PRODUCT MONOGRAPH

Pr NARDIL*

Phenelzine Sulfate Tablets USP

15 mg

ANTIDEPRESSANT

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Date of Preparation:
OCT 4, 2022

Submission Control No.: 267161

PRODUCT MONOGRAPH

NAME OF DRUG

[Pr]NARDIL*

Phenelzine Sulfate Tablets USP

15 mg

PHARMACOLOGICAL CLASSIFICATION

Antidepressant

ACTIONS AND CLINICAL PHARMACOLOGY

NARDIL (phenelzine sulfate) is a potent monoamine oxidase (MAO) inhibitor. Monoamine oxidase is a complex enzyme system, widely distributed throughout the body. Drugs that inhibit monoamine oxidase in the laboratory are associated with a number of clinical effects. Thus, it is unknown whether MAO inhibition *per se*, other pharmacologic actions, or an interaction of both is responsible for the clinical effects observed.

All the currently employed MAO inhibitors are readily absorbed after oral administration. They are not given parenterally. These drugs produce maximal inhibition of MAO in biopsy samples from man within 5 to 10 days. However, although their biological activity is prolonged due to the characteristics of their interaction with the enzyme, their clinical efficacy appears to be reduced when given less frequently than once daily. In chronically treated phenelzine patients on 60 mg/day, steady-state trough and peak levels are between 1 and 10 ng/mL.

INDICATIONS AND CLINICAL USE

NARDIL (phenelzine sulfate) is indicated in the treatment of depressed patients clinically characterized as "atypical", "nonendogenous" or "neurotic". These patients often have mixed anxiety and depression and phobic or hypochondriacal features. There is less conclusive evidence of its usefulness for severely depressed patients with endogenous features. NARDIL is indicated for patients who have failed to respond to the drugs more commonly used for these conditions.

CONTRAINDICATIONS

NARDIL (phenelzine sulfate) is contraindicated in patients with known hypersensitivity to the drug or its ingredients, with pheochromocytoma, congestive heart failure, a history of liver disease, or abnormal liver function tests.

The potentiation of sympathomimetic substances and related compounds by MAO inhibitors may result in hypertensive crises (see WARNINGS). Therefore, patients taking NARDIL should not be given sympathomimetic drugs (including amphetamines, cocaine, methylphenidate, dopamine, epinephrine and norepinephrine), or related compounds (including methyldopa, L-dopa, L-tryptophan, L-tyrosine and phenylalanine). Hypertensive crises during NARDIL therapy may also be caused by ingestion of foods with a high concentration of tyramine or dopamine. Therefore patients being treated with NARDIL should avoid high protein food that has undergone protein breakdown by ageing, fermentation, pickling, smoking, or bacterial contamination; patients should also avoid cheeses (especially aged varieties), pickled herring, beer, wine, liver, yeast extract (including brewer's yeast in large quantities), dry sausage (including Genoa salami, hard salami, pepperoni and Lebanon Bologna), pods of broad beans (Fava beans) and yogurt. Excessive amounts of caffeine or chocolate can also potentiate hypertensive reactions.

NARDIL should not be used in combination with dextromethorphan or with CNS depressants such as alcohol and certain narcotics. Excitation, seizures, delirium, hyperpyrexia, circulatory collapse, coma and death have been reported in patients receiving MAO inhibitor therapy, who have been given a single dose of meperidine. NARDIL should not be administered together with or in rapid succession to other MAO inhibitors or dibenzazepine derivative drugs or other antidepressant drugs (listed below), because HYPERTENSIVE CRISES and convulsive seizures, fever, marked sweating, excitation, delirium, tremor, coma and circulatory collapse may occur.

MAO Inhibitors: Moclobemide, procarbazine, tranylcypromine.

Dibenzazepine Derivative or other Antidepressant Drugs*:* Amitriptyline, amitriptyline and perphenazine, amoxapine, carbamazepine, clomipramine, cyclobenzaprine, desipramine, doxepin, imipramine, maprotiline, nortriptyline, protriptyline, trimipramine.

At least 10 days should elapse between the discontinuation of another MAO inhibitor and the institution of NARDIL therapy.

NARDIL should not be used in combination with buspirone hydrochloride, since several cases of elevated blood pressure have been reported in patients taking MAO inhibitors who were then given buspirone HCl. At least 10 days should elapse between the discontinuation of NARDIL and the institution of another antidepressant or buspirone HCl, or the discontinuation of another MAO inhibitor and the institution of NARDIL therapy.

The concurrent administration of an MAO inhibitor and bupropion HCl is contraindicated.

There have been reports of serious reactions (including hyperthermia, rigidity, myoclonic movements and death) when serotonin re-uptake inhibitors or venlafaxine have been combined with an MAO inhibitor. Therefore, NARDIL should not be used in combination with venlafaxine or serotonin re-uptake inhibitors. Allow at least five weeks between discontinuation of fluoxetine and initiation of NARDIL, and at least 10 days between discontinuation of NARDIL and initiation of fluoxetine or other serotonin re-uptake inhibitors.

Before initiating NARDIL treatment, after having used other serotonin re-uptake inhibitors, a sufficient amount of time must be allowed for clearance of the serotonin re-uptake inhibitor and its active metabolites.

