

## **DESIPRAMINE HCL- desipramine hcl tablet**

### **Direct\_Rx**

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### **Desipramine HCL**

Desipramine hydrochloride, USP is an antidepressant drug of the tricyclic type, and is chemically: 5H-Dibenz[bf]azepine-5-propanamine,10,11-dihydro-N-methyl-, monohydrochloride.

[Structural Formula]

The following inactive ingredients are contained in all dosage strengths: lactose monohydrate, croscarmellose sodium, povidone K-30, opadry Y-1R-7000 white powder (hypromellose 2910, titanium dioxide, polyethylene glycol 400/macrogol), and magnesium stearate.

### **MECHANISM OF ACTION**

Available evidence suggests that many depressions have a biochemical basis in the form of a relative deficiency of neurotransmitters such as norepinephrine and serotonin. Norepinephrine deficiency may be associated with relatively low urinary 3-methoxy-4-hydroxyphenyl glycol (MHPG) levels, while serotonin deficiencies may be associated with low spinal fluid levels of 5-hydroxyindoleacetic acid.

While the precise mechanism of action of the tricyclic antidepressants is unknown, a leading theory suggests that they restore normal levels of neurotransmitters by blocking the re-uptake of these substances from the synapse in the central nervous system. Evidence indicates that the secondary amine tricyclic antidepressants, including desipramine hydrochloride may have greater activity in blocking the re-uptake of norepinephrine. Tertiary amine tricyclic antidepressants, such as amitriptyline, may have greater effect on serotonin re-uptake.

Desipramine hydrochloride is not a monoamine oxidase inhibitor (MAOI) and does not act primarily as a central nervous system stimulant. It has been found in some studies to have a more rapid onset of action than imipramine. Earliest therapeutic effects may occasionally be seen in 2 to 5 days, but full treatment benefit usually requires 2 to 3 weeks to obtain.

### **Metabolism**

Tricyclic antidepressants, such as desipramine hydrochloride, are rapidly absorbed from the gastrointestinal tract. Tricyclic antidepressants or their metabolites are to some extent excreted through the gastric mucosa and reabsorbed from the gastrointestinal tract. Desipramine is metabolized in the liver, and approximately 70% is excreted in the urine.

The rate of metabolism of tricyclic antidepressants varies widely from individual to individual, chiefly on a genetically determined basis. Up to a 36-fold difference in plasma level may be noted among individuals taking the same oral dose of desipramine. The ratio of 2-hydroxydesipramine to desipramine may be increased in the elderly, most likely due to decreased renal elimination with aging.

Certain drugs, particularly the psychostimulants and the phenothiazines, increase plasma levels of concomitantly administered tricyclic antidepressants through

competition for the same metabolic enzyme systems. Concurrent administration of cimetidine and tricyclic antidepressants can produce clinically significant increases in the plasma concentrations of the tricyclic antidepressants. Conversely, decreases in plasma levels of the tricyclic antidepressants have been reported upon discontinuation of cimetidine, which may result in the loss of the therapeutic efficacy of the tricyclic antidepressant. Other substances, particularly barbiturates and alcohol, induce liver enzyme activity and thereby reduce tricyclic antidepressant plasma levels. Similar effects have been reported with tobacco smoke.

Research on the relationship of plasma level to therapeutic response with the tricyclic antidepressants has produced conflicting results. While some studies report no correlation, many studies cite therapeutic levels for most tricyclics in the range of 50 to 300 nanograms per milliliter. The therapeutic range is different for each tricyclic antidepressant. For desipramine, an optimal range of therapeutic plasma levels has not been established.

Desipramine hydrochloride tablets, USP is indicated for the treatment of depression.

The use of MAOIs intended to treat psychiatric disorders with desipramine hydrochloride or within 14 days of stopping treatment with desipramine hydrochloride is contraindicated because of an increased risk of serotonin syndrome. The use of desipramine hydrochloride within 14 days of stopping an MAOI intended to treat psychiatric disorders is also contraindicated (see WARNINGS and DOSAGE AND ADMINISTRATION).

Starting desipramine hydrochloride in a patient who is being treated with MAOIs such as linezolid or intravenous methylene blue is also contraindicated because of an increased risk of serotonin syndrome (see WARNINGS and DOSAGE AND ADMINISTRATION).

Desipramine hydrochloride is contraindicated in the acute recovery period following myocardial infarction. It should not be used in those who have shown prior hypersensitivity to the drug. Cross-sensitivity between this and other dibenzazepines is a possibility.

