta-blockers and calcium channel blockers of the verapamil and diltiazem type, caution should be exercised in patients treated with these agents concomitantly.

6 ADVERSE REACTIONS

The following adverse reactions are described elsewhere in labeling:

- Worsening angina or myocardial infarction. *(see Warnings and Precautions (5))*
- Worsening heart failure. *(see Warnings and Precautions (5))*
- Worsening AV block. *(see Contraindications (4))*

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. The adverse reaction information from clinical trials does, however, provide a basis for identifying the adverse events that appear to be related to drug use and for approximating rates.

Most adverse reactions have been mild and transient. The most common (>2%) adverse reactions are tiredness, dizziness, depression, diarrhea, shortness of breath, bradycardia, and rash.

Heart Failure: In the MERIT-HF study comparing metoprolol succinate extended-release tablets in daily doses up to 200 mg (mean dose 159 mg once-daily; n=1990) to placebo (n=2001), 10.3% of metoprolol succinate extended-release tablets patients discontinued for adverse reactions vs. 12.2% of placebo patients.

The table below lists adverse reactions in the MERIT-HF study that occurred at an incidence of ≥ 1% in the metoprolol succinate extended-release tablets group and greater than placebo by more than 0.5%, regardless of the assessment of causality.

Adverse Reactions Occurring in the MERIT-HF Study at an Incidence ≥ 1% in the Metoprolol Succinate Extended-Release Tablets Group and Greater Than Placebo by More Than 0.5%

	Metoprolol succinate extended-release tablets n=1990 % of patients	Placebo n=2001 % of patients
Dizziness/vertigo	1.8	1.0
Bradycardia	1.5	0.4
<i>Accident and/or injury</i>	1.4	0.8

Post-operative Adverse Events: In a randomized, double-blind, placebo-controlled trial of 8351 patients with or at risk for atherosclerotic disease undergoing non-vascular surgery and who were not taking beta-blocker therapy, metoprolol succinate extended-release tablets 100 mg was started 2 to 4 hours prior to surgery then continued for 30 days at 200 mg per day. Metoprolol succinate extended-release tablets use was associated with a higher incidence of bradycardia (6.6% vs. 2.4% ; HR 2.74; 95% CI 2.19,3.43), hypotension (15% vs. 9.7%; HR 1.55 95% CI 1.37,1.74), stroke (1.0% vs 0.5%; HR 2.17; 95% CI 1.26,3.74) and death (3.1% vs 2.3%; HR 1.33; 95% CI 1.03, 1.74) compared to placebo.

6.2 Post-Marketing Experience

The following adverse reactions have been identified during post-approval use of metoprolol succinate extended-release tablets or immediate-release metoprolol. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

Cardiovascular: Cold extremities, arterial insufficiency (usually of the Raynaud type), palpitations, peripheral edema, syncope, chest pain and hypotension.

Respiratory: Wheezing (bronchospasm), dyspnea.

Central Nervous System: Confusion, short-term memory loss, headache, somnolence, nightmares, insomnia, anxiety/nervousness, hallucinations, paresthesia.

Gastrointestinal: Nausea, dry mouth, constipation, flatulence, heartburn, hepatitis, vomiting.

Hypersensitive Reactions: Pruritus.

Miscellaneous: Musculoskeletal pain, arthralgia, blurred vision, decreased libido, male impotence, tinnitus, reversible alopecia, agranulocytosis, dry eyes, worsening of psoriasis, Peyronie's disease, sweating, photosensitivity, taste disturbance

Potential Adverse Reactions: In addition, there are adverse reactions not listed above that have been reported with other beta-adrenergic blocking agents and should be considered potential adverse reactions to metoprolol succinate extended-release tablets.

Central Nervous System: Reversible mental depression progressing to cataplexy; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, clouded sensorium, and decreased performance on neuropsychometrics.

Hematologic: Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Hypersensitive Reactions: Laryngospasm, respiratory distress.

6.3 Laboratory Test Findings

Clinical laboratory findings may include elevated levels of serum transaminase, alkaline phosphatase, and lactate dehydrogenase.

7 DRUG INTERACTIONS

7.1 Catecholamine Depleting Drugs

Catecholamine-depleting drugs (eg, reserpine, monoamine oxidase (MAO) inhibitors) may have an additive effect when given with beta-blocking agents. Observe patients treated with metoprolol succinate extended-release tablets plus a catecholamine depletor for evidence of hypotension or marked bradycardia, which may produce vertigo, syncope, or postural hypotension.

7.2 CYP2D6 Inhibitors

Drugs that inhibit CYP2D6 such as quinidine, fluoxetine, paroxetine, and propafenone are likely to increase metoprolol concentration. In healthy subjects with CYP2D6 extensive metabolizer phenotype, coadministration of quinidine 100 mg and immediate release metoprolol 200 mg tripled the concentration of S-metoprolol and doubled the metoprolol elimination half-life. In four patients with cardiovascular disease, coadministration of propafenone 150 mg t.i.d. with immediate release metoprolol 50 mg t.i.d. resulted in two - to five-fold increases in the steady-state concentration of metoprolol. These increases in plasma concentration would decrease the cardioselectivity of metoprolol.

7.3 Digitalis, Clonidine, and Calcium Channel Blockers

Digitalis glycosides, clonidine, diltiazem and verapamil slow atrioventricular conduction and decrease heart rate. Concomitant use with beta blockers can increase the risk of bradycardia.

If clonidine and a beta blocker, such as metoprolol are coadministered, withdraw the beta-blocker several days before the gradual withdrawal of clonidine because beta-blockers may exacerbate the rebound hypertension that can follow the withdrawal of clonidine. If replacing clonidine by beta-blocker therapy, delay the introduction of beta-blockers for several days after clonidine administration has stopped *(see WARNINGS AND PRECAUTIONS (5.1)).*

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Pregnancy Category C

Metoprolol tartrate has been shown to increase post-implantation loss and decrease neonatal survival in rats at doses up to 22 times, on a mg/m² basis, the daily dose of 200 mg in a 60-kg patient. Distribution studies in mice confirm exposure of the fetus when metoprolol tartrate is administered to the pregnant animal. These studies have revealed no evidence of impaired fertility or teratogenicity. There are no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, use this drug during pregnancy only if clearly needed.

8.3 Nursing Mothers

Metoprolol is excreted in breast milk in very small quantities. An infant consuming 1 liter of breast milk daily would receive a dose of less than 1 mg of the drug. Consider possible infant exposure when metoprolol succinate extended-release tablet is administered to a nursing woman.

8.4 Pediatric Use

Safety and effectiveness of metoprolol succinate have not been established in patients < 6 years of age. Due to AstraZeneca's marketing exclusivity rights, this generic drug product is not labeled for pediatric use. Pediatric use information is approved for AstraZeneca's metoprolol succinate extended-release tablets.

8.5 Geriatric Use

Clinical studies of metoprolol succinate extended-release tablets in hypertension did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience in hypertensive patients has not identified differences in responses between elderly and younger patients.

Of the 1,990 patients with heart failure randomized to metoprolol succinate extended-release tablets in the MERIT-HF trial, 50% (990) were 65 years of age and older and 12% (238) were 75 years of age and older. There were no notable differences in efficacy or the rate of adverse reactions between older and younger patients.

In general, use a low initial starting dose in elderly patients given their greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

8.6 Hepatic Impairment

No studies have been performed with metoprolol succinate extended-release tablets in patients with hepatic impairment. Because metoprolol succinate extended-release tablet is metabolized by the liver, metoprolol blood levels are likely to increase substantially with poor hepatic function. Therefore, initiate therapy at doses lower than those recommended for a given indication; and increase doses gradually in patients with impaired hepatic function.

8.7 Renal Impairment

The systemic availability and half-life of metoprolol in patients with renal failure do not differ to a clinically significant degree from those in normal subjects. No reduction in dosage is needed in patients with chronic renal failure *(see Clinical Pharmacology (12.3)).*

10 OVERDOSAGE

Signs and Symptoms - Overdosage of metoprolol succinate extended-release tablets may lead to severe bradycardia, hypotension, and cardiogenic shock. Clinical presentation can also include: atrioventricular block, heart failure, bronchospasm, hypoxia, impairment of consciousness/coma, nausea and vomiting.

Treatment – Consider treating the patient with intensive care. Patients with myocardial infarction or heart failure may be prone to significant hemodynamic instability. Seek consultation with a regional poison control center and a medical toxicologist as needed. Beta-blocker overdose may result in significant bradycardia. Consultation with adrenergic agents, including beta-agonists. On the basis of the pharmacologic actions of metoprolol, employ the following measures:

There is very limited experience with the use of hemodialysis to remove metoprolol, however metoprolol is not highly protein bound.

Bradycardia: Administer intravenous atropine; repeat to effect. If the response is inadequate, consider intravenous isoproterenol or other positive chronotropic agents. Evaluate the need for transvenous pacemaker insertion.

Hypotension: Treat underlying bradycardia. Consider intravenous vasopressor infusion, such as dopamine or norepinephrine.

Bradycardia: Administer a beta₂-agonist, including albuterol

14 CLINICAL STUDIES

In five controlled studies in normal healthy subjects, the same daily doses of metoprolol succinate extended-release tablets and immediate release metoprolol were compared in terms of the extent and duration of beta₁-blockade produced. Both formulations were given in a dose range equivalent to 100-400 mg of immediate release metoprolol per day. In these studies, metoprolol succinate extended-release tablets was administered once a day and immediate release metoprolol was administered once to four times a day. A sixth controlled study compared the beta₁-blocking effects of a 50 mg daily dose of the two formulations. In each study, beta₁-blockade was expressed as the percent change from baseline in exercise heart rate following standardized submaximal exercise tolerance tests at steady state. Metoprolol succinate extended-release tablets administered once a day, and immediate release metoprolol administered once to four times a day, provided comparable total beta₁-blockade over 24 hours (area under the beta₁-blockade versus time curve) in the dose range 100-400 mg. At a dosage of 50 mg once daily, metoprolol succinate extended-release tablets produced significantly higher total beta₁-blockade over 24 hours than immediate release metoprolol. For metoprolol succinate extended-release tablets, the percent reduction in exercise heart rate was relatively stable throughout the entire dosage interval and the level of beta₁-blockade increased with increasing doses from 50 to 300 mg daily. The effects at peak/trough (6, at 24-hours post-dosing) were: 14/9, 16/10, 24/14, 27/22 and 27/20% reduction in exercise heart rate for doses of 50, 100, 200, 300 and 400 mg metoprolol succinate extended-release tablets once a day, respectively. In contrast to metoprolol succinate extended-release tablets, immediate release metoprolol given at a dose of 50-100 mg once a day produced a significantly larger peak effect on exercise tachycardia, but the effect was not evident at 24 hours. To match the peak to trough ratio obtained with metoprolol succinate extended-release tablets over the dosing range of 200 to 400 mg, a t.i.d. to q.i.d. divided dosing regimen was required for immediate release metoprolol. A controlled cross-over study in heart failure patients compared the plasma concentrations and beta₁-blocking effects of 50 mg immediate release metoprolol administered t.i.d., 100 mg and 200 mg metoprolol succinate extended-release tablets once daily. A 50 mg dose of immediate release metoprolol t.i.d. produced a peak plasma level of metoprolol similar to the peak level observed with 200 mg of metoprolol succinate extended-release tablets. A 200 mg dose of metoprolol succinate extended-release tablets produced a larger effect on suppression of exercise-induced and Holter-monitored heart rate over 24 hours compared to 50 mg t.i.d. of immediate release metoprolol.

In a double-blind study, 1092 patients with mild-to-moderate hypertension were randomized to once daily metoprolol succinate extended-release tablets (25, 100, or 400 mg), PLENDIL® (felodipine extended release tablets), the combination, or placebo. After 9 weeks, metoprolol succinate extended-release tablets alone decreased sitting blood pressure by 6-8/4-7 mmHg (placebo-corrected change from baseline) at 24 hours post-dose. The combination of metoprolol succinate extended-release tablets with PLENDIL has greater effects on blood pressure.

In controlled clinical studies, an immediate release dosage form of metoprolol was an effective antihypertensive agent when used alone or as concomitant therapy with thiazide-type diuretics at dosages of 100-450 mg daily. Metoprolol succinate extended-release tablets, in dosages of 100 to 400 mg once daily, produces similar β₁-blockade as conventional metoprolol tablets administered two to four times daily. In addition, metoprolol succinate extended-release tablet administered at a dose of 50 mg once daily lowered blood pressure 24-hours post-dosing in placebo-controlled studies. In controlled, comparative, clinical studies, immediate release metoprolol appeared comparable as an antihypertensive agent to propranolol, methyldopa, and thiazide-type diuretics, and affected both supine and standing blood pressure. Because of variable plasma levels attained with a given dose and lack of a consistent relationship of antihypertensive activity to drug plasma concentration, selection of proper dosage requires individual titration.

14.1 Angina Pectoris

By blocking catecholamine-induced increases in heart rate, in velocity and extent of myocardial contraction, and in blood pressure, metoprolol reduces the oxygen requirements of the heart at any given level of effort, thus making it useful in the long-term management of angina pectoris.

In controlled clinical trials, an immediate release formulation of metoprolol has been shown to be an effective antianginal agent, reducing the number of angina attacks and increasing exercise tolerance. The dosage used in these studies ranged from 100 to 400 mg daily. Metoprolol succinate extended-release tablets, in dosages of 100 to 400 mg once daily, has been shown to possess beta-blockade similar to conventional metoprolol tablets administered two to four times daily.

14.2 Heart Failure

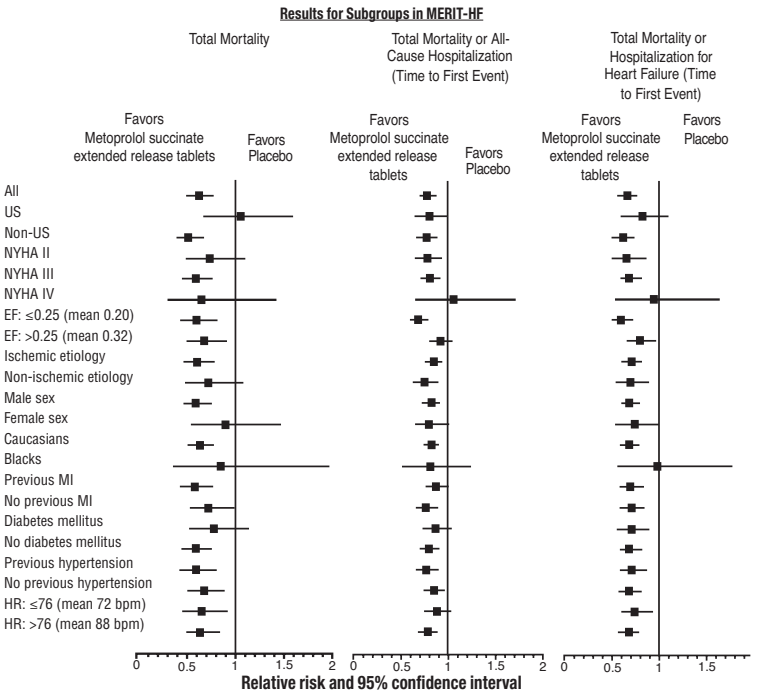
MERIT-HF was a double-blind, placebo-controlled study of metoprolol succinate extended-release tablets conducted in 14 countries including the US. It randomized 3991 patients (1990 to metoprolol succinate extended-release tablets) with ejection fraction ≤0.40 and NYHA Class II-IV heart failure attributable to ischemia, hypertension, or cardiomyopathy. The protocol excluded patients with contraindications to beta-blocker use, those expected to undergo heart surgery, and those within 28 days of myocardial infarction or unstable angina. The primary endpoints of the trial were (1) all-cause mortality plus all-cause hospitalization (time to first event) and (2) all-cause mortality. Patients were stabilized on optimal concomitant therapy for heart failure, including diuretics, ACE inhibitors, cardiac glycosides, and nitrates. At randomization, 41% of patients were NYHA Class II; 55% NYHA Class III; 65% of patients had heart failure attributed to ischemic heart disease; 44% had a history of hypertension; 25% had diabetes mellitus; 48% had a history of myocardial infarction. Among patients in the trial, 90% were on diuretics, 89% were on ACE inhibitors, 64% were on digitalis, 27% were on a lipid-lowering agent, 37% were on an oral anticoagulant, and the mean ejection fraction was 0.28. The mean duration of follow-up was one year. At the end of the study, the mean daily dose of metoprolol succinate extended-release tablets was 159 mg.

The trial was terminated early for a statistically significant reduction in all-cause mortality (34%, nominal p= 0.00009). The risk of all-cause mortality plus all-cause hospitalization was reduced by 19% (p= 0.00012). The trial also showed improvements in heart failure-related mortality and heart failure-related hospitalizations, and NYHA functional class.

The table below shows the principal results for the overall study population. The figure below illustrates principal results for a wide variety of subgroup comparisons, including US vs. non-US populations (the latter of which was not pre-specified). The combined endpoints of all-cause mortality plus all-cause hospitalization and of mortality plus heart failure hospitalization showed consistent effects in the overall study population and the subgroups, including women and the US population. However, in the US subgroup (n=1071) and women (n=898), overall mortality and cardiovascular mortality appeared less affected. Analyses of female and US patients were carried out because they each represented about 25% of the overall population. Nonetheless, subgroup analyses can be difficult to interpret and it is not known whether these represent true differences or chance effects.

Clinical Endpoints in the MERIT-HF Study					
Clinical Endpoint	Number of Patients		Relative Risk (95% CI)	Risk Reduction With Metoprolol Succinate Extended-Release Tablets	Nominal P-value
	Placebo n=2001	Metoprolol Succinate Extended-Release Tablets n=1990			
All-cause mortality plus all-caused hospitalization*	767	641	0.81 (0.73-0.90)	19%	0.00012
All-cause mortality	217	145	0.66 (0.53-0.81)	34%	0.00009
All-cause mortality plus heart failure hospitalization*	439	311	0.69 (0.60-0.80)	31%	0.000008
Cardiovascular mortality	203	128	0.62 (0.50-0.78)	38%	0.000022
Sudden death	132	79	0.59 (0.45-0.78)	41%	0.0002
Death due to worsening heart failure	58	30	0.51 (0.33-0.79)	49%	0.0023
Hospitalizations due to worsening heart failure [†]	451	317	N/A	N/A	0.0000076
Cardiovascular hospitalization [†]	773	649	N/A	N/A	0.00028

* Time to first event
† Comparison of treatment groups examines the number of hospitalizations (Wilcoxon test); relative risk and risk reduction are not applicable.



US=United States; NYHA=New York Heart Association; EF= ejection fraction; MI= myocardial infarction; HR= heart rate.

16. HOW SUPPLIED/STORAGE AND HANDLING

Tablets containing metoprolol succinate equivalent to the indicated weight of metoprolol tartrate, USP, are white, biconvex, film-coated, and scored.

Tablet	Shape	Debossed	Shellpak® of 30 NDC 54458-
25 mg*	Oval	W and 34	300-30
50 mg	Circular, beveled edge	W 735	301-30
100 mg	Circular, beveled edge	W 736	302-30

*The 25mg tablet is scored on both sides.

Store at 20°-25°C (68°-77°F); [see USP Controlled Room Temperature].

17. PATIENT COUNSELING INFORMATION

Advise patients to take metoprolol succinate extended-release tablets regularly and continuously, as directed, preferably with or immediately following meals. If a dose is missed, the patient should take only the next scheduled dose (without doubling it). Patients should not interrupt or discontinue metoprolol succinate extended-release tablets without consulting the physician.

Advise patients (1) to avoid operating automobiles and machinery or engaging in other tasks requiring alertness until the patient's response to therapy with metoprolol succinate extended-release tablets has been determined; (2) to contact the physician if any difficulty in breathing occurs; (3) to inform the physician or dentist before any type of surgery that he or she is taking metoprolol succinate extended-release tablets.

Heart failure patients should be advised to consult their physician if they experience signs or symptoms of worsening heart failure such as weight gain or increasing shortness of breath.

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