The combination of MAO inhibitors and tryptophan has been reported to cause behavioural and neurologic symptoms including disorientation, confusion, amnesia, delirium, agitation, hypomanic signs, ataxia, myoclonus, hyperflexia, shivering, ocular oscillations and Babinski signs.
Patients taking NARDIL should not undergo elective surgery requiring general anaesthesia. Also, they should not be given cocaine or local anaesthesia containing sympathomimetic vasoconstrictors. The possible combined hypotensive effects of NARDIL and spinal anaesthesia should be kept in mind. NARDIL should be discontinued at least 10 days prior to elective surgery.

MAO inhibitors including NARDIL are contraindicated in patients receiving guanethidine or reserpine.

WARNINGS

The most serious reactions to NARDIL (phenelzine sulfate) involve changes in blood pressure.

Hypertensive Crises

The most important reaction associated with NARDIL administration is the occurrence of hypertensive crises, which have sometimes been fatal. These crises are characterized by some or all of the following symptoms: occipital headache which may radiate frontally, palpitation, neck stiffness or soreness, nausea, vomiting, sweating (sometimes with fever and sometimes with cold, clammy skin), dilated pupils, and photophobia. Either tachycardia or bradycardia may be present and can be associated with constricting chest pain.

NOTE: Intracranial bleeding has been reported in association with the increase in blood pressure.

Blood pressure should be observed frequently to detect evidence of any pressor response in patients receiving NARDIL. Therapy should be discontinued immediately upon the occurrence of palpitation or frequent headaches during therapy.

Recommended treatment in hypertensive crisis

If a hypertensive crisis occurs, NARDIL should be discontinued immediately and therapy to lower blood pressure instituted immediately. On the basis of present evidence, phentolamine is recommended. (The dosage reported for phentolamine is 5 mg intravenously). Care should be taken to administer this drug slowly in order to avoid producing an excessive hypotensive effect. Fever should be managed by means of external cooling.

Angle-Closure Glaucoma

As with other antidepressants, NARDIL can cause mydriasis, which may trigger an angle-closure attack in a patient with anatomically narrow ocular angles. Healthcare providers should inform patients to seek immediate medical assistance if they experience eye pain, changes in vision or swelling or redness in or around the eye.

Information for the Patient

All patients, should be warned that the following foods, beverages and medications (Tables 1 and 2) must be avoided while taking NARDIL, and for two weeks after discontinuing use:

Table 1. Foods and Beverages to Avoid During NARDIL Therapy

MEAT AND FISH:	Pickled herring, liver, dry sausage (including Genoa salami, hard salami, pepperoni and Lebanon bologna)
VEGETABLES:	Broad bean pods (Fava beans) and sauerkraut
DAIRY PRODUCTS:	Cheese, yogurt (cottage cheese and cream cheese are allowed)
BEVERAGES:	Beer and wine, alcohol-free and reduced-alcohol beer and wine products
MISCELLANEOUS:	Yeast extract (including brewer's yeast in large quantities), meat extract, excessive amounts of chocolate or caffeine

Patients being treated with NARDIL should also avoid any spoiled or improperly refrigerated, handled or stored protein-rich foods such as meats, fish and dairy products, including foods that may have undergone protein breakdown by ageing, pickling, fermentation, or smoking to improve flavour.

Table 2. OTC Medications to Avoid During NARDIL Therapy

1.	Cold and cough preparations (including those containing dextromethorphan)
2.	Nasal decongestants (tablets, drops or spray)
3.	Hay-fever medications

4.	Sinus medications
5.	Asthma inhalant medications
6.	Anti-appetite medicines
7.	Weight-reducing preparations
8.	L-tryptophan containing preparations

Certain prescription drugs should be avoided. Therefore, patients under the care of another physician or dentist, should inform him/her that they are taking NARDIL.

Patients should be warned that the use of the above foods, beverages or medicines may cause a reaction characterized by headache and other serious symptoms due to a rise in blood pressure, with the exception of dextromethorphan, which may cause reactions similar to those seen with meperidine.

Patients should be instructed to report promptly the occurrence of headache or other unusual symptoms.

PRECAUTIONS

General

In depressed patients, the possibility of suicide should always be considered and adequate precautions taken. It is recommended that careful observation of patients undergoing NARDIL (phenelzine sulfate) treatment be maintained until control of depression is achieved. If necessary, additional measures (ECT, hospitalization, etc.) should be instituted.

All patients undergoing treatment with NARDIL should be closely followed for symptoms of postural hypotension. Hypotensive side effects have occurred in hypertensive as well as normal and hypotensive patients. Blood pressure usually returns to pretreatment levels rapidly when the drug is discontinued or the dosage is reduced.
Because the effect of NARDIL on the convulsive threshold may be variable, adequate precautions should be taken when treating epileptic patients.

Of the more severe side effects that have been reported with any consistency, hypomania has been the most common. This reaction has been largely limited to patients in whom disorders characterized by hyperkinetic symptoms coexist with, but are obscured by, depressive effect; hypomania usually appears as depression

improves. If agitation is present, it may be increased with NARDIL. Hypomania and agitation have been reported at higher than recommended doses, or following long-term therapy.