#### Clinical Worsening and Suicide Risk

Patients with major depressive disorder (MDD), both adult and pediatric, may experience worsening of their depression and/or the emergence of suicidal ideation and behavior (suicidality) or unusual changes in behavior, whether or not they are taking antidepressant medications, and this risk may persist until significant remission occurs. Suicide is a known risk of depression and certain other psychiatric disorders, and these disorders themselves are the strongest predictors of suicide. There has been a long-standing concern, however, that antidepressants may have a role in inducing worsening of depression and the emergence of suicidality in certain patients during the early phases of treatment. Pooled analyses of short-term placebo-controlled trials of antidepressant drugs (selective serotonin re-uptake inhibitors [SSRIs] and others) showed that these drugs increase the risk of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults (ages 18 to 24) with major depressive disorder (MDD) and other psychiatric disorders. Short-term studies did not show an increase in the risk of suicidality with antidepressants compared to placebo in adults beyond age 24; there was a reduction with antidepressants compared to placebo in adults aged 65 and older.

The pooled analyses of placebo-controlled trials in children and adolescents with MDD,

obsessive compulsive disorder (OCD), or other psychiatric disorders included a total of 24 short-term trials of 9 antidepressant drugs in over 4400 patients. The pooled analyses of placebo-controlled trials in adults with MDD or other psychiatric disorders included a total of 295 short-term trials (median duration of 2 months) of 11 antidepressant drugs in over 77,000 patients. There was considerable variation in risk of suicidality among drugs, but a tendency toward an increase in the younger patients for almost all drugs studied. There were differences in absolute risk of suicidality across the different indications, with the highest incidence in MDD. The risk differences (drug vs. placebo), however, were relatively stable within age strata and across indications. These risk differences (drug-placebo difference in the number of cases of suicidality per 1000 patients treated) are provided in TABLE 1.

Table 1

Age Range

Drug-Placebo Difference in Number of Cases of Suicidality per 1000 Patients Treated

Increases Compared to Placebo

< 18

14 additional cases

18 to 24

5 additional cases

Decreases Compared to Placebo

25 to 64

1 fewer case

≥65

6 fewer cases

No suicides occurred in any of the pediatric trials. There were suicides in the adult trials, but the number was not sufficient to reach any conclusion about drug effect on suicide.

It is unknown whether the suicidality risk extends to longer-term use, i.e., beyond several months. However, there is substantial evidence from placebo-controlled maintenance trials in adults with depression that the use of antidepressants can delay the recurrence of depression.

All patients being treated with antidepressants for any indication should be monitored appropriately and observed closely for clinical worsening, suicidality, and unusual changes in behavior, especially during the initial few months of a course of drug therapy, or at times of dose changes, either increases or decreases.

The following symptoms, anxiety, agitation, panic attacks, insomnia, irritability, hostility, aggressiveness, impulsivity, akathisia (psychomotor restlessness), hypomania, and mania, have been reported in adult and pediatric patients being treated with antidepressants for major depressive disorder as well as for other indications, both psychiatric and nonpsychiatric. Although a causal link between the emergence of such symptoms and either the worsening of depression and/or the emergence of suicidal impulses has not been established, there is concern that such symptoms may represent precursors to emerging suicidality.

Consideration should be given to changing the therapeutic regimen, including possibly discontinuing the medication, in patients whose depression is persistently worse, or who are experiencing emergent suicidality or symptoms that might be precursors to

worsening depression or suicidality, especially if these symptoms are severe, abrupt in onset, or were not part of the patient's presenting symptoms.

Families and caregivers of patients being treated with antidepressants for major depressive disorder or other indications, both psychiatric and nonpsychiatric, should be alerted about the need to monitor patients for the emergence of agitation, irritability, unusual changes in behavior, and the other symptoms described above, as well as the emergence of suicidality, and to report such symptoms immediately to health care providers. Such monitoring should include daily observation by families and caregivers. Prescriptions for desipramine hydrochloride should be written for the smallest quantity of tablets consistent with good patient management, in order to reduce the risk of overdose.

### Screening Patients for Bipolar Disorder

A major depressive episode may be the initial presentation of bipolar disorder. It is generally believed (though not established in controlled trials) that treating such an episode with an antidepressant alone may increase the likelihood of precipitation of a mixed/manic episode in patients at risk for bipolar disorder. Whether any of the symptoms described above represent such a conversion is unknown. However, prior to initiating treatment with an antidepressant, patients with depressive symptoms should be adequately screened to determine if they are at risk for bipolar disorder; such screening should include a detailed psychiatric history, including a family history of suicide, bipolar disorder, and depression. It should be noted that desipramine hydrochloride is not approved for use in treating bipolar depression.

### Serotonin Syndrome

The development of a potentially life-threatening serotonin syndrome has been reported with serotonin norepinephrine re-uptake inhibitors (SNRIs) and SSRIs, including desipramine hydrochloride, alone but particularly with concomitant use of other serotonergic drugs (including triptans, tricyclic antidepressants, fentanyl, lithium, tramadol, tryptophan, buspirone, and St. John's Wort) and with drugs that impair metabolism of serotonin (in particular, MAOIs both those intended to treat psychiatric disorders and also others, such as linezolid and intravenous methylene blue).

Serotonin syndrome symptoms may include mental status changes (e.g., agitation, hallucinations, delirium, and coma), autonomic instability (e.g., tachycardia, labile blood pressure, dizziness, diaphoresis, flushing, hyperthermia), neuromuscular changes (e.g., tremor, rigidity, myoclonus, hyperreflexia, incoordination), seizures, and/or gastrointestinal symptoms (e.g., nausea, vomiting, diarrhea). Patients should be monitored for the emergence of serotonin syndrome.

The concomitant use of desipramine hydrochloride with MAOIs intended to treat psychiatric disorders is contraindicated. Desipramine hydrochloride should also not be started in a patient who is being treated with MAOIs such as linezolid or intravenous methylene blue. All reports with methylene blue that provided information on the route of administration involved intravenous administration in the dose range of 1 mg/kg to 8 mg/kg. No reports involved the administration of methylene blue by other routes (such as oral tablets or local tissue injection) or at lower doses. There may be circumstances when it is necessary to initiate treatment with an MAOI such as linezolid or intravenous methylene blue in a patient taking desipramine hydrochloride. Desipramine hydrochloride should be discontinued before initiating treatment with the MAOI (see

## CONTRAINDICATIONS and DOSAGE AND ADMINISTRATION).

If concomitant use of desipramine hydrochloride with other serotonergic drugs including triptans, tricyclic antidepressants, fentanyl, lithium, tramadol, buspirone, tryptophan, and St. John's Wort is clinically warranted, patients should be made aware of a potential increased risk for serotonin syndrome particularly during treatment initiation and dose increases.

Treatment with desipramine hydrochloride and any concomitant serotonergic agents should be discontinued immediately if the above events occur and supportive symptomatic treatment should be initiated.

### Angle-Closure Glaucoma

The pupillary dilation that occurs following use of many antidepressant drugs including desipramine hydrochloride may trigger an angle closure attack in a patient with anatomically narrow angles who does not have a patent iridectomy.

### General

Extreme caution should be used when this drug is given in the following situations:

- a. In patients with cardiovascular disease, because of the possibility of conduction defects, arrhythmias, tachycardias, strokes, and acute myocardial infarction.
- b. In patients who have a family history of sudden death, cardiac dysrhythmias, or cardiac conduction disturbances.
- c. In patients with a history of urinary retention or glaucoma, because of the anticholinergic properties of the drug.
- d. In patients with thyroid disease or those taking thyroid medication, because of the possibility of cardiovascular toxicity, including arrhythmias.
- e. In patients with a history of seizure disorder, because this drug has been shown to lower the seizure threshold. Seizures precede cardiac dysrhythmias and death in some patients.

This drug is capable of blocking the antihypertensive effect of guanethidine and similarly acting compounds.

The patient should be cautioned that this drug may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery.

In patients who may use alcohol excessively, it should be borne in mind that the potentiation may increase the danger inherent in any suicide attempt or overdose.

### Pregnancy

There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to antidepressants, including desipramine hydrochloride, during pregnancy. Healthcare providers are encouraged to register patients by calling the National Pregnancy Registry for Antidepressants at 1-844-405-6185 or visiting online at <http://womensmentalhealth.org/clinical-and-researchprograms/pregnancyregistry/antidepressants>

Safe use of desipramine hydrochloride during pregnancy and lactation has not been

established; therefore, if it is to be given to pregnant patients, nursing mothers, or women of childbearing potential, the possible benefits must be weighed against the possible hazards to mother and child. Animal reproductive studies have been inconclusive.

## GERIATRIC USE

Clinical studies of desipramine hydrochloride did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. Lower doses are recommended for elderly patients (see DOSAGE AND ADMINISTRATION).

The ratio of 2-hydroxydesipramine to desipramine may be increased in the elderly, most likely due to decreased renal elimination with aging.

This drug is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function.

Desipramine hydrochloride use in the elderly has been associated with a proneness to falling as well as confusional states (see ADVERSE REACTIONS).

## Information for Patients

Prescribers or other health professionals should inform patients, their families, and their caregivers about the benefits and risks associated with treatment with desipramine hydrochloride and should counsel them in its appropriate use. A patient Medication Guide about "Antidepressant Medicines, Depression and other Serious Mental Illnesses, and Suicidal Thoughts or Actions" is available for desipramine hydrochloride. The prescriber or health professional should instruct patients, their families, and their caregivers to read the Medication Guide and should assist them in understanding its contents. Patients should be given the opportunity to discuss the contents of the Medication Guide and to obtain answers to any questions they may have. The complete text of the Medication Guide is reprinted at the end of this document.

Patients should be advised of the following issues and asked to alert their prescriber if these occur while taking desipramine hydrochloride.

## Clinical Worsening and Suicide Risk

Patients, their families, and their caregivers should be encouraged to be alert to the emergence of anxiety, agitation, panic attacks, insomnia, irritability, hostility, aggressiveness, impulsivity, akathisia (psychomotor restlessness), hypomania, mania, other unusual changes in behavior, worsening of depression, and suicidal ideation, especially early during antidepressant treatment and when the dose is adjusted up or down. Families and caregivers of patients should be advised to observe for the emergence of such symptoms on a day-to-day basis, since changes may be abrupt. Such symptoms should be reported to the patient's prescriber or health professional, especially if they are severe, abrupt in onset, or were not part of the patient's presenting symptoms. Symptoms such as these may be associated with an increased risk for suicidal thinking and behavior and indicate a need for very close monitoring and possibly changes in the medication.

Patients should be advised that taking desipramine hydrochloride can cause mild pupillary dilation, which in susceptible individuals, can lead to an episode of angle closure glaucoma. Pre-existing glaucoma is almost always open-angle glaucoma because angle closure glaucoma, when diagnosed, can be treated definitively with iridectomy. Open-angle glaucoma is not a risk factor for angle closure glaucoma. Patients may wish to be examined to determine whether they are susceptible to angle closure, and have a prophylactic procedure (e.g., iridectomy), if they are susceptible.

### Pediatric Use

Safety and effectiveness in the pediatric population have not been established (see BOX WARNING and WARNINGS-CLINICAL WORSENING AND SUICIDE RISK). Therefore, desipramine hydrochloride is not recommended for use in children.

Anyone considering the use of desipramine hydrochloride in a child or adolescent must balance the potential risks with the clinical need (see also ADVERSE REACTIONS-CARDIOVASCULAR).

### General

It is important that this drug be dispensed in the least possible quantities to depressed outpatients, since suicide has been accomplished with this class of drug (see WARNINGS-CLINICAL WORSENING AND SUICIDE RISK). Ordinary prudence requires that children not have access to this drug or to potent drugs of any kind; if possible, this drug should be dispensed in containers with child-resistant safety closures. Storage of this drug in the home must be supervised responsibly.

If serious adverse effects occur, dosage should be reduced or treatment should be altered. Desipramine hydrochloride therapy in patients with manic-depressive illness may induce a hypomanic state after the depressive phase terminates.

The drug may cause exacerbation of psychosis in schizophrenic patients.

Both elevation and lowering of blood sugar levels have been reported.

Leukocyte and differential counts should be performed in any patient who develops fever and sore throat during therapy; the drug should be discontinued if there is evidence of pathologic neutrophil depression.

Clinical experience in the concurrent administration of ECT and antidepressant drugs is limited. Thus, if such treatment is essential, the possibility of increased risk relative to benefits should be considered.

This drug should be discontinued as soon as possible prior to elective surgery because of possible cardiovascular effects. Hypertensive episodes have been observed during surgery in patients taking desipramine hydrochloride.

### DRUG INTERACTIONS

#### Drugs Metabolized by P450 2D6

The biochemical activity of the drug metabolizing isozyme cytochrome P450 2D6 (debrisoquin hydroxylase) is reduced in a subset of the Caucasian population (about 7% to 10% of Caucasians are so called "poor metabolizers"); reliable estimates of the prevalence of reduced P450 2D6 isozyme activity among Asian, African and other populations are not yet available. Poor metabolizers have higher than expected plasma concentrations of tricyclic antidepressants (TCAs) when given usual doses. Depending

on the fraction of drug metabolized by P450 2D6, the increase in plasma concentration may be small, or quite large (8 fold increase in plasma AUC of the TCA).

In addition, certain drugs inhibit the activity of this isozyme and make normal metabolizers resemble poor metabolizers. An individual who is stable on a given dose of TCA may become abruptly toxic when given one of these inhibiting drugs as concomitant therapy. The drugs that inhibit cytochrome P450 2D6 include some that are not metabolized by the enzyme (quinidine; cimetidine) and many that are substrates for P450 2D6 (many other antidepressants, phenothiazines, and the Type IC antiarrhythmics propafenone and flecainide). While all the SSRIs, e.g., fluoxetine, sertraline, paroxetine, inhibit P450 2D6, they may vary in the extent of inhibition. The extent to which SSRI TCA interactions may pose clinical problems will depend on the degree of inhibition and the pharmacokinetics of the SSRI involved. Nevertheless, caution is indicated in the co-administration of TCAs with any of the SSRIs and also in switching from one class to the other. Of particular importance, sufficient time must elapse before initiating TCA treatment in a patient being withdrawn from fluoxetine, given the long half-life of the parent and active metabolite (at least 5 weeks may be necessary).

Concomitant use of tricyclic antidepressants with drugs that can inhibit cytochrome P450 2D6 may require lower doses than usually prescribed for either the tricyclic antidepressant or the other drug. Furthermore, whenever one of these other drugs is withdrawn from co-therapy, an increased dose of tricyclic antidepressant may be required. It is desirable to monitor TCA plasma levels whenever a TCA is going to be co-administered with another drug known to be an inhibitor of P450 2D6.

Close supervision and careful adjustment of dosage are required when this drug is given concomitantly with anticholinergic or sympathomimetic drugs.

Patients should be warned that while taking this drug their response to alcoholic beverages may be exaggerated.

If desipramine hydrochloride is to be combined with other psychotropic agents such as tranquilizers or sedative/hypnotics, careful consideration should be given to the pharmacology of the agents employed since the sedative effects of desipramine hydrochloride and benzodiazepines (e.g., chlordiazepoxide or diazepam) are additive. Both the sedative and anticholinergic effects of the major tranquilizers are also additive to those of desipramine hydrochloride.

Concomitant use of Monoamine Oxidase Inhibitors (MAOIs) and serotonergic drugs may potentially cause life threatening adverse events (see CONTRAINDICATIONS, WARNINGS, and DOSAGE AND ADMINISTRATION).

Included in the following listing are a few adverse reactions that have not been reported with this specific drug. However, the pharmacologic similarities among the tricyclic antidepressant drugs require that each of the reactions be considered when desipramine hydrochloride is given.

Cardiovascular: Hypotension, hypertension, palpitations, heart block, myocardial infarction, stroke, arrhythmias, premature ventricular contractions, tachycardia, ventricular tachycardia, ventricular fibrillation, sudden death.

There has been a report of an "acute collapse" and "sudden death" in an 8-year-old (18 kg) male, treated for 2 years for hyperactivity.



There have been additional reports of sudden death in children (see PRECAUTIONS-PEDIATRIC USE).

**Psychiatric:** Confusional states (especially in the elderly) with hallucinations, disorientation, delusions; anxiety, restlessness, agitation; insomnia and nightmares; hypomania; exacerbation of psychosis.

**Neurologic:** Numbness, tingling, paresthesias of extremities; incoordination, ataxia, tremors; peripheral neuropathy; extrapyramidal symptoms; seizures; alterations in EEG patterns; tinnitus. Symptoms attributed to Neuroleptic Malignant Syndrome have been reported during desipramine use with and without concomitant neuroleptic therapy.

**Anticholinergic:** Dry mouth, and rarely associated sublingual adenitis; blurred vision, disturbance of accommodation, mydriasis, increased intraocular pressure; constipation, paralytic ileus; urinary retention, delayed micturition, dilation of urinary tract.

**Allergic:** Skin rash, petechiae, urticaria, itching, photosensitization (avoid excessive exposure to sunlight), edema (of face and tongue or general), drug fever, cross-sensitivity with other tricyclic drugs.

**Hematologic:** Bone marrow depressions including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

**Gastrointestinal:** Anorexia, nausea and vomiting, epigastric distress, peculiar taste, abdominal cramps, diarrhea, stomatitis, black tongue, hepatitis, jaundice (simulating obstructive), altered liver function, elevated liver function tests, increased pancreatic enzymes.

**Endocrine:** Gynecomastia in the male, breast enlargement and galactorrhea in the female; increased or decreased libido, impotence, painful ejaculation, testicular swelling; elevation or depression of blood sugar levels; syndrome of inappropriate antidiuretic hormone secretion (SIADH).

**Other:** Weight gain or loss; perspiration, flushing, urinary frequency, nocturia; parotid swelling; drowsiness, dizziness, proneness to falling, weakness and fatigue, headache; fever, alopecia; elevated alkaline phosphatase.

**Withdrawal Symptoms:** Though not indicative of addiction, abrupt cessation of treatment after prolonged therapy may produce nausea, headache, and malaise.

To report SUSPECTED ADVERSE REACTIONS, contact Ingenus Pharmaceuticals, LLC at 1-877-748-1970 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

Deaths may occur from overdosage with this class of drugs. Overdose of desipramine has resulted in a higher death rate compared to overdoses of other tricyclic antidepressants. Multiple drug ingestion (including alcohol) is common in deliberate tricyclic antidepressant overdose. As the management is complex and changing, it is recommended that the physician contact a poison control center for current information on treatment. Signs and symptoms of toxicity develop rapidly after tricyclic antidepressant overdose; therefore, hospital monitoring is required as soon as possible. There is no specific antidote for desipramine overdosage.

#### Oral LD50

The oral LD50 of desipramine is 290 mg/kg in male mice and 320 mg/kg in female rats.

#### Manifestations of Overdosage

Critical manifestations of overdose include: cardiac dysrhythmias, severe hypotension, convulsions, and CNS depression, including coma. Changes in the electrocardiogram, particularly in QRS axis or width, are clinically significant indicators of tricyclic antidepressant toxicity. Early changes in the QRS complex include a widening of the terminal 40 msec with a rightward axis in the frontal plane, recognized by the presence of a terminal S wave in Lead 1 and AVL and an R wave in AVR.

Other signs of overdose may include: confusion, disturbed concentration, transient visual hallucinations, dilated pupils, agitation, hyperactive reflexes, stupor, drowsiness, muscle rigidity, vomiting, hypothermia, hyperpyrexia, or any of the symptoms listed under ADVERSE REACTIONS.

## Management

Aggressive supportive care and serum alkalinization are the mainstays of therapy.

## General

Obtain an ECG and immediately initiate cardiac monitoring. Protect the patient's airway, establish an intravenous line, and initiate gastric decontamination. A minimum of 6 hours of observation with cardiac monitoring and observation for signs of CNS or respiratory depression, hypotension, cardiac dysrhythmias and/or conduction blocks, and seizures is necessary. If signs of toxicity occur at any time during this period, extended monitoring is required. Follow ECG, renal function, CPK, and arterial blood gases as clinically indicated. There are case reports of patients succumbing to fatal dysrhythmias late after overdose; these patients had clinical evidence of significant poisoning prior to death, and most received inadequate gastrointestinal decontamination. Monitoring of plasma drug levels should not guide management of the patient.

## Gastrointestinal Decontamination

Emesis is contraindicated. Activated charcoal should be administered to patients who present early after an overdose.

## Cardiovascular

A maximal limb-lead QRS duration widening to greater than 100 msec is a significant indicator of toxicity, specifically for the risk of seizures and, eventually, cardiac dysrhythmias. Serum alkalinization with intravenous sodium bicarbonate and hyperventilation (as needed) should be instituted in patients manifesting significant toxicity such as QRS widening. Dysrhythmias despite adequate alkalemia may respond to overdrive pacing, beta-agonist infusions, and magnesium therapy. Type 1A and 1C antiarrhythmics are generally contraindicated (e.g., quinidine, disopyramide, and procainamide).

## CNS

In patients with CNS depression, early intubation is advised because of the potential for abrupt deterioration. Seizures should be controlled with benzodiazepines. If these are ineffective or seizures recur, other anticonvulsants (e.g., phenobarbital, propofol) may be used.

## Psychiatric Follow-up

Since overdosage is often deliberate, patients may attempt suicide by other means during the recovery phase. Psychiatric referral may be appropriate.

## Pediatric Management

The principles of management of child and adult overdosages are similar. It is strongly recommended that the physician contact the local poison control center for specific pediatric treatment.

Not recommended for use in children (see WARNINGS).

Lower dosages are recommended for elderly patients and adolescents. Lower dosages are also recommended for outpatients compared to hospitalized patients, who are closely supervised. Dosage should be initiated at a low level and increased according to clinical response and any evidence of intolerance. Following remission, maintenance medication may be required for a period of time and should be at the lowest dose that will maintain remission.

## Usual Adult Dose

The usual adult dose is 100 mg to 200 mg per day. In more severely ill patients, dosage may be further increased gradually to 300 mg/day if necessary. Dosages above 300 mg/day are not recommended.

Dosage should be initiated at a lower level and increased according to tolerance and clinical response.

Treatment of patients requiring as much as 300 mg should generally be initiated in hospitals, where regular visits by the physician, skilled nursing care, and frequent electrocardiograms (ECGs) are available.

The best available evidence of impending toxicity from very high doses of desipramine hydrochloride is prolongation of the QRS or QT intervals on the ECG. Prolongation of the PR interval is also significant, but less closely correlated with plasma levels. Clinical symptoms of intolerance, especially drowsiness, dizziness, and postural hypotension, should also alert the physician to the need for reduction in dosage.

Initial therapy may be administered in divided doses or a single daily dose.

Maintenance therapy may be given on a once-daily schedule for patient convenience and compliance.

## Adolescent and Geriatric Dose

The usual adolescent and geriatric dose is 25 mg to 100 mg daily.

Dosage should be initiated at a lower level and increased according to tolerance and clinical response to a usual maximum of 100 mg daily. In more severely ill patients, dosage may be further increased to 150 mg/day. Doses above 150 mg/day are not recommended in these age groups.

Initial therapy may be administered in divided doses or a single daily dose.

Maintenance therapy may be given on a once-daily schedule for patient convenience and compliance.

Switching a Patient To or From a Monoamine Oxidase Inhibitor (MAOI) Intended to Treat Psychiatric Disorders: At least 14 days should elapse between discontinuation of an MAOI intended to treat psychiatric disorders and initiation of therapy with desipramine hydrochloride. Conversely, at least 14 days should be allowed after stopping

desipramine hydrochloride before starting an MAOI intended to treat psychiatric disorders (see CONTRAINDICATIONS).

**Use of Desipramine Hydrochloride With Other MAOI's Such as Linezolid or Methylene Blue:** Do not start desipramine hydrochloride in a patient who is being treated with linezolid or intravenous methylene blue because there is increased risk of serotonin syndrome. In a patient who requires more urgent treatment of a psychiatric condition, other interventions, including hospitalization, should be considered (see CONTRAINDICATIONS).

In some cases, a patient already receiving desipramine hydrochloride therapy may require urgent treatment with linezolid or intravenous methylene blue. If acceptable alternatives to linezolid or intravenous methylene blue treatment are not available and the potential benefits of linezolid or intravenous methylene blue treatment are judged to outweigh the risks of serotonin syndrome in a particular patient, desipramine hydrochloride should be stopped promptly, and linezolid or intravenous methylene blue can be administered. The patient should be monitored for symptoms of serotonin syndrome for 2 weeks or until 24 hours after the last dose of linezolid or intravenous methylene blue, whichever comes first. Therapy with desipramine hydrochloride may be resumed 24 hours after the last dose of linezolid or intravenous methylene blue (see WARNINGS).

The risk of administering methylene blue by non-intravenous routes (such as oral tablets or by local injection) or in intravenous doses much lower than 1 mg/kg with desipramine hydrochloride is unclear. The clinician should, nevertheless, be aware of the possibility of emergent symptoms of serotonin syndrome with such use (see WARNINGS).

10 mg white to off white, round, biconvex, film coated tablet debossed with 'ING' on one side and '112' on the other side.

NDC 50742-112-01: bottles of 100

25 mg white to off white, round, biconvex, film coated tablet debossed with 'ING' on one side and '113' on the other side.

NDC 50742-113-01: bottles of 100

50 mg white to off white, round, biconvex, film coated tablet debossed with 'ING' on one side and '114' on the other side.

NDC 50742-114-01: bottles of 100

75 mg white to off white, round, biconvex, film coated tablet debossed with 'ING' on one side and '115' on the other side.

NDC 50742-115-01: bottles of 100

100 mg white to off white, round, biconvex, film coated tablet debossed with 'ING' on one side and '116' on the other side.

NDC 50742-116-01: bottles of 100

150 mg white to off white, round, biconvex, film coated tablet debossed with 'ING' on one side and '117' on the other side.

NDC 50742-117-50: bottles of 50

Storage

Store at 20°C to 25°C (68°F to 77°F) [See USP Controlled Room Temperature]. Protect from excessive heat. Dispense in a tight container.

Rx Only

553401

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Manufactured for:

Ingenus Pharmaceuticals, LLC

Orlando, FL 32839-6408

[Ingenus Logo]

Medication Guide

Desipramine Hydrochloride (des-IP-ra-meen HYE-droe-KLOR-ide) Tablets, USP

Antidepressant Medicines, Depression and other Serious Mental Illnesses, and Suicidal Thoughts or Actions

Read the Medication Guide that comes with your or your family member's, antidepressant medicine. This Medication Guide is only about the risk of suicidal thoughts and actions with antidepressant medicines. Talk to your or your family member's, healthcare provider about:

all risks and benefits of treatment with antidepressant medicines  
all treatment choices for depression or other serious mental illness

What is the most important information I should know about antidepressant medicines, depression and other serious mental illnesses, and suicidal thoughts or actions?

1. Antidepressant medicines may increase suicidal thoughts or actions in some children, teenagers, and young adults within the first few months of treatment.
2. Depression and other serious mental illnesses are the most important causes of suicidal thoughts and actions. Some people may have a particularly high risk of having suicidal thoughts or actions. These include people who have (or have a family history of) bipolar illness (also called manic-depressive illness) or suicidal thoughts or actions.
3. How can I watch for and try to prevent suicidal thoughts and actions in myself or a family member?

Pay close attention to any changes, especially sudden changes, in mood, behaviors, thoughts, or feelings. This is very important when an antidepressant medicine is started or when the dose is changed.

Call the healthcare provider right away to report new or sudden changes in mood, behavior, thoughts, or feelings.

Keep all follow-up visits with the healthcare provider as scheduled. Call the healthcare provider between visits as needed, especially if you have concerns about symptoms.

Who should not take desipramine hydrochloride?

You should not take desipramine hydrochloride if you take a monoamine oxidase inhibitor (MAOI). Ask your healthcare provider or pharmacist if you are not sure if you take an MAOI, including the antibiotic linezolid.

Do not take an MAOI within 2 weeks of stopping desipramine hydrochloride unless directed to do so by your physician.

Do not start desipramine hydrochloride if you stopped taking an MAOI in the last 2 weeks unless directed to do so by your physician.

Call a healthcare provider right away if you or your family member has any of the following symptoms, especially if they are new, worse, or worry you:

- thoughts about suicide or dying
- attempts to commit suicide
- new or worse depression
- new or worse anxiety
- feeling very agitated or restless
- panic attacks
- trouble sleeping (insomnia)
- new or worse irritability
- acting aggressive, being angry, or violent
- acting on dangerous impulses
- an extreme increase in activity and talking (mania)
- other unusual changes in behavior or mood

#### Visual Problems

- eye pain
- changes in vision
- swelling or redness in or around the eye

Only some people are at risk for these problems. You may want to undergo an eye examination to see if you are at risk and receive preventative treatment if you are.

What else do I need to know about antidepressant medicines?

Never stop an antidepressant medicine without first talking to a healthcare provider. Stopping an antidepressant medicine suddenly can cause other symptoms.

Antidepressants are medicines used to treat depression and other illnesses. It is important to discuss all the risks of treating depression and also the risks of not treating it. Patients and their families or other caregivers should discuss all treatment choices with the healthcare provider, not just the use of antidepressants.

Antidepressant medicines have other side effects. Talk to the healthcare provider about the side effects of the medicine prescribed for you or your family member.

Antidepressant medicines can interact with other medicines. Know all of the medicines that you or your family member takes. Keep a list of all medicines to show the healthcare provider. Do not start new medicines without first checking with your healthcare provider.

Not all antidepressant medicines prescribed for children are FDA approved for use in children. Talk to your child's healthcare provider for more information.

Tell your healthcare provider if you are pregnant or plan to become pregnant during treatment with desipramine hydrochloride.

If you become pregnant during treatment with desipramine hydrochloride, talk to your healthcare provider about registering with the National Pregnancy Registry for Antidepressants. You can register by calling 1-844-405-6185 or visit

<http://womensmentalhealth.org/clinical-and-researchprograms/pregnancyregistry/antidepressants>

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

You may also report side effects to Ingenus Pharmaceuticals, LLC. at 1-877-748-1970

This Medication Guide has been approved by the U.S. Food and Drug Administration.

Rx Only

Revised: 06/2019

Manufactured for:

Ingenus Pharmaceuticals, LLC

Orlando, FL 32839-6408

[Ingenus Logo]



## DESIPRAMINE HCL

desipramine hcl tablet

### Product Information

<b>Product Type</b>	HUMAN PRESCRIPTION DRUG	<b>Item Code (Source)</b>	NDC:72189-391(NDC:50742-112)
<b>Route of Administration</b>	ORAL		

### Active Ingredient/Active Moiety

Ingredient Name	Basis of Strength	Strength
<b>DESIPRAMINE HYDROCHLORIDE</b> (UNII: 1Y58DO4MY1) (DESIPRAMINE - UNII:TG537D343B)	DESIPRAMINE HYDROCHLORIDE	10 mg

### Inactive Ingredients

Ingredient Name	Strength
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<b>MAGNESIUM STEARATE</b> (UNII: 70097M6I30)	
<b>HYPROMELLOSES</b> (UNII: 3NXW29V3WO)	
<b>CROSCARMELLOSE SODIUM</b> (UNII: M28OL1HH48)	
<b>POVIDONE K30</b> (UNII: U725QWY32X)	
<b>TITANIUM DIOXIDE</b> (UNII: 15FIX9V2JP)	
<b>POLYETHYLENE GLYCOL 400</b> (UNII: B697894SGQ)	
<b>LACTOSE MONOHYDRATE</b> (UNII: EWQ57Q8I5X)	

### Product Characteristics

<b>Color</b>	white	<b>Score</b>	no score
<b>Shape</b>	ROUND	<b>Size</b>	5mm
<b>Flavor</b>		<b>Imprint Code</b>	ING;112
<b>Contains</b>			

### Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:72189-391-30	30 in 1 BOTTLE; Type 0: Not a Combination Product	11/16/2022	

### Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
ANDA	ANDA204963	11/16/2022	

**Labeler** - Direct\_Rx (079254320)

**Registrant** - Direct\_Rx (079254320)

### Establishment

Name	Address	ID/FEI	Business Operations
Direct_Rx		079254320	repack(72189-391)

Revised: 11/2022

Direct\_Rx