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April 14, 2003

**OVERNIGHT DOCUMENT 4/14/03**

Dockets Management Branch (HFA-305)  
Food and Drug Administration  
Department of Health and Human Services  
5630 Fishers Lane, Rm. 1061  
Rockville, MD 20852

**CITIZEN PETITION**

The undersigned, on behalf of a client, submits this petition in quadruplicate under section 505(j)(2)(C) of the Federal Food, Drug and Cosmetic Act, 21 U.S.C. §355 (j)(2)(C) and 21 CFR §10.20 and §10.30, and 21 CFR §314.93, to request the Commissioner of Food and Drug Administration to make a determination that an abbreviated new drug application (ANDA) may be submitted for Venlafaxine Hydrochloride Extended-Release Tablets, 37.5 mg (base), 75 mg (base), and 150 mg (base).

**A. Action Requested**

The petitioner requests that the Commissioner of Food and Drug Administration declare that Venlafaxine Hydrochloride Extended-Release Tablets, 37.5 mg (base), 75 mg (base), and 150 mg (base) are suitable for submission as an ANDA. The reference listed drug product upon which this petition is based is Effexor® XR (Venlafaxine Hydrochloride) Extended-Release Capsules 37.5 mg (base), 75 mg (base) and 150 mg (base) manufactured by Wyeth-Ayerst Laboratories. Therefore, this petition requests a change in dosage form from capsules to tablets from that of the listed drug.

**B. Statement of Grounds**

Section 505(j)(2)(C) of the Federal Food, Drug and Cosmetic Act provides for submission of an ANDA for a new drug that differs in dosage form from a listed drug, provided that the FDA has approved a petition seeking permission to file such an application. This petition seeks a change in dosage form in an effort to make an alternate dosage form from a capsule to a tablet dosage form.

The tablet dosage form will provide an alternative for those individuals that either have difficulty in swallowing a capsule or who prefer a tablet dosage form.

The proposed drug product will differ only in dosage form. The indications, strengths, and route of administration are the same as those included in approved labeling of the listed drug. Therefore, the proposed change in dosage form (from a capsule to a tablet) will not raise questions of the safety or efficacy of the proposed products. The indication remains unchanged and the proposed labeling will be the same as that of the approved labeling of the listed drug

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except for the dosage form, inactive ingredients and marketer of the product. Thus, the Agency should conclude that clinical investigations are not necessary to demonstrate the proposed product's safety or effectiveness.

The approved labeling for the listed drug, Wyeth-Ayerst's Effexor® XR Capsules, is provided in Attachment A. The proposed package insert for Venlafaxine Hydrochloride Extended-Release Tablets is provided in Attachment B.

**C. Environmental Impact**

The petitioner claims a categorical exclusion under 21 CFR §25.31.

**D. Economic Impact**

According to 21 CFR § 10.30(b), the petitioner will, upon request by the Commissioner, submit economic impact information.

**E. Certification**

The undersigned certifies that to the best of its knowledge, this petition includes all information and views on which the petition relies, and that it includes representative data and information known to the petitioner, which are unfavorable to the petition.

Respectfully submitted,



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RWP/pk

Attachments:

- A. Insert labeling for Effexor XR Capsules
- B. Draft insert labeling for the proposed drug product

cc: G. Davis, FDA  
M. Shimer, FDA

R03P3104

**ATTACHMENT A**



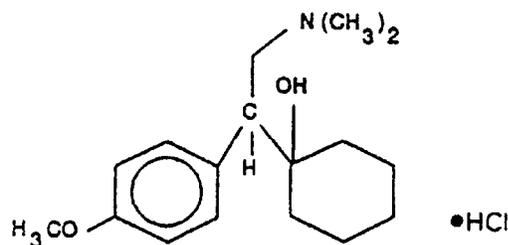
## Effexor<sup>®</sup> XR

(venlafaxine hydrochloride)  
Extended-Release Capsules

R<sub>x</sub> only

### DESCRIPTION

Effexor XR is an extended-release capsule for oral administration that contains venlafaxine hydrochloride, a structurally novel antidepressant. It is designated (R/S)-1-[2-(dimethylamino)-1-(4-methoxyphenyl)ethyl] cyclohexanol hydrochloride or (±)-1-[α-[(dimethylamino)methyl]-p-methoxybenzyl] cyclohexanol hydrochloride and has the empirical formula of C<sub>17</sub>H<sub>27</sub>NO<sub>2</sub> hydrochloride. Its molecular weight is 313.87. The structural formula is shown below.



venlafaxine hydrochloride

Venlafaxine hydrochloride is a white to off-white crystalline solid with a solubility of 572 mg/mL in water (adjusted to ionic strength of 0.2 M with sodium chloride). Its octanol:water (0.2 M sodium chloride) partition coefficient is 0.43.

Effexor XR is formulated as an extended-release capsule for once-a-day oral administration. Drug release is controlled by diffusion through the coating membrane on the spheroids and is not pH dependent. Capsules contain venlafaxine hydrochloride equivalent to 37.5 mg, 75 mg, or 150 mg venlafaxine. Inactive ingredients consist of cellulose, ethylcellulose, gelatin, hypromellose, iron oxide, and titanium dioxide. The 37.5 mg capsule also contains D&C Red #28, D&C Yellow #10, and FD&C Blue #1.

### CLINICAL PHARMACOLOGY

#### Pharmacodynamics

The mechanism of the antidepressant action of venlafaxine in humans is believed to be associated with its potentiation of neurotransmitter activity in the CNS. Preclinical studies have shown that venlafaxine and its active metabolite, O-desmethylvenlafaxine (ODV), are potent inhibitors of neuronal serotonin and norepinephrine reuptake and weak inhibitors of dopamine reuptake. Venlafaxine and ODV have no significant affinity for muscarinic cholinergic,

H<sub>1</sub>-histaminergic, or  $\alpha_1$ -adrenergic receptors in vitro. Pharmacologic activity at these receptors is hypothesized to be associated with the various anticholinergic, sedative, and cardiovascular effects seen with other psychotropic drugs. Venlafaxine and ODV do not possess monoamine oxidase (MAO) inhibitory activity.

### **Pharmacokinetics**

Steady-state concentrations of venlafaxine and ODV in plasma are attained within 3 days of oral multiple dose therapy. Venlafaxine and ODV exhibited linear kinetics over the dose range of 75 to 450 mg/day. Mean $\pm$ SD steady-state plasma clearance of venlafaxine and ODV is 1.3 $\pm$ 0.6 and 0.4 $\pm$ 0.2 L/h/kg, respectively; apparent elimination half-life is 5 $\pm$ 2 and 11 $\pm$ 2 hours, respectively; and apparent (steady-state) volume of distribution is 7.5 $\pm$ 3.7 and 5.7 $\pm$ 1.8 L/kg, respectively. Venlafaxine and ODV are minimally bound at therapeutic concentrations to plasma proteins (27% and 30%, respectively).

#### *Absorption*

Venlafaxine is well absorbed and extensively metabolized in the liver. O-desmethylvenlafaxine (ODV) is the only major active metabolite. On the basis of mass balance studies, at least 92% of a single oral dose of venlafaxine is absorbed. The absolute bioavailability of venlafaxine is about 45%.

Administration of Effexor XR (150 mg q24 hours) generally resulted in lower C<sub>max</sub> (150 ng/mL for venlafaxine and 260 ng/mL for ODV) and later T<sub>max</sub> (5.5 hours for venlafaxine and 9 hours for ODV) than for immediate release venlafaxine tablets (C<sub>max</sub>'s for immediate release 75 mg q12 hours were 225 ng/mL for venlafaxine and 290 ng/mL for ODV; T<sub>max</sub>'s were 2 hours for venlafaxine and 3 hours for ODV). When equal daily doses of venlafaxine were administered as either an immediate release tablet or the extended-release capsule, the exposure to both venlafaxine and ODV was similar for the two treatments, and the fluctuation in plasma concentrations was slightly lower with the Effexor XR capsule. Effexor XR, therefore, provides a slower rate of absorption, but the same extent of absorption compared with the immediate release tablet.