NARDIL may cause excessive stimulation in schizophrenic patients; in manic-depressive states it may result in a swing from a depressive to a manic phase.

MAO inhibitors, including NARDIL, potentiate hexobarbital hypnosis in animals. Therefore, barbiturates should be given at a reduced dose with NARDIL.

MAO inhibitors inhibit the destruction of serotonin and norepinephrine, which are believed to be released from tissue stores by rauwolfia alkaloids. Accordingly, caution should be exercised when rauwolfia is used concomitantly with an MAO inhibitor, including NARDIL.

There is conflicting evidence as to whether or not MAO inhibitors affect glucose metabolism or potentiate the effect of hypoglycemic agents. This should be kept in mind if NARDIL is administered to diabetic patients.

NARDIL, as with other hydrazine derivatives has been reported to induce pulmonary and vascular tumours in an uncontrolled lifetime study in mice.

Drug Interactions

NARDIL should be used with caution in combination with antihypertensive drugs, including thiazide diuretics and ß-blockers, since exaggerated hypotension may result.

See CONTRAINDICATIONS and WARNINGS for additional drug interactions.

Use in Pregnancy

The safe use of NARDIL during pregnancy or lactation has not been established. The potential benefit of this drug, if used during pregnancy, lactation, or in women of childbearing age, should be weighed against the possible hazard to the mother or fetus.

Lactation

The safe use of NARDIL during lactation has not been established. There are insufficient adequate and well-controlled studies in lactating women. Therefore, NARDIL should be used in lactating women only if clearly needed. It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants to NARDIL, a decision should be made whether to discontinue the drug, taking into account the importance of the drug to the mother, or to discontinue nursing.

Use in Children

NARDIL is not recommended for patients under 16 year of age since there are no controlled studies of safety in this age group.

ADVERSE REACTIONS

NARDIL (phenelzine sulfate) is a potent inhibitor of monoamine oxidase. Because this enzyme is widely distributed throughout the body, diverse pharmacologic effects may be expected to occur. When they occur, such effects tend to be mild to moderate in severity (see below), often subside with continuing treatment, and may be minimized by adjusting dosage; rarely is it necessary to institute counteracting measures or to discontinue NARDIL.

Common side effects include:

Nervous System: Dizziness, headache, drowsiness, sleep disturbances (including insomnia and hypersomnia), weakness and fatigue, tremors, twitching, myoclonic movements and hyperreflexia.

Gastrointestinal: Constipation, dry mouth, GI disturbances, elevated serum transaminases (without accompanying signs and symptoms).

Metabolic: Weight gain.

Cardiovascular: Postural hypotension, edema.

Genitourinary: Sexual disturbances, i.e., anorgasmia, ejaculatory disturbances and impotence.

Less common mild to moderate side effects (some of which have been reported in a single patient or by a single physician), include:

Nervous System: Jitteriness, palilalia, euphoria, nystagmus, paresthesias.

Genitourinary: Urinary retention.

Metabolic: Hypernatremia.

Dermatologic: Pruritus, skin rash, sweating.

Special Senses: Blurred vision, glaucoma.

Although reported less frequently, and sometimes only once, additional severe side effects include:

Nervous System: Ataxia, shock-like coma, toxic delirium, manic reaction, convulsions, acute anxiety reaction, precipitation of schizophrenia, transient respiratory and cardiovascular depression following ECT.

Gastrointestinal: To date, fatal progressive necrotizing hepatocellular damage has been reported in a very few patients. Reversible jaundice.

Hematologic: Leukopenia.

Immunologic: Lupus-like syndrome

Metabolic: Hypermetabolic syndrome (which may include, but is not limited to, hyperpyrexia, tachycardia, tachypnea, muscular rigidity, elevated CK levels, metabolic acidosis, hypoxia, coma, and may resemble an overdose).

Respiratory: Edema of the glottis.

Other: Fever associated with increased muscle tone

Withdrawal may be associated with nausea, vomiting and malaise.

An uncommon withdrawal syndrome following abrupt withdrawal of NARDIL has been infrequently reported. Signs and symptoms of this syndrome generally commence 24 to 72 hours after drug discontinuation and may range from vivid nightmares with agitation to frank psychosis and convulsions. This syndrome generally responds to reinstitution of low-dose NARDIL therapy followed by cautious downward titration and discontinuation.

SYMPTOMS AND TREATMENT OF OVERDOSAGE

NOTE: For management of hypertensive crises, see WARNINGS. Accidental or intentional overdosage may be more common in patients who are depressed. It should be remembered that multiple drugs and/or alcohol may have been ingested.

Depending on the amount of overdosage with NARDIL (phenelzine sulfate), a varying and mixed clinical picture may develop, including signs and symptoms of central nervous system and cardiovascular stimulation and/or depression. Signs and symptoms may be absent or minimal during the initial 12-hour period following ingestion and may develop slowly thereafter, reaching a maximum in 24 to 48 hours. Death has been reported following overdosage.

Therefore, immediate hospitalization, with continuous patient observation and monitoring throughout this period, is essential.

Signs and symptoms of overdosage may include, alone or in combination, any of the following: drowsiness, dizziness, faintness, irritability, hyperactivity, agitation, severe headache, hallucinations, trismus, opisthotonos, rigidity, convulsions and coma, rapid and irregular pulse, hypertension, hypotension and vascular collapse, precordial pain, respiratory depression and failure, hyperpyrexia, diaphoresis, and cool, clammy skin.

Intensive symptomatic and supportive treatment may be required. Induction of emesis or gastric lavage with instillation of charcoal slurry may be helpful in early poisoning, provided the airway has been protected against aspiration. Signs and symptoms of central nervous system stimulation, including convulsions, should be treated with diazepam, given slowly intravenously. Phenothiazine derivatives and central nervous system stimulants should be avoided. Hypotension and vascular collapse should be treated with intravenous fluids, and if necessary, blood pressure titration with an intravenous infusion of dilute pressor agent. It should be noted that adrenergic agents may produce a markedly increased pressor response.

Respiration should be supported by appropriate measures, including management of the airway, use of supplemental oxygen, and mechanical ventilatory assistance, as required.

Body temperature should be monitored closely. Intensive management of hyperpyrexia may be required. Maintenance of fluid and electrolyte balance is essential.

There are no data on the lethal dose in man. The pathophysiologic effects of massive overdosage may persist for several days, since the drug acts by inhibiting physiologic enzyme systems. With symptomatic and supportive measures, recovery from mild overdosage may be expected within 3 to 4 days.

Hemodialysis, peritoneal dialysis, and charcoal hemoperfusion may be of value in massive overdosage, but sufficient data are not available to recommend their routine use in these cases.

Toxic blood levels of phenelzine have not been established, and assay methods are not practical for clinical or toxicological use.

DOSAGE AND ADMINISTRATION

Initial Dose: The usual starting dose for NARDIL (phenelzine sulfate) is one tablet (15 mg) three times a day.

Early Phase Treatment: Dosage should be increased to at least 60 mg per day at a fairly rapid pace consistent with patient tolerance. It may be necessary to increase dosage up to 90 mg per day to obtain sufficient MAO inhibition. Many patients do not show a clinical response until treatment at 60 mg has been continued for at least 4 weeks.

***Maintenance Dose**:* After maximum benefit from NARDIL is achieved, dosage should be reduced slowly over several weeks. Maintenance dose may be as low as 1 tablet, 15 mg a day or every other day, and should be continued for as long as is required.

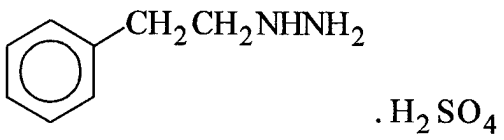
PHARMACEUTICAL INFORMATION

Drug Substance

PROPER NAME: Phenelzine Sulfate

CHEMICAL NAME: 2-Phenylethylhydrazine Sulfate

CHEMICAL STRUCTURE:



MOLECULAR FORMULA: $C_8H_{12}N_2 \cdot H_2SO_4$

MOLECULAR WEIGHT: 234.27

DESCRIPTION: Phenelzine sulfate is a hydrazine derivative. It is a white to yellowish powder with a characteristic odour. It is freely soluble in water and has a melting point of 164-168°C.

Composition

Each film coated tablet contains phenelzine sulfate, equivalent to 15 mg of phenelzine base. Inactive ingredients include: crosscarmellose sodium, editate disodium, magnesium stearate, mannitol, opadry orange, povidone.

Stability and Storage Recommendations

Store at controlled room temperature 15 - 30°C. Protect from heat and moisture.

AVAILABILITY

NARDIL is available as orange, biconvex, film-coated tablets engraved with “PD 270", in bottles of 60. Each tablet contains phenelzine sulfate, equivalent to 15 mg of phenelzine base.

PHARMACOLOGY

The pharmacologic properties of NARDIL (phenelzine sulfate) are similar to other MAO inhibitors (nialamide and tranylcypromine). The drug does not appear to potentiate the cardiovascular action of epinephrine or serotonin; however, it has a hypotensive action. In reserpinized-cats, MAO inhibitors are antagonists for almost all activities of this neuroleptic; sometimes, there is even a reversal of effect, i.e. the sedative effect of reserpine is replaced by hyperexcitability. Other central effects exhibited by MAO inhibitors include an increase in spontaneous motor activity in mice and rats. In addition, the conditioned avoidance response is generally diminished or blocked, whereas the escape response is unaffected. Phenelzine has little effect on the potentiation of hexobarbital narcosis in mice.

TOXICOLOGY

The median lethal dose of phenelzine is reported to be as follows:

Species	Route of Administration	Median Lethal Dose (mg/kg)
Mouse	Oral	156
	IV	157
Rat	Oral	210

Phenelzine sulfate, as with other hydrazine derivatives, has been reported to exhibit tumorigenic action in laboratory animals. Lifelong administration of phenelzine in drinking water of random-bred Swiss albino mice gave rise to pulmonary and vascular tumours. The lung tumour incidence rose from 21% to 56% in females and from 23% to 36% in males, while the vascular tumour incidence increased from 5% to 44% in females and from 6% to 8% in males, as compared with the untreated controls. However, the induction of pulmonary tumour in mice (mainly adenomas) cannot be considered as representative of tumorigenicity in other species.

Doses of NARDIL in pregnant mice, well exceeding the maximum recommended human dose, have caused a significant decrease in the number of viable offspring per mouse. In addition, the growth of young dogs and rats has been retarded by doses exceeding the maximum human dose.

BIBLIOGRAPHY

1. Bresnahan D, Pandey G, Janicak P, et al. MAO inhibition and clinical response in depressed patients treated with phenelzine. J Clin Psychiatry 1990;51:47-50.

2. Brown C, Bryant S. Monoamine oxidase inhibitors: Safety and efficacy issues. Drug Intelligence Clin Pharm 1988;22:232-235.

3. Buigues J, Vallejo J. Therapeutic response to phenelzine in patients with panic disorder and agoraphobia with panic attacks. J Clin Psychiatry 1987;48:55-59.

4. Davidson J, Zung W, Walker J. Practical aspects of MAO inhibitor therapy. J Clin Psychiatry 1984;45:81-84.

5. Feighner J, Boyer W, Tyler D, et al. Adverse consequences of fluoxetine-MAOI combination therapy. J Clin Psychiatry 1990;51:222-225.

6. Georgotas A, Friedman E, McCarthy M et al. Resistant geriatric depresssions and therapeutic response to monoamine oxidase inhibitors. Biological Psychiatry 1983;18:195-205.

7. Georgotas A, McCue R, Cooper T. A placebo-controlled comparison of nortriptyline and phenelzine in maintenance therapy of elderly depressed patients. Arch Gen Psychiatry 1989;46:783-786.

8. Goodman and Gilman's The Pharmacological Basis of Therapeutics, Eighth Edition, 1990; Chapter 18: Drugs and the Treatment of Psychiatric Disorders, p. 415.

9. Harrison W, McGrath P, Stewart J, et al. MAOIs and hypertensive crises: The role of OTC drugs. J Clin Psychiatry 1989;50:64-65.

10. Harrison W, Rabkin J, Stewart J, et al. Phenelzine for chronic depression: A study of continuation treatment. J Clin Psychiatry 1986;47:346-349.

11. Kosten T, Frank J, Dan E, et al. Pharmacotherapy for posttraumatic stress disorder using phenelzine or imipramine. J Nerv Ment Dis 1991;179:366-370.

12. Liebowitz M, Hollander E, Schneier F, et al. Reversible and irreversible monoamine oxidase inhibitors in other psychiatric disorders. Acta Psychiatr Scand 1990;82(Suppl 360):29-34.

13. Liebowitz M, Quitkin F, Stewart J, et al. Phenelzine versus imipramine in atypical depression. Arch Gen Psychiatry 1984;41:669-677.

14. McCabe B, Tsuang M. Dietary consideration in MAO inhibitor regimens. J Clin Psychiatry 1982;43:178-181.

15. McDaniel K. Review: Clinical pharmacology of monoamine oxidase inhibitors. Clinical Neuropharmacology 1986;9:207-234.

16. McGrath P, Stewart J, Harrison W, et al. Phenelzine treatment of melancholia. J Clin Psychiatry 1986;47:420-422

17. Moore C. MAOI's: A practical guide to their use. Current Therapeutics 1984;25:27-36.

18. Mutschler E, Mohrke W. Kinetics of MAO inhibitors. Mod Probl Pharmacopsychiatry 1983;19:126-134.

19. Nies A, Robinson D. Monamine oxidase inhibitors. In: Handbook of Affective Disorders. Paykel E (ed). Guildford Press, New York 1982:246-261.

20. Pare C. The present status of monoamine oxidase inhibitors. Brit J Psychiatry 1985;146:576-584.

21. Potter W, Rudorfer M, Manji H. Drug therapy: The pharmacologic treatment of depression. New Engl J Med 1991;325:633-642.

22. Quitkin F, McGrath P, Stewart J, et al. Atypical depression, panic attacks, and response to imipramine and phenelzine: A replication. Arch Gen Psychiatry 1990;47:935-941.

23. Quitkin F, Stewart J, McGrath P, et al. Phenelzine versus imipramine in the treatment of probable atypical depression: Defining syndrome boundaries of selective MAOI responders. Am J Psychiatry 1988;145:306-311.

24. Raft D, Davidson J, Wasik J, et al. Relationship between response to phenelzine and MAO inhibition in a clinical trial of phenelzine, amitriptyline, and placebo. Neuropsychobiology 1981;7:122-126.

25. Ravaris C, Nies A, Robinson D, et al. A multiple-dose controlled study of phenelzine in depression-anxiety states. Arch Gen Psychiatry 1976;33:347-350.

26. Remick R, Froese C, Keller F. Common side effects associated with monoamine oxidase inhibitors. Prog Neuropsychopharmacol Biol Psychiatry 1989;13:497-504.

27. Robinson D, Lerfald S, Bennett M, et al. Maintenance therapies in recurrent depression: New findings. Psychopharmacol Bull 1991;27:31-39.

28. Robinson D, Nies A, Ravaris C, et al. Clinical pharmacology of phenelzine. Arch Gen Psychiatry 1978;35:629-635.

29. Robinson D, Nies A, Ravaris C, et al. The monoamine oxidase inhibitor, phenelzine, in the treatment of depressive-anxiety states. Arch Gen Psychiatry 1973;29:407-413.

30. Rowan P, Paykel E, Parker R. Tricyclic antidepressant and MAO inhibitor: Are these differential effects? In: Monamine Oxidase Inhibitors: The State of the Art. Youdim M, Paykel E (ed). Wiley, New York 1981:125-138.

31. Sheehan D, Ballenger J, Jacobsen G. Treatment of endogenous anxiety with phobic, hysterical and hypochondriacal symptoms. Arch Gen Psychiatry 1980;37:51-59.

32. Solyom L, Heseltine G, McClure D, et al. Behaviour therapy versus drug therapy in the treatment of phobic neurosis. Canadian Psychiat Assoc J 1973;18:25-32.

33. Stockley I. Monoamine oxidase inhibitors - Part 1: Interactions with sympathomimetic amines. Pharmaceut J 1973;210:590-594.

34. Sullivan E, Shulman K. Diet and monoamine oxidase inhibitors: A reexamination. Canadian J Psychiatry 1984;29:707-711.

35. Toth B. Tumorigenicity of ß-phenylethylhydrazine sulfate in mice. Cancer Research 1976;36:917- 921.

36. Tyrer P, Candy J, Kelly D. A study of the clinical effects of phenelzine and placebo in the treatment of phobic anxiety. Psychopharmacologia (Berl.) 1973;32:237-254.

37. Tyrer P, Gardner M, Lambourn J, et al. Clinical and pharmacokinetic factors affecting response to phenelzine. Brit J Psychiatry 1980;136:359-365.

38. Walsh B, Gladis M, Roose S, et al. Phenelzine versus placebo in 50 patients with bulimia. Arch Gen Psychiatry 1988;45:471-475.

39. White K, Simpson G. The combined use of MAOIs and tricyclics. J Clin Psychiatry 1984;45(7):67-69.

40. Zisook S. A clinical overview of monoamine oxidase inhibitors. Psychosomatics 1985;26:240-251.

READ THIS FOR SAFE AND EFFECTIVE USE OF YOUR MEDICINE

PATIENT MEDICATION INFORMATION

[Pr]Nardil
Phenelzine Sulfate Tablets USP

Read this carefully before you start taking **Nardil** and each time you get a refill. This leaflet is a summary and will not tell you everything about this drug. Talk to your healthcare professional about your medical condition and treatment and ask if there is any new information about **Nardil**.

What is Nardil used for?

Nardil is used to treat depression where anxiety or fear is the main symptom and treatment with other drugs has failed. Symptoms of depression include:

- feeling sad, restless, irritable, tired
- change in appetite or weight, difficulty concentrating or sleeping, headaches, unexplained aches and pains

How does Nardil work?

Nardil belongs to a group of antidepressant medicines called monoamine oxidase inhibitors (MAOIs). Nardil works by increasing some chemical messengers (norepinephrine, serotonin and dopamine) found naturally in your brain and other parts of your body.

What are the ingredients in Nardil?

Medicinal ingredients: phenelzine sulfate.
Non-medicinal ingredients: croscarmellose sodium, editate disodium, magnesium stearate, mannitol, opadry orange, povidone.

Nardil comes in the following dosage forms:

15mg tablets.

Do not use Nardil if you:

- are allergic to any of the ingredients in Nardil (please read "What are the ingredients in Nardil?" above)
- have been diagnosed with a growth on the adrenal glands near your kidneys which is causing high blood pressure (phaeochromocytoma)
- have been diagnosed with congestive heart failure
- have or ever have had liver problems
- are taking drugs that affect your nervous system (e.g. amphetamines, cocaine, methylphenidate, dopamine, epinephrine and norepinephrine, methyldopa, L-dopa, L-tryptophan, L-tyrosine and phenylalanine)
- are taking dextromethorphan, guanethidine, reserpine or narcotics.
- consume alcohol. You must **not** drink alcohol while taking Nardil.
- are taking strong pain killers such as meperidine
- are taking or have recently taken other antidepressant drugs (amitriptyline, amitriptyline and amoxapine, carbamazepine, clomipramine, cyclobenzaprine, desipramine, doxepin, imipramine, maprotiline, nortriptyline,

protriptyline, trimipramine, buproprion hydrochloride), other MAOIs, Selective Serotonin Reuptake Inhibitors (SSRI e.g. fluoxetine), venlafaxine or dibenzazepine derivatives.

You should wait for at least 5 weeks between stopping the use of fluoxetine and starting the use of NARDIL, and at least 10 days between stopping the use of Nardil and starting the use of fluoxetine or other serotonin re-uptake inhibitors (SSRIs).

- are taking or have recently taken a medication to treat anxiety, such as buspirone hydrochloride

You should wait for at least 10 days between stopping the use of Nardil and starting the use of another antidepressant or buspirone hydrochloride or stopping the use of another MAOI and starting the use of Nardil.

- have a scheduled surgery

You should stop taking Nardil at least 10 days before the scheduled surgery.

While taking Nardil you should not eat a lot of high protein food that has been aged, fermented, pickled, or smoked; for a detailed list of foods and beverages to avoid, see: "**Other warnings you should know about".**

To help avoid side effects and ensure proper use, talk to your healthcare professional before you take Nardil. Talk about any health conditions or problems you may have, including if you:

- have had seizures or you have epilepsy
- are agitated
- have mania or hypomania (feelings of euphoria, overactive behaviour and thoughts)
- have Schizophrenia
- have diabetes
- are taking sedatives or drugs to help you sleep
- are taking drugs to treat high blood pressure
- are under 16 years of age
- are pregnant or planning to become pregnant. Nardil is not recommended to be used during pregnancy.
- are breast-feeding or planning to breastfeed

Other warnings you should know about:
Dangerous Increase in Blood Pressure

The most serious reactions to Nardil involve changes in blood pressure which have caused death. Seek immediate medical attention if you experience the following symptoms: headache at the base of your skull that may travel to the front of your head, irregular heartbeat, neck stiffness or soreness, nausea, vomiting, sweating (sometimes with fever and sometimes with cold, clammy skin), very large pupils, and extreme sensitivity to light. You may feel your heart beating either very fast or abnormally slow and you might also feel pain and tightness in your chest.
Your blood pressure should be checked regularly by your healthcare professional and Nardil should be stopped if you start getting heart palpitations or frequent headaches.

Angle-Closure Glaucoma

Nardil can cause an acute attack of glaucoma (increased pressure in the eye). Seek immediate medical attention if you experience eye pain, changes in vision, swelling or redness in or around the eye.

Changes in your behaviour and feelings, thoughts and actions about suicide:
Treatment with these types of medications is most safe and effective when you and your healthcare professional have good communication about how you are feeling. You may find it helpful to tell a relative or close friend that you are depressed or have anxiety disorder. You might ask them to tell you if they think your depression or anxiety is getting worse, or if they are worried about changes in your behaviour.

Some patients may feel worse instead of better when first starting drugs like Nardil or when changing the dose. You may feel more anxious, agitated, hostile, aggressive, impulsive, and feel like you are not yourself or become less inhibited. You may have thoughts of suicide, hurting yourself or other people. Thoughts and actions about suicide can occur especially if you have had thoughts of hurting yourself in the past. These changes in behaviour and feelings can happen in patients of any age treated with Nardil. **If this happens, seek immediate medical help.** Do NOT stop taking Nardil on your own.

Driving and Using Machines
Nardil might cause drowsiness or blurred vision. Do not drive or operate with machines until you know how Nardil affects you.

Food and Beverages to Avoid While Taking Nardil
While taking Nardil, as well as for two weeks after stopping it, you should avoid the following foods, beverages:

- MEAT AND FISH: Pickled herring, liver, dry sausage (including Genoa salami, hard salami, pepperoni and Lebanon bologna)
- VEGETABLES: Broad bean pods (Fava beans) and sauerkraut
- DAIRY PRODUCTS: Cheese, yogurt (cottage cheese and cream cheese are allowed)
- BEVERAGES: Beer and wine, alcohol-free and reduced-alcohol beer and wine products
- MISCELLANEOUS: Yeast extract (including brewer's yeast in large amounts), meat extract, large amounts of chocolate or caffeine

You should also avoid any spoiled or improperly refrigerated, handled or stored protein-rich foods such as meats, fish and dairy products. You should also avoid any food that has been aged, pickled, fermented, or smoked.

Tell your healthcare professional about all the medicines you take, including any drugs, vitamins, minerals, natural supplements or alternative medicines.

The following may interact with Nardil:

- Medications used to treat high blood pressure, including water-pills (diuretics) and beta-blockers
- Medications to treat colds and coughs
- Nasal decongestants (tablets, drops or spray)
- Hay-fever medications
- Sinus medications
- Asthma inhalers

- Medicines used to reduce your appetite
- Weight loss medications

For a list of other drugs that must not be taken with Nardil see the "Do not use Nardil if you:" section above.

How to take Nardil:
Always take Nardil exactly as your healthcare professional told you. You should check with your healthcare professional if you are not sure.-Do not change your dose unless your healthcare professional tells you to.
Swallow the tablets with some water.

Usual adult dose
The usual starting dose of Nardil is one tablet (15mg) three times a day.
It may take four weeks before you feel the full effect of Nardil.
If your symptoms have not improved after two weeks, your healthcare professional may increase the dose to two tablets two times a day. If necessary, your healthcare professional may increase the dose up to two tablets three times daily. Once Nardil is helping your depression, your healthcare professional may slowly lower the dose. Your maintenance dose may be as low as one tablet every other day.

Overdose

If you think you have taken too much Nardil, contact your healthcare professional, hospital emergency department or regional Poison Control Centre immediately, even if there are no symptoms. Take this leaflet and the pack of tablets along with you, if you can.

Missed Dose
If you miss a dose of Nardil, take your next dose at the usual time and continue taking the tablets according to your healthcare professional's instructions. Do not take a double dose to make up for a forgotten individual dose.

If you stop taking Nardil
Do not stop taking Nardil unless your healthcare professional tells you to. Stopping Nardil can cause nausea, and vomiting and make you feel unwell. If Nardil is stopped suddenly this can cause serious side effects.This may happen one to three days after stopping Nardil and symptoms may include: nightmares, agitation, psychosis (seeing or hearing things that are not there, or believing things which are not true) and fits.
If this happens, tell your healthcare professional immediately.

What are possible side effects from using Nardil?

These are not all the possible side effects you may feel when taking Nardil. If you experience any side effects not listed here, contact your healthcare professional.

Side effects may include:

- Dizziness

- Headache
- Drowsiness
- Sleep disturbances
- Weakness and feeling tired
- Shaking, twitching, muscle jerking, stronger than normal reflexes
- Constipation, dry mouth, digestion problems
- Weight gain
- Swelling
- Sexual problems such as difficulty to reach orgasm, problems ejaculating and trouble getting or keeping an erection
- Speech changes (repeating the last word of a sentence)
- Feeling tense and nervous, intense feelings of well-being, elation, happiness, excitement and joy (euphoria)
- Involuntary, rapid and repetitive movement of the eyes
- Tingling or pricking feeling
- Itchiness, skin rash, sweating, blurred vision.
- Uncontrolled body movements.
- Fever with tight muscle.

Nardil can cause abnormal blood test results. Your doctor will decide when to perform blood tests and will interpret the results.

Serious side effects and what to do about them				
Symptom / effect		Talk to your healthcare professional		Stop taking drug and get immediate medical help
		Only if severe	In all cases	
Common	**Low Blood Pressure (**dizziness, fainting, lightheadedness. May occur when you go from lying or sitting to standing up.)	✓		
Uncommon	**Urinary retention** (Inability to urinate)			✓
	Glaucoma (increased pressure in your eyes, eye pain)			✓
	High levels of sodium in the	✓		

	blood (thirst)			
Rare	**Shock-like coma** (Loss of consciousness)			✓
	Changes in behaviour and feelings, thoughts and actions about suicide: feeling angry, aggressive, worried, agitated, hostile or impulsive. Feeling violent or suicidal. Thoughts of hurting yourself or other people. Feeling like you are not yourself or that you are less inhibited.			✓
	Serious psychological problems (Disorientation, seeing or hearing things which are not there, delusions and incoherent speech)			✓
	Mania reaction (feelings of extreme and intense happiness, irritability, aggression, increased confidence and self-esteem, reduced need for sleep, increased talkativeness and talking very fast, racing thoughts)		✓	
	Convulsions (Seizures or uncontrollable body shaking)			✓

	Transient respiratory and cardiovascular depression following ECT (Temporary heart and lung problems following electroshock therapy –ECT)			✓
	Liver problems including liver failure (Yellowing of the skin or eyes, dark urine, abdominal pain, nausea, vomiting, loss of appetite, disorientation or confusion, sleepiness)			✓
	Decreased White Blood Cells (infections, fatigue, fever, aches, pains, and flu-like symptoms)		✓	
	Lupus-like syndrome (fever, joint pain and swelling, generally feeling unwell, skin rash)		✓	
	Hypermetabolic syndrome (high fever, rapid heart rate and breathing, stiff muscles, loss of consciousness)			✓
	Edema of the glottis (Swollen top of the wind pipe) (noisy breathing or high pitched sound			✓

	when breathing, hoarseness, shortness of breath, trouble breathing)			
	Dangerous increase in blood pressure (headache at the base of your skull that may travel to the front of your head, irregular heartbeat, neck stiffness or soreness, nausea, vomiting, sweating (sometimes with fever and sometimes with cold, clammy skin), very large pupils, extreme sensitivity to light, pain and tightness in your chest)			✓

If you have a troublesome symptom or side effect that is not listed here or becomes bad enough to interfere with your daily activities, talk to your healthcare professional.

Reporting Side Effects
You can help improve the safe use of health products for Canadians by reporting serious and unexpected side effects to Health Canada. Your report may help to identify new side effects and change the product safety information.
3 ways to report:
- Online at MedEffect (www.hc-gc.ca/medeffect);
- By calling 1-866-234-2345 (toll-free);
- By completing a Consumer Side Effect Reporting Form and sending it by:
  - Fax to 1-866-678-6789 (toll-free), or
  - Mail to: Canada Vigilance Program
    Health Canada, Postal Locator 0701E
    Ottawa, ON
    K1A 0K9

  Postage paid labels and the Consumer Side Effect Reporting Form are available at MedEffect.

NOTE: Contact your healthcare professional if you need information about how to manage your side effects. The Canada Vigilance Program does not provide medical advice.

Storage:
Store at controlled room temperature 15 - 30°C. Protect from heat and moisture.

Keep out of reach and sight of children.

If you want more information about Nardil:

- Talk to your healthcare professional
- Find the full product monograph that is prepared for healthcare professionals and includes this Patient Medication Information by visiting the Health Canada website (www.hc-sc.gc.ca); the manufacturer's website www.searchlightpharma.ca , or by calling 1-647-945-9762.

This leaflet was prepared by Searchlight Pharma Inc.

Last Revised OCT 4, 2022