Food did not affect the bioavailability of venlafaxine or its active metabolite, ODV. Time of administration (AM vs PM) did not affect the pharmacokinetics of venlafaxine and ODV from the 75 mg Effexor XR capsule.

#### *Metabolism and Excretion*

Following absorption, venlafaxine undergoes extensive presystemic metabolism in the liver, primarily to ODV, but also to N-desmethylvenlafaxine, N,O-didesmethylvenlafaxine, and other minor metabolites. In vitro studies indicate that the formation of ODV is catalyzed by CYP2D6; this has been confirmed in a clinical study showing that patients with low CYP2D6 levels ("poor metabolizers") had increased levels of venlafaxine and reduced levels of ODV compared to people with normal CYP2D6 ("extensive metabolizers"). The differences between the CYP2D6 poor and extensive metabolizers, however, are not expected to be clinically important because the sum of venlafaxine and ODV is similar in the two groups and venlafaxine and ODV are pharmacologically approximately equiactive and equipotent.

Approximately 87% of a venlafaxine dose is recovered in the urine within 48 hours as unchanged venlafaxine (5%), unconjugated ODV (29%), conjugated ODV (26%), or other minor inactive metabolites (27%). Renal elimination of venlafaxine and its metabolites is thus the primary route of excretion.

#### *Special Populations*

**Age and Gender:** A population pharmacokinetic analysis of 404 venlafaxine-treated patients from two studies involving both b.i.d. and t.i.d. regimens showed that dose-normalized trough plasma levels of either venlafaxine or ODV were unaltered by age or gender differences. Dosage adjustment based on the age or gender of a patient is generally not necessary (see **DOSAGE AND ADMINISTRATION**).

**Extensive/Poor Metabolizers:** Plasma concentrations of venlafaxine were higher in CYP2D6 poor metabolizers than extensive metabolizers. Because the total exposure (AUC) of venlafaxine and ODV was similar in poor and extensive metabolizer groups, however, there is no need for different venlafaxine dosing regimens for these two groups.

**Liver Disease:** In 9 patients with hepatic cirrhosis, the pharmacokinetic disposition of both venlafaxine and ODV was significantly altered after oral administration of venlafaxine. Venlafaxine elimination half-life was prolonged by about 30%, and clearance decreased by about 50% in cirrhotic patients compared to normal subjects. ODV elimination half-life was prolonged by about 60%, and clearance decreased by about 30% in cirrhotic patients compared to normal subjects. A large degree of intersubject variability was noted. Three patients with more severe cirrhosis had a more substantial decrease in venlafaxine clearance (about 90%) compared to normal subjects. Dosage adjustment is necessary in these patients (see **DOSAGE AND ADMINISTRATION**).

**Renal Disease:** In a renal impairment study, venlafaxine elimination half-life after oral administration was prolonged by about 50% and clearance was reduced by about 24% in renally impaired patients (GFR=10 to 70 mL/min), compared to normal subjects. In dialysis patients, venlafaxine elimination half-life was prolonged by about 180% and clearance was reduced by about 57% compared to normal subjects. Similarly, ODV elimination half-life was prolonged by about 40% although clearance was unchanged in patients with renal impairment (GFR=10 to 70 mL/min) compared to normal subjects. In dialysis patients, ODV elimination half-life was prolonged by about 142% and clearance was reduced by about 56% compared to normal subjects. A large degree of intersubject variability was noted. Dosage adjustment is necessary in these patients (see **DOSAGE AND ADMINISTRATION**).

#### **Clinical Trials**

##### *Major Depressive Disorder*

The efficacy of Effexor XR (venlafaxine hydrochloride) extended-release capsules as a treatment for major depressive disorder was established in two placebo-controlled, short-term, flexible-dose studies in adult outpatients meeting DSM-III-R or DSM-IV criteria for major depressive disorder.

A 12-week study utilizing Effexor XR doses in a range 75 to 150 mg/day (mean dose for completers was 136 mg/day) and an 8-week study utilizing Effexor XR doses in a range 75 to 225 mg/day (mean dose for completers was 177 mg/day) both demonstrated superiority of Effexor XR over placebo on the HAM-D total score, HAM-D Depressed Mood Item, the MADRS total score, the Clinical Global Impressions (CGI) Severity of Illness item, and the CGI Global Improvement item. In both studies, Effexor XR was also significantly better than placebo for certain factors of the HAM-D, including the anxiety/somatization factor, the cognitive disturbance factor, and the retardation factor, as well as for the psychic anxiety score.

A 4-week study of inpatients meeting DSM-III-R criteria for major depressive disorder with melancholia utilizing Effexor (the immediate release form of venlafaxine) in a range of 150 to 375 mg/day (t.i.d. schedule) demonstrated superiority of Effexor over placebo. The mean dose in completers was 350 mg/day.

Examination of gender subsets of the population studied did not reveal any differential responsiveness on the basis of gender.

In one longer-term study, outpatients meeting DSM-IV criteria for major depressive disorder who had responded during an 8-week open trial on Effexor XR (75, 150, or 225 mg, qAM) were randomized to continuation of their same Effexor XR dose or to placebo, for up to 26 weeks of observation for relapse. Response during the open phase was defined as a CGI Severity of Illness item score of  $\leq 3$  and a HAM-D-21 total score of  $\leq 10$  at the day 56 evaluation. Relapse during the double-blind phase was defined as follows: (1) a reappearance of major depressive disorder as defined by DSM-IV criteria and a CGI Severity of Illness item score of  $\geq 4$  (moderately ill), (2) 2 consecutive CGI Severity of Illness item scores of  $\geq 4$ , or (3) a final CGI Severity of Illness item score of  $\geq 4$  for any patient who withdrew from the study for any reason. Patients receiving continued Effexor XR treatment experienced significantly lower relapse rates over the subsequent 26 weeks compared with those receiving placebo.

In a second longer-term trial, outpatients meeting DSM-III-R criteria for major depressive disorder, recurrent type, who had responded (HAM-D-21 total score  $\leq 12$  at the day 56 evaluation) and continued to be improved [defined as the following criteria being met for days 56 through 180: (1) no HAM-D-21 total score  $\geq 20$ ; (2) no more than 2 HAM-D-21 total scores  $> 10$ , and (3) no single CGI Severity of Illness item score  $\geq 4$  (moderately ill)] during an initial 26 weeks of treatment on Effexor (100 to 200 mg/day, on a b.i.d. schedule) were randomized to continuation of their same Effexor dose or to placebo. The follow-up period to observe patients for relapse, defined as a CGI Severity of Illness item score  $\geq 4$ , was for up to 52 weeks. Patients receiving continued Effexor treatment experienced significantly lower relapse rates over the subsequent 52 weeks compared with those receiving placebo.

#### *Generalized Anxiety Disorder*

The efficacy of Effexor XR capsules as a treatment for Generalized Anxiety Disorder (GAD) was established in two 8-week, placebo-controlled, fixed-dose studies, one 6-month, placebo-controlled, fixed-dose study, and one 6-month, placebo-controlled, flexible-dose study in outpatients meeting DSM-IV criteria for GAD.

One 8-week study evaluating Effexor XR doses of 75, 150, and 225 mg/day, and placebo showed that the 225 mg/day dose was more effective than placebo on the Hamilton Rating Scale for Anxiety (HAM-A) total score, both the HAM-A anxiety and tension items, and the Clinical Global Impressions (CGI) scale. While there was also evidence for superiority over placebo for the 75 and 150 mg/day doses, these doses were not as consistently effective as the highest dose. A second 8-week study evaluating Effexor XR doses of 75 and 150 mg/day and placebo showed that both doses were more effective than placebo on some of these same outcomes; however, the 75 mg/day dose was more consistently effective than the 150 mg/day dose. A dose-response relationship for effectiveness in GAD was not clearly established in the 75 to 225 mg/day dose range utilized in these two studies.

Two 6-month studies, one evaluating Effexor XR doses of 37.5, 75, and 150 mg/day and the other evaluating Effexor XR doses of 75 to 225 mg/day, showed that daily doses of 75 mg or higher were more effective than placebo on the HAM-A total, both the HAM-A anxiety and tension items, and the CGI scale during 6 months of treatment. While there was also evidence for superiority over placebo for the 37.5 mg/day dose, this dose was not as consistently effective as the higher doses.

Examination of gender subsets of the population studied did not reveal any differential responsiveness on the basis of gender.

#### *Social Anxiety Disorder (Social Phobia)*

The efficacy of Effexor XR capsules as a treatment for Social Anxiety Disorder (also known as Social Phobia) was established in two double-blind, parallel group, 12-week, multicenter, placebo-controlled, flexible-dose studies in adult outpatients meeting DSM-IV criteria for Social Anxiety Disorder. Patients received doses in a range of 75 to 225 mg/day. Efficacy was assessed with the Liebowitz Social Anxiety Scale (LSAS). In these two trials, Effexor XR was significantly more effective than placebo on change from baseline to endpoint on the LSAS total score.

Examination of subsets of the population studied did not reveal any differential responsiveness on the basis of gender. There was insufficient information to determine the effect of age or race on outcome in these studies.

## **INDICATIONS AND USAGE**

### **Major Depressive Disorder**

Effexor XR (venlafaxine hydrochloride) extended-release capsules is indicated for the treatment of major depressive disorder.

The efficacy of Effexor XR in the treatment of major depressive disorder was established in 8- and 12-week controlled trials of outpatients whose diagnoses corresponded most closely to the DSM-III-R or DSM-IV category of major depressive disorder (see **Clinical Trials**).

A major depressive episode (DSM-IV) implies a prominent and relatively persistent (nearly every day for at least 2 weeks) depressed mood or the loss of interest or pleasure in nearly all activities, representing a change from previous functioning, and includes the presence of at least five of the following nine symptoms during the same two-week period: depressed mood, markedly diminished interest or pleasure in usual activities, significant change in weight and/or appetite, insomnia or hypersomnia, psychomotor agitation or retardation, increased fatigue, feelings of guilt or worthlessness, slowed thinking or impaired concentration, a suicide attempt or suicidal ideation.

The efficacy of Effexor (the immediate release form of venlafaxine) in the treatment of major depressive disorder in inpatients meeting diagnostic criteria for major depressive disorder with melancholia was established in a 4-week controlled trial (see **Clinical Trials**). The safety and efficacy of Effexor XR in hospitalized depressed patients have not been adequately studied.

The efficacy of Effexor XR in maintaining a response in major depressive disorder for up to 26 weeks following 8 weeks of acute treatment was demonstrated in a placebo-controlled trial. The efficacy of Effexor in maintaining a response in patients with recurrent major depressive disorder who had responded and continued to be improved during an initial 26 weeks of treatment and were then followed for a period of up to 52 weeks was demonstrated in a second placebo-controlled trial (see **Clinical Trials**). Nevertheless, the physician who elects to use Effexor/Effexor XR for extended periods should periodically re-evaluate the long-term usefulness of the drug for the individual patient (see **DOSAGE AND ADMINISTRATION**).

#### **Generalized Anxiety Disorder**

Effexor XR is indicated for the treatment of Generalized Anxiety Disorder (GAD) as defined in DSM-IV. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic.

The efficacy of Effexor XR in the treatment of GAD was established in 8-week and 6-month placebo-controlled trials in outpatients diagnosed with GAD according to DSM-IV criteria (see **Clinical Trials**).

Generalized Anxiety Disorder (DSM-IV) is characterized by excessive anxiety and worry (apprehensive expectation) that is persistent for at least 6 months and which the person finds difficult to control. It must be associated with at least 3 of the following 6 symptoms: restlessness or feeling keyed up or on edge, being easily fatigued, difficulty concentrating or mind going blank, irritability, muscle tension, sleep disturbance.

Although the effectiveness of Effexor XR has been demonstrated in 6-month clinical trials in patients with GAD, the physician who elects to use Effexor XR for extended periods should periodically re-evaluate the long-term usefulness of the drug for the individual patient (see **DOSAGE AND ADMINISTRATION**).

### **Social Anxiety Disorder**

Effexor XR is indicated for the treatment of Social Anxiety Disorder, also known as Social Phobia, as defined in DSM-IV (300.23).

Social Anxiety Disorder (DSM-IV) is characterized by a marked and persistent fear of 1 or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. Exposure to the feared situation almost invariably provokes anxiety, which may approach the intensity of a panic attack. The feared situations are avoided or endured with intense anxiety or distress. The avoidance, anxious anticipation, or distress in the feared situation(s) interferes significantly with the person's normal routine, occupational or academic functioning, or social activities or relationships, or there is a marked distress about having the phobias. Lesser degrees of performance anxiety or shyness generally do not require psychopharmacological treatment.

The efficacy of Effexor XR in the treatment of Social Anxiety Disorder was established in two 12-week placebo-controlled trials in adult outpatients with Social Anxiety Disorder (DSM-IV). Effexor XR has not been studied in children or adolescents with Social Anxiety Disorder (see **Clinical Trials**).

The effectiveness of Effexor XR in the long-term treatment of Social Anxiety Disorder, ie, for more than 12 weeks, has not been systematically evaluated in adequate and well-controlled trials. Therefore, the physician who elects to use Effexor XR for extended periods should periodically re-evaluate the long-term usefulness of the drug for the individual patient (see **DOSAGE AND ADMINISTRATION**).

### **CONTRAINDICATIONS**

Hypersensitivity to venlafaxine hydrochloride or to any excipients in the formulation.

Concomitant use in patients taking monoamine oxidase inhibitors (MAOIs) is contraindicated (see **WARNINGS**).

### **WARNINGS**

#### **Potential for Interaction with Monoamine Oxidase Inhibitors**

Adverse reactions, some of which were serious, have been reported in patients who have recently been discontinued from a monoamine oxidase inhibitor (MAOI) and started on venlafaxine, or who have recently had venlafaxine therapy discontinued prior to initiation of an MAOI. These reactions have included tremor, myoclonus, diaphoresis, nausea, vomiting, flushing, dizziness, hyperthermia with features resembling neuroleptic malignant syndrome, seizures, and death. In patients receiving antidepressants with pharmacological properties similar to venlafaxine in combination with an MAOI, there have also been reports of serious, sometimes fatal, reactions. For a selective serotonin reuptake inhibitor, these reactions have included hyperthermia, rigidity, myoclonus, autonomic instability with possible rapid fluctuations of vital signs, and mental status changes that include extreme agitation progressing to delirium and coma. Some cases presented with features resembling neuroleptic malignant syndrome. Severe hyperthermia and seizures, sometimes fatal, have been reported in association with the combined use of tricyclic antidepressants and MAOIs. These reactions have also been reported in patients who have recently

discontinued these drugs and have been started on an MAOI. The effects of combined use of venlafaxine and MAOIs have not been evaluated in humans or animals. Therefore, because venlafaxine is an inhibitor of both norepinephrine and serotonin reuptake, it is recommended that Effexor XR (venlafaxine hydrochloride) extended-release capsules not be used in combination with an MAOI, or within at least 14 days of discontinuing treatment with an MAOI. Based on the half-life of venlafaxine, at least 7 days should be allowed after stopping venlafaxine before starting an MAOI.

### **Sustained Hypertension**

Venlafaxine treatment is associated with sustained increases in blood pressure in some patients. Among patients treated with 75 to 375 mg/day of Effexor XR in premarketing studies in patients with major depressive disorder, 3% (19/705) experienced sustained hypertension [defined as treatment-emergent supine diastolic blood pressure (SDBP)  $\geq$  90 mm Hg and  $\geq$  10 mm Hg above baseline for 3 consecutive on-therapy visits]. Among patients treated with 37.5 to 225 mg/day of Effexor XR in premarketing GAD studies, 0.5% (5/1011) experienced sustained hypertension. Among patients treated with 75 to 225 mg/day of Effexor XR in premarketing Social Anxiety Disorder studies, 1.4% (4/277) experienced sustained hypertension. Experience with the immediate-release venlafaxine showed that sustained hypertension was dose-related, increasing from 3% to 7% at 100 to 300 mg/day to 13% at doses above 300 mg/day. An insufficient number of patients received mean doses of Effexor XR over 300 mg/day to fully evaluate the incidence of sustained increases in blood pressure at these higher doses.

In placebo-controlled premarketing studies in patients with major depressive disorder with Effexor XR 75 to 225 mg/day, a final on-drug mean increase in supine diastolic blood pressure (SDBP) of 1.2 mm Hg was observed for Effexor XR-treated patients compared with a mean decrease of 0.2 mm Hg for placebo-treated patients. In placebo-controlled premarketing GAD studies with Effexor XR 37.5 to 225 mg/day, up to 8 weeks or up to 6 months, a final on-drug mean increase in SDBP of 0.3 mm Hg was observed for Effexor XR-treated patients compared with a mean decrease of 0.9 and 0.8 mm Hg, respectively, for placebo-treated patients.

In placebo-controlled premarketing Social Anxiety Disorder studies with Effexor XR 75 to 225 mg/day up to 12 weeks, a final on-drug mean increase in SDBP of 1.6 mm Hg was observed for Effexor XR-treated patients compared with a mean decrease of 1.1 mm Hg for placebo-treated patients.

In premarketing major depressive disorder studies, 0.7% (5/705) of the Effexor XR-treated patients discontinued treatment because of elevated blood pressure. Among these patients, most of the blood pressure increases were in a modest range (12 to 16 mm Hg, SDBP). In premarketing GAD studies up to 8 weeks and up to 6 months, 0.7% (10/1381) and 1.3% (7/535) of the Effexor XR-treated patients, respectively, discontinued treatment because of elevated blood pressure. Among these patients, most of the blood pressure increases were in a modest range (12 to 25 mm Hg, SDBP up to 8 weeks; 8 to 28 mm Hg up to 6 months). In premarketing Social Anxiety Disorder studies up to 12 weeks, 0.4% (1/277) of the Effexor XR-treated patients discontinued treatment because of elevated blood pressure. In this patient, the blood pressure increase was modest (13 mm Hg, SDBP).

Sustained increases of SDBP could have adverse consequences. Therefore, it is recommended that patients receiving Effexor XR have regular monitoring of blood pressure. For patients who experience a sustained increase in blood pressure while receiving venlafaxine, either dose reduction or discontinuation should be considered.

## PRECAUTIONS

### General

#### *Insomnia and Nervousness*

Treatment-emergent insomnia and nervousness were more commonly reported for patients treated with Effexor XR (venlafaxine hydrochloride) extended-release capsules than with placebo in pooled analyses of short-term major depressive disorder, GAD, and Social Anxiety Disorder studies, as shown in Table 1.

Table 1  
Incidence of Insomnia and Nervousness in Placebo-Controlled Major Depressive Disorder, GAD, and Social Anxiety Disorder Trials

Symptom	Major Depressive Disorder		GAD		Social Anxiety Disorder	
	Effexor XR n = 357	Placebo n = 285	Effexor XR n = 1381	Placebo n = 555	Effexor XR n = 277	Placebo n = 274
Insomnia	17%	11%	15%	10%	23%	7%
Nervousness	10%	5%	6%	4%	11%	3%

Insomnia and nervousness each led to drug discontinuation in 0.9% of the patients treated with Effexor XR in major depressive disorder studies.

In GAD trials, insomnia and nervousness led to drug discontinuation in 3% and 2%, respectively, of the patients treated with Effexor XR up to 8 weeks and 2% and 0.7%, respectively, of the patients treated with Effexor XR up to 6 months.

In Social Anxiety Disorder trials, insomnia and nervousness led to drug discontinuation in 3% and 0%, respectively, of the patients treated with Effexor XR up to 12 weeks.

#### *Changes in Appetite and Weight*

Treatment-emergent anorexia was more commonly reported for Effexor XR-treated (8%) than placebo-treated patients (4%) in the pool of short-term studies in major depressive disorder. Significant weight loss, especially in underweight depressed patients, may be an undesirable result of Effexor XR treatment. A loss of 5% or more of body weight occurred in 7% of Effexor XR-treated and 2% of placebo-treated patients in placebo-controlled major depressive disorder trials. Discontinuation rates for anorexia and weight loss associated with Effexor XR were low (1.0% and 0.1%, respectively, of Effexor XR-treated patients in major depressive disorder studies).

In the pool of GAD studies, treatment-emergent anorexia was reported in 8% and 2% of patients receiving Effexor XR and placebo up to 8 weeks, respectively. A loss of 7% or more of body weight occurred in 3% of the Effexor XR-treated and 1% of the placebo-treated patients up to 6 months in these trials. Discontinuation rates for anorexia and weight loss were low for patients receiving Effexor XR up to 8 weeks (0.9% and 0.3%, respectively).

In the pool of Social Anxiety Disorder studies, treatment-emergent anorexia was reported in 20% and 2% of patients receiving Effexor XR and placebo up to 12 weeks, respectively. A loss of 7% or more of body weight occurred in none of the Effexor XR-treated or the placebo-treated patients up to 12 weeks in these trials. Discontinuation rates for anorexia and weight loss were low for patients receiving Effexor XR up to 12 weeks (0.4% and 0.0%, respectively).

The safety and efficacy of venlafaxine therapy in combination with weight loss agents, including phentermine, have not been established. Co-administration of Effexor XR and weight loss agents is not recommended. Effexor XR is not indicated for weight loss alone or in combination with other products.

#### *Activation of Mania/Hypomania*

During premarketing major depressive disorder studies, mania or hypomania occurred in 0.3% of Effexor XR-treated patients and 0.0% placebo patients. In premarketing GAD studies, 0.0% of Effexor XR-treated patients and 0.2% of placebo-treated patients experienced mania or hypomania. In premarketing Social Anxiety Disorder studies, no Effexor XR-treated patients and no placebo-treated patients experienced mania or hypomania. In all premarketing major depressive disorder trials with Effexor, mania or hypomania occurred in 0.5% of venlafaxine-treated patients compared with 0% of placebo patients. Mania/hypomania has also been reported in a small proportion of patients with mood disorders who were treated with other marketed drugs to treat major depressive disorder. As with all drugs effective in the treatment of major depressive disorder, Effexor XR should be used cautiously in patients with a history of mania.

#### *Hyponatremia*

Hyponatremia and/or the syndrome of inappropriate antidiuretic hormone secretion (SIADH) may occur with venlafaxine. This should be taken into consideration in patients who are, for example, volume-depleted, elderly, or taking diuretics.

#### *Mydriasis*

Mydriasis has been reported in association with venlafaxine; therefore patients with raised intraocular pressure or those at risk of acute narrow-angle glaucoma should be monitored.

#### *Seizures*

During premarketing experience, no seizures occurred among 705 Effexor XR-treated patients in the major depressive disorder studies, among 1381 Effexor XR-treated patients in GAD studies, or among 277 Effexor XR-treated patients in Social Anxiety Disorder studies. In all premarketing major depressive disorder trials with Effexor, seizures were reported at various doses in 0.3% (8/3082) of venlafaxine-treated patients. Effexor XR, like many antidepressants, should be used cautiously in patients with a history of seizures and should be discontinued in any patient who develops seizures.

### *Abnormal Bleeding*

There have been reports of abnormal bleeding (most commonly ecchymosis) associated with venlafaxine treatment. While a causal relationship to venlafaxine is unclear, impaired platelet aggregation may result from platelet serotonin depletion and contribute to such occurrences.

### *Serum Cholesterol Elevation*

Clinically relevant increases in serum cholesterol were recorded in 5.3% of venlafaxine-treated patients and 0.0% of placebo-treated patients treated for at least 3 months in placebo-controlled trials (see **ADVERSE REACTIONS-Laboratory Changes**). Measurement of serum cholesterol levels should be considered during long-term treatment.

### *Suicide*

The possibility of a suicide attempt is inherent in major depressive disorder and may persist until significant remission occurs. Close supervision of high-risk patients should accompany initial drug therapy. Prescriptions for Effexor XR should be written for the smallest quantity of capsules consistent with good patient management in order to reduce the risk of overdose.

The same precautions observed when treating patients with major depressive disorder should be observed when treating patients with GAD or Social Anxiety Disorder.

### *Use in Patients With Concomitant Illness*

Premarketing experience with venlafaxine in patients with concomitant systemic illness is limited. Caution is advised in administering Effexor XR to patients with diseases or conditions that could affect hemodynamic responses or metabolism.

Venlafaxine has not been evaluated or used to any appreciable extent in patients with a recent history of myocardial infarction or unstable heart disease. Patients with these diagnoses were systematically excluded from many clinical studies during venlafaxine's premarketing testing. The electrocardiograms were analyzed for 275 patients who received Effexor XR and 220 patients who received placebo in 8- to 12-week double-blind, placebo-controlled trials in major depressive disorder, for 610 patients who received Effexor XR and 298 patients who received placebo in 8-week double-blind, placebo-controlled trials in GAD, and for 195 patients who received Effexor XR and 228 patients who received placebo in 12-week double-blind, placebo-controlled trials in Social Anxiety Disorder. The mean change from baseline in corrected QT interval (QTc) for Effexor XR-treated patients in major depressive disorder studies was increased relative to that for placebo-treated patients (increase of 4.7 msec for Effexor XR and decrease of 1.9 msec for placebo). The mean change from baseline in corrected QT interval (QTc) for Effexor XR-treated patients in the GAD studies did not differ significantly from that with placebo. The mean change from baseline in QTc for Effexor XR-treated patients in the Social Anxiety Disorder studies was increased relative to that for placebo-treated patients (increase of 2.8 msec for Effexor XR and decrease of 2.0 msec for placebo).

In these same trials, the mean change from baseline in heart rate for Effexor XR-treated patients in the major depressive disorder studies was significantly higher than that for placebo (a mean increase of 4 beats per minute for Effexor XR and 1 beat per minute for placebo). The mean change from baseline in heart rate for Effexor XR-treated patients in the GAD studies was significantly higher than that for placebo (a mean increase of 3 beats per minute for Effexor XR and no change for placebo). The mean change from baseline in heart rate for Effexor XR-treated patients in the Social Anxiety Disorder studies was significantly higher than that for placebo (a mean increase of 5 beats per minute for Effexor XR and no change for placebo).

In a flexible-dose study, with Effexor doses in the range of 200 to 375 mg/day and mean dose greater than 300 mg/day, Effexor-treated patients had a mean increase in heart rate of 8.5 beats per minute compared with 1.7 beats per minute in the placebo group.

As increases in heart rate were observed, caution should be exercised in patients whose underlying medical conditions might be compromised by increases in heart rate (eg, patients with hyperthyroidism, heart failure, or recent myocardial infarction), particularly when using doses of Effexor above 200 mg/day.

Evaluation of the electrocardiograms for 769 patients who received immediate release Effexor in 4- to 6-week double-blind, placebo-controlled trials showed that the incidence of trial-emergent conduction abnormalities did not differ from that with placebo.

In patients with renal impairment (GFR = 10 to 70 mL/min) or cirrhosis of the liver, the clearances of venlafaxine and its active metabolites were decreased, thus prolonging the elimination half-lives of these substances. A lower dose may be necessary (see **DOSAGE AND ADMINISTRATION**). Effexor XR, like all drugs effective in the treatment of major depressive disorder, should be used with caution in such patients.

### **Information for Patients**

Physicians are advised to discuss the following issues with patients for whom they prescribe Effexor XR (venlafaxine hydrochloride) extended-release capsules:

#### *Interference with Cognitive and Motor Performance*

Clinical studies were performed to examine the effects of venlafaxine on behavioral performance of healthy individuals. The results revealed no clinically significant impairment of psychomotor, cognitive, or complex behavior performance. However, since any psychoactive drug may impair judgment, thinking, or motor skills, patients should be cautioned about operating hazardous machinery, including automobiles, until they are reasonably certain that venlafaxine therapy does not adversely affect their ability to engage in such activities.

#### *Concomitant Medication*

Patients should be advised to inform their physicians if they are taking, or plan to take, any prescription or over-the-counter drugs, including herbal preparations, since there is a potential for interactions.

### *Alcohol*

Although venlafaxine has not been shown to increase the impairment of mental and motor skills caused by alcohol, patients should be advised to avoid alcohol while taking venlafaxine.

### *Allergic Reactions*

Patients should be advised to notify their physician if they develop a rash, hives, or a related allergic phenomenon.

### *Pregnancy*

Patients should be advised to notify their physician if they become pregnant or intend to become pregnant during therapy.

### *Nursing*

Patients should be advised to notify their physician if they are breast-feeding an infant.

### **Laboratory Tests**

There are no specific laboratory tests recommended.

### **Drug Interactions**

As with all drugs, the potential for interaction by a variety of mechanisms is a possibility.

#### *Alcohol*

A single dose of ethanol (0.5 g/kg) had no effect on the pharmacokinetics of venlafaxine or O-desmethylvenlafaxine (ODV) when venlafaxine was administered at 150 mg/day in 15 healthy male subjects. Additionally, administration of venlafaxine in a stable regimen did not exaggerate the psychomotor and psychometric effects induced by ethanol in these same subjects when they were not receiving venlafaxine.

#### *Cimetidine*

Concomitant administration of cimetidine and venlafaxine in a steady-state study for both drugs resulted in inhibition of first-pass metabolism of venlafaxine in 18 healthy subjects. The oral clearance of venlafaxine was reduced by about 43%, and the exposure (AUC) and maximum concentration ( $C_{max}$ ) of the drug were increased by about 60%. However, coadministration of cimetidine had no apparent effect on the pharmacokinetics of ODV, which is present in much greater quantity in the circulation than venlafaxine. The overall pharmacological activity of venlafaxine plus ODV is expected to increase only slightly, and no dosage adjustment should be necessary for most normal adults. However, for patients with pre-existing hypertension, and for elderly patients or patients with hepatic dysfunction, the interaction associated with the concomitant use of venlafaxine and cimetidine is not known and potentially could be more pronounced. Therefore, caution is advised with such patients.

#### *Diazepam*

Under steady-state conditions for venlafaxine administered at 150 mg/day, a single 10 mg dose of diazepam did not appear to affect the pharmacokinetics of either venlafaxine or ODV in 18 healthy male subjects. Venlafaxine also did not have any effect on the pharmacokinetics of diazepam or its active metabolite, desmethyldiazepam, or affect the psychomotor and psychometric effects induced by diazepam.

### *Haloperidol*

Venlafaxine administered under steady-state conditions at 150 mg/day in 24 healthy subjects decreased total oral-dose clearance (Cl/F) of a single 2 mg dose of haloperidol by 42%, which resulted in a 70% increase in haloperidol AUC. In addition, the haloperidol C<sub>max</sub> increased 88% when coadministered with venlafaxine, but the haloperidol elimination half-life (t<sub>1/2</sub>) was unchanged. The mechanism explaining this finding is unknown.

### *Lithium*

The steady-state pharmacokinetics of venlafaxine administered at 150 mg/day were not affected when a single 600 mg oral dose of lithium was administered to 12 healthy male subjects. ODV also was unaffected. Venlafaxine had no effect on the pharmacokinetics of lithium.

### *Drugs Highly Bound to Plasma Proteins*

Venlafaxine is not highly bound to plasma proteins; therefore, administration of Effexor XR to a patient taking another drug that is highly protein bound should not cause increased free concentrations of the other drug.

### *Drugs that Inhibit Cytochrome P450 Isoenzymes*

**CYP2D6 Inhibitors:** In vitro and in vivo studies indicate that venlafaxine is metabolized to its active metabolite, ODV, by CYP2D6, the isoenzyme that is responsible for the genetic polymorphism seen in the metabolism of many antidepressants. Therefore, the potential exists for a drug interaction between drugs that inhibit CYP2D6-mediated metabolism of venlafaxine, reducing the metabolism of venlafaxine to ODV, resulting in increased plasma concentrations of venlafaxine and decreased concentrations of the active metabolite. CYP2D6 inhibitors such as quinidine would be expected to do this, but the effect would be similar to what is seen in patients who are genetically CYP2D6 poor metabolizers (see *Metabolism and Excretion* under **CLINICAL PHARMACOLOGY**). Therefore, no dosage adjustment is required when venlafaxine is coadministered with a CYP2D6 inhibitor.

The concomitant use of venlafaxine with drug treatment(s) that potentially inhibits both CYP2D6 and CYP3A4, the primary metabolizing enzymes for venlafaxine, has not been studied.

Therefore, caution is advised should a patient's therapy include venlafaxine and any agent(s) that produce simultaneous inhibition of these two enzyme systems.

### *Drugs Metabolized by Cytochrome P450 Isoenzymes*

**CYP2D6:** In vitro studies indicate that venlafaxine is a relatively weak inhibitor of CYP2D6. These findings have been confirmed in a clinical drug interaction study comparing the effect of venlafaxine with that of fluoxetine on the CYP2D6-mediated metabolism of dextromethorphan to dextrorphan.

**Imipramine** - Venlafaxine did not affect the pharmacokinetics of imipramine and 2-OH-imipramine. However, desipramine AUC, C<sub>max</sub>, and C<sub>min</sub> increased by about 35% in the presence of venlafaxine. The 2-OH-desipramine AUC's increased by at least 2.5 fold (with venlafaxine 37.5 mg q12h) and by 4.5 fold (with venlafaxine 75 mg q12h). Imipramine did not affect the pharmacokinetics of venlafaxine and ODV. The clinical significance of elevated 2-OH-desipramine levels is unknown.

Risperidone - Venlafaxine administered under steady-state conditions at 150 mg/day slightly inhibited the CYP2D6-mediated metabolism of risperidone (administered as a single 1 mg oral dose) to its active metabolite, 9-hydroxyrisperidone, resulting in an approximate 32% increase in risperidone AUC. However, venlafaxine coadministration did not significantly alter the pharmacokinetic profile of the total active moiety (risperidone plus 9-hydroxyrisperidone).

CYP3A4: Venlafaxine did not inhibit CYP3A4 in vitro. This finding was confirmed in vivo by clinical drug interaction studies in which venlafaxine did not inhibit the metabolism of several CYP3A4 substrates, including alprazolam, diazepam, and terfenadine.

Indinavir - In a study of 9 healthy volunteers, venlafaxine administered under steady-state conditions at 150 mg/day resulted in a 28% decrease in the AUC of a single 800 mg oral dose of indinavir and a 36% decrease in indinavir  $C_{max}$ . Indinavir did not affect the pharmacokinetics of venlafaxine and ODV. The clinical significance of this finding is unknown.

CYP1A2: Venlafaxine did not inhibit CYP1A2 in vitro. This finding was confirmed in vivo by a clinical drug interaction study in which venlafaxine did not inhibit the metabolism of caffeine, a CYP1A2 substrate.

CYP2C9: Venlafaxine did not inhibit CYP2C9 in vitro. The clinical significance of this finding is unknown.

CYP2C19: Venlafaxine did not inhibit the metabolism of diazepam, which is partially metabolized by CYP2C19 (see *Diazepam* above).

#### *Monoamine Oxidase Inhibitors*

See **CONTRAINDICATIONS** and **WARNINGS**.

#### *CNS-Active Drugs*

The risk of using venlafaxine in combination with other CNS-active drugs has not been systematically evaluated (except in the case of those CNS-active drugs noted above). Consequently, caution is advised if the concomitant administration of venlafaxine and such drugs is required.

#### *Electroconvulsive Therapy*

There are no clinical data establishing the benefit of electroconvulsive therapy combined with Effexor XR (venlafaxine hydrochloride) extended-release capsules treatment.

#### *Postmarketing Spontaneous Drug Interaction Reports*

See **ADVERSE REACTIONS**, **Postmarketing Reports**.

## **Carcinogenesis, Mutagenesis, Impairment of Fertility**

### *Carcinogenesis*

Venlafaxine was given by oral gavage to mice for 18 months at doses up to 120 mg/kg per day, which was 1.7 times the maximum recommended human dose on a mg/m<sup>2</sup> basis. Venlafaxine was also given to rats by oral gavage for 24 months at doses up to 120 mg/kg per day. In rats receiving the 120 mg/kg dose, plasma concentrations of venlafaxine at necropsy were 1 times (male rats) and 6 times (female rats) the plasma concentrations of patients receiving the maximum recommended human dose. Plasma levels of the O-desmethyl metabolite were lower in rats than in patients receiving the maximum recommended dose. Tumors were not increased by venlafaxine treatment in mice or rats.

### *Mutagenesis*

Venlafaxine and the major human metabolite, O-desmethylvenlafaxine (ODV), were not mutagenic in the Ames reverse mutation assay in Salmonella bacteria or the Chinese hamster ovary/HGPRT mammalian cell forward gene mutation assay. Venlafaxine was also not mutagenic or clastogenic in the in vitro BALB/c-3T3 mouse cell transformation assay, the sister chromatid exchange assay in cultured Chinese hamster ovary cells, or in the in vivo chromosomal aberration assay in rat bone marrow. ODV was not clastogenic in the in vitro Chinese hamster ovary cell chromosomal aberration assay, but elicited a clastogenic response in the in vivo chromosomal aberration assay in rat bone marrow.

### *Impairment of Fertility*

Reproduction and fertility studies in rats showed no effects on male or female fertility at oral doses of up to 2 times the maximum recommended human dose on a mg/m<sup>2</sup> basis.

## **Pregnancy**

### *Teratogenic Effects - Pregnancy Category C*

Venlafaxine did not cause malformations in offspring of rats or rabbits given doses up to 2.5 times (rat) or 4 times (rabbit) the maximum recommended human daily dose on a mg/m<sup>2</sup> basis. However, in rats, there was a decrease in pup weight, an increase in stillborn pups, and an increase in pup deaths during the first 5 days of lactation, when dosing began during pregnancy and continued until weaning. The cause of these deaths is not known. These effects occurred at 2.5 times (mg/m<sup>2</sup>) the maximum human daily dose. The no effect dose for rat pup mortality was 0.25 times the human dose on a mg/m<sup>2</sup> basis. There are no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

### *Non-teratogenic Effects*

If venlafaxine is used until or shortly before birth, discontinuation effects in the newborn should be considered.

## **Labor and Delivery**

The effect of venlafaxine on labor and delivery in humans is unknown.

### **Nursing Mothers**

Venlafaxine and ODV have been reported to be excreted in human milk. Because of the potential for serious adverse reactions in nursing infants from Effexor XR, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother.

### **Pediatric Use**

Safety and effectiveness in pediatric patients have not been established.

### **Geriatric Use**

Approximately 4% (14/357), 6% (77/1381), and 2% (6/277) of Effexor XR-treated patients in placebo-controlled premarketing major depressive disorder, GAD, and Social Anxiety Disorder trials, respectively, were 65 years of age or over. Of 2,897 Effexor-treated patients in premarketing phase major depressive disorder studies, 12% (357) were 65 years of age or over. No overall differences in effectiveness or safety were observed between geriatric patients and younger patients, and other reported clinical experience generally has not identified differences in response between the elderly and younger patients. However, greater sensitivity of some older individuals cannot be ruled out. As with other antidepressants, several cases of hyponatremia and syndrome of inappropriate antidiuretic hormone secretion (SIADH) have been reported, usually in the elderly.

The pharmacokinetics of venlafaxine and ODV are not substantially altered in the elderly (see **CLINICAL PHARMACOLOGY**). No dose adjustment is recommended for the elderly on the basis of age alone, although other clinical circumstances, some of which may be more common in the elderly, such as renal or hepatic impairment, may warrant a dose reduction (see **DOSAGE AND ADMINISTRATION**).

### **ADVERSE REACTIONS**

The information included in the **Adverse Findings Observed in Short-Term, Placebo-Controlled Studies with Effexor XR** subsection is based on data from a pool of three 8- and 12-week controlled clinical trials in major depressive disorder (includes two U.S. trials and one European trial) and on data up to 8 weeks from a pool of five controlled clinical trials in GAD with Effexor XR<sup>®</sup>, and on data up to 12 weeks from a pool of two controlled clinical trials in Social Anxiety Disorder. Information on additional adverse events associated with Effexor XR in the entire development program for the formulation and with Effexor (the immediate release formulation of venlafaxine) is included in the **Other Adverse Events Observed During the Premarketing Evaluation of Effexor and Effexor XR** subsection (see also **WARNINGS** and **PRECAUTIONS**).

## Adverse Findings Observed in Short-Term, Placebo-Controlled Studies with Effexor XR

### *Adverse Events Associated with Discontinuation of Treatment*

Approximately 11% of the 357 patients who received Effexor<sup>®</sup> XR (venlafaxine hydrochloride) extended-release capsules in placebo-controlled clinical trials for major depressive disorder discontinued treatment due to an adverse experience, compared with 6% of the 285 placebo-treated patients in those studies. Approximately 18% of the 1381 patients who received Effexor XR capsules in placebo-controlled clinical trials for GAD discontinued treatment due to an adverse experience, compared with 12% of the 555 placebo-treated patients in those studies. Approximately 17% of the 277 patients who received Effexor XR capsules in placebo-controlled clinical trials for Social Anxiety Disorder discontinued treatment due to an adverse experience, compared with 5% of the 274 placebo-treated patients in those studies. The most common events leading to discontinuation and considered to be drug-related (ie, leading to discontinuation in at least 1% of the Effexor XR-treated patients at a rate at least twice that of placebo for either indication) are shown in Table 2.

Table 2  
Common Adverse Events Leading to Discontinuation of Treatment in Placebo-Controlled Trials<sup>1</sup>

Adverse Event	Percentage of Patients Discontinuing Due to Adverse Event					
	Major Depressive Disorder Indication <sup>2</sup>		GAD Indication <sup>3,4</sup>		Social Anxiety Disorder Indication	
	Effexor XR n = 357	Placebo n = 285	Effexor XR n = 1381	Placebo n = 555	Effexor XR n = 277	Placebo n = 274
<b>Body as a Whole</b>						
Asthenia	--	--	3%	<1%	1%	<1%
Headache	--	--	--	--	2%	<1%
<b>Digestive System</b>						
Nausea	4%	<1%	8%	<1%	4%	0%
Anorexia	1%	<1%	--	--	--	--
Dry Mouth	1%	0%	2%	<1%	--	--
Vomiting	--	--	1%	<1%	--	--
<b>Nervous System</b>						
Dizziness	2%	1%	--	--	2%	0%
Insomnia	1%	<1%	3%	<1%	3%	<1%
Somnolence	2%	<1%	3%	<1%	2%	<1%
Nervousness	--	--	2%	<1%	--	--
Tremor	--	--	1%	0%	--	--
Anxiety	--	--	--	--	1%	<1%
<b>Skin</b>						
Sweating	--	--	2%	<1%	1%	0%
<b>Urogenital System</b>						
Impotence <sup>3</sup>	--	--	--	--	3%	0%

<sup>1</sup> Two of the major depressive disorder studies were flexible dose and one was fixed dose. Four of the GAD studies were fixed dose and one was flexible dose. Both of the Social Anxiety Disorder studies were flexible dose.

<sup>2</sup> In U.S. placebo-controlled trials for major depressive disorder, the following were also common events leading to discontinuation and were considered to be drug-related for Effexor XR-treated patients (% Effexor XR [n = 192], % Placebo [n = 202]): hypertension (1%, <1%); diarrhea (1%, 0%); paresthesia (1%, 0%); tremor (1%, 0%); abnormal vision, mostly blurred vision (1%, 0%); and abnormal, mostly delayed, ejaculation (1%, 0%).

<sup>3</sup> In two short-term U.S. placebo-controlled trials for GAD, the following were also common events leading to discontinuation and were considered to be drug-related for Effexor XR-treated patients (% Effexor XR [n = 476]), % Placebo [n = 201]: headache (4%, <1%); vasodilatation (1%, 0%); anorexia (2%, <1%); dizziness (4%, 1%); thinking abnormal (1%, 0%); and abnormal vision (1%, 0%).

<sup>4</sup> In long-term placebo-controlled trials for GAD, the following was also a common event leading to discontinuation and was considered to be drug-related for Effexor XR-treated patients (% Effexor XR [n = 535], % Placebo [n = 257]): decreased libido (1%, 0%).

<sup>5</sup> Incidence is based on the number of men (Effexor XR = 158, placebo = 153).

#### *Adverse Events Occurring at an Incidence of 2% or More Among Effexor XR-Treated Patients*

Tables 3, 4, and 5 enumerate the incidence, rounded to the nearest percent, of treatment-emergent adverse events that occurred during acute therapy of major depressive disorder (up to 12 weeks; dose range of 75 to 225 mg/day), of GAD (up to 8 weeks; dose range of 37.5 to 225 mg/day), and of Social Anxiety Disorder (up to 12 weeks; dose range of 75 to 225 mg/day, respectively, in 2% or more of patients treated with Effexor XR (venlafaxine hydrochloride) where the incidence in patients treated with Effexor XR was greater than the incidence for the respective placebo-treated patients. The table shows the percentage of patients in each group who had at least one episode of an event at some time during their treatment. Reported adverse events were classified using a standard COSTART-based Dictionary terminology.

The prescriber should be aware that these figures cannot be used to predict the incidence of side effects in the course of usual medical practice where patient characteristics and other factors differ from those which prevailed in the clinical trials. Similarly, the cited frequencies cannot be compared with figures obtained from other clinical investigations involving different treatments, uses and investigators. The cited figures, however, do provide the prescribing physician with some basis for estimating the relative contribution of drug and nondrug factors to the side effect incidence rate in the population studied.

Commonly Observed Adverse Events from Tables 3, 4, and 5:

Major Depressive Disorder

Note in particular the following adverse events that occurred in at least 5% of the Effexor XR patients and at a rate at least twice that of the placebo group for all placebo-controlled trials for the major depressive disorder (Table 3): Abnormal ejaculation, gastrointestinal complaints (nausea, dry mouth, and anorexia), CNS complaints (dizziness, somnolence, and abnormal dreams), and sweating. In the two U.S. placebo-controlled trials, the following additional events occurred in at least 5% of Effexor XR-treated patients (n = 192) and at a rate at least twice that of the placebo group: Abnormalities of sexual function (impotence in men, anorgasmia in women, and libido decreased), gastrointestinal complaints (constipation and flatulence), CNS complaints (insomnia, nervousness, and tremor), problems of special senses (abnormal vision), cardiovascular effects (hypertension and vasodilatation), and yawning.

Generalized Anxiety Disorder

Note in particular the following adverse events that occurred in at least 5% of the Effexor XR patients and at a rate at least twice that of the placebo group for all placebo-controlled trials for the GAD indication (Table 4): Abnormalities of sexual function (abnormal ejaculation and impotence), gastrointestinal complaints (nausea, dry mouth, anorexia, and constipation), problems of special senses (abnormal vision), and sweating.

Social Anxiety Disorder

Note in particular the following adverse events that occurred in at least 5% of the Effexor XR patients and at a rate at least twice that of the placebo group for the 2 placebo-controlled trials for the Social Anxiety Disorder indication (Table 5): Asthenia, gastrointestinal complaints (anorexia, dry mouth, nausea), CNS complaints (anxiety, insomnia, libido decreased, nervousness, somnolence, dizziness), abnormalities of sexual function (abnormal ejaculation, orgasmic dysfunction, impotence), yawn, sweating, and abnormal vision.

Table 3  
Treatment-Emergent Adverse Event Incidence in Short-Term Placebo-Controlled Effexor XR Clinical Trials in Patients with Major Depressive Disorder<sup>1,2</sup>

Body System Preferred Term	% Reporting Event	
	Effexor XR (n = 357)	Placebo (n = 285)
<b>Body as a Whole</b>		
Asthenia	8%	7%
<b>Cardiovascular System</b>		
Vasodilatation <sup>3</sup>	4%	2%
Hypertension	4%	1%
<b>Digestive System</b>		
Nausea	31%	12%
Constipation	8%	5%
Anorexia	8%	4%
Vomiting	4%	2%
Flatulence	4%	3%

Body System Preferred Term	% Reporting Event	
	Effexor XR (n = 357)	Placebo (n = 285)
<b>Metabolic/Nutritional</b>		
Weight Loss	3%	0%
<b>Nervous System</b>		
Dizziness	20%	9%
Somnolence	17%	8%
Insomnia	17%	11%
Dry Mouth	12%	6%
Nervousness	10%	5%
Abnormal Dreams <sup>4</sup>	7%	2%
Tremor	5%	2%
Depression	3%	<1%
Paresthesia	3%	1%
Libido Decreased	3%	<1%
Agitation	3%	1%
<b>Respiratory System</b>		
Pharyngitis	7%	6%
Yawn	3%	0%
<b>Skin</b>		
Sweating	14%	3%
<b>Special Senses</b>		
Abnormal Vision <sup>5</sup>	4%	<1%
<b>Urogenital System</b>		
Abnormal Ejaculation (male) <sup>6,7</sup>	16%	<1%
Impotence <sup>7</sup>	4%	<1%
Anorgasmia (female) <sup>8,9</sup>	3%	<1%

<sup>1</sup> Incidence, rounded to the nearest %, for events reported by at least 2% of patients treated with Effexor XR, except the following events which had an incidence equal to or less than placebo: abdominal pain, accidental injury, anxiety, back pain, bronchitis, diarrhea, dysmenorrhea, dyspepsia, flu syndrome, headache, infection, pain, palpitation, rhinitis, and sinusitis.

<sup>2</sup> <1% indicates an incidence greater than zero but less than 1%.

<sup>3</sup> Mostly "hot flashes."

<sup>4</sup> Mostly "vivid dreams," "nightmares," and "increased dreaming."

<sup>5</sup> Mostly "blurred vision" and "difficulty focusing eyes."

<sup>6</sup> Mostly "delayed ejaculation."

<sup>7</sup> Incidence is based on the number of male patients.

<sup>8</sup> Mostly "delayed orgasm" or "anorgasmia."

<sup>9</sup> Incidence is based on the number of female patients.

Table 4  
Treatment-Emergent Adverse Event Incidence in Short-Term Placebo-Controlled  
Effexor XR Clinical Trials in GAD Patients<sup>1,2</sup>

Body System Preferred Term	% Reporting Event	
	Effexor XR (n = 1381)	Placebo (n = 555)
<b>Body as a Whole</b>		
Asthenia	12%	8%
<b>Cardiovascular System</b>		
Vasodilatation <sup>3</sup>	4%	2%
<b>Digestive System</b>		
Nausea	35%	12%
Constipation	10%	4%
Anorexia	8%	2%
Vomiting	5%	3%
<b>Nervous System</b>		
Dizziness	16%	11%
Dry Mouth	16%	6%
Insomnia	15%	10%
Somnolence	14%	8%
Nervousness	6%	4%
Libido Decreased	4%	2%
Tremor	4%	<1%
Abnormal Dreams <sup>4</sup>	3%	2%
Hypertonia	3%	2%
Paresthesia	2%	1%
<b>Respiratory System</b>		
Yawn	3%	<1%
<b>Skin</b>		
Sweating	10%	3%
<b>Special Senses</b>		
Abnormal Vision <sup>5</sup>	5%	<1%
<b>Urogenital System</b>		
Abnormal Ejaculation <sup>6,7</sup>	11%	<1%
Impotence <sup>7</sup>	5%	<1%
Orgasmic Dysfunction (female) <sup>8,9</sup>	2%	0%

<sup>1</sup> Adverse events for which the Effexor XR reporting rate was less than or equal to the placebo rate are not included. These events are: abdominal pain, accidental injury, anxiety, back pain, diarrhea, dysmenorrhea, dyspepsia, flu syndrome, headache, infection, myalgia, pain, palpitation, pharyngitis, rhinitis, tinnitus, and urinary frequency.

<sup>2</sup> <1% means greater than zero but less than 1%.

<sup>3</sup> Mostly "hot flashes."

<sup>4</sup> Mostly "vivid dreams," "nightmares," and "increased dreaming."

<sup>5</sup> Mostly “blurred vision” and “difficulty focusing eyes.”

<sup>6</sup> Includes “delayed ejaculation” and “anorgasmia.”

<sup>7</sup> Percentage based on the number of males (Effexor XR = 525, placebo = 220).

<sup>8</sup> Includes “delayed orgasm,” “abnormal orgasm,” and “anorgasmia.”

<sup>9</sup> Percentage based on the number of females (Effexor XR = 856, placebo = 335).

Table 5  
Treatment-Emergent Adverse Event Incidence in Short-Term Placebo-Controlled  
Effexor XR Clinical Trials in Social Anxiety Disorder Patients<sup>1,2</sup>

Body System Preferred Term	% Reporting Event	
	Effexor XR (n = 277)	Placebo (n = 274)
<b>Body as a Whole</b>		
Headache	34%	33%
Asthenia	17%	8%
Flu Syndrome	6%	5%
Accidental Injury	5%	3%
Abdominal Pain	4%	3%
<b>Cardiovascular System</b>		
Hypertension	5%	4%
Vasodilatation <sup>3</sup>	3%	1%
Palpitation	3%	1%
<b>Digestive System</b>		
Nausea	29%	9%
Anorexia <sup>4</sup>	20%	1%
Constipation	8%	4%
Diarrhea	6%	5%
Vomiting	3%	2%
Eructation	2%	0%
<b>Metabolic/Nutritional</b>		
Weight Loss	4%	0%

Body System Preferred Term	% Reporting Event	
	Effexor XR (n = 277)	Placebo (n = 274)
<b>Nervous System</b>		
Insomnia	23%	7%
Dry Mouth	17%	4%
Dizziness	16%	8%
Somnolence	16%	8%
Nervousness	11%	3%
Libido Decreased	9%	<1%
Anxiety	5%	3%
Agitation	4%	1%
Tremor	4%	<1%
Abnormal Dreams <sup>5</sup>	4%	<1%
Paresthesia	3%	<1%
Twitching	2%	0%
<b>Respiratory System</b>		
Yawn	5%	<1%
Sinusitis	2%	1%
<b>Skin</b>		
Sweating	13%	2%
<b>Special Senses</b>		
Abnormal Vision <sup>6</sup>	6%	3%
<b>Urogenital System</b>		
Abnormal Ejaculation <sup>7,8</sup>	16%	1%
Impotence <sup>8</sup>	10%	1%
Orgasmic Dysfunction <sup>9,10</sup>	8%	0%

<sup>1</sup> Adverse events for which the Effexor XR reporting rate was less than or equal to the placebo rate are not included. These events are: back pain, depression, dysmenorrhea, dyspepsia, infection, myalgia, pain, pharyngitis, rash, rhinitis, and upper respiratory infection.

<sup>2</sup> <1% means greater than zero but less than 1%.

<sup>3</sup> Mostly "hot flashes."

<sup>4</sup> Mostly "decreased appetite" and "loss of appetite."

<sup>5</sup> Mostly "vivid dreams," "nightmares," and "increased dreaming."

<sup>6</sup> Mostly "blurred vision."

<sup>7</sup> Includes "delayed ejaculation" and "anorgasmia."

<sup>8</sup> Percentage based on the number of males (Effexor XR = 158, placebo = 153).

<sup>9</sup> Includes "abnormal orgasm" and "anorgasmia."

<sup>10</sup> Percentage based on the number of females (Effexor XR = 119, placebo = 121).

### *Vital Sign Changes*

Effexor XR (venlafaxine hydrochloride) extended-release capsules treatment for up to 12 weeks in premarketing placebo-controlled major depressive disorder trials was associated with a mean final on-therapy increase in pulse rate of approximately 2 beats per minute, compared with 1 beat per minute for placebo. Effexor XR treatment for up to 8 weeks in premarketing placebo-controlled GAD trials was associated with a mean final on-therapy increase in pulse rate of approximately 2 beats per minute, compared with less than 1 beat per minute for placebo. Effexor XR treatment for up to 12 weeks in premarketing placebo-controlled Social Anxiety Disorder trials was associated with mean final on-therapy increase in pulse rate of approximately 4 beats per minute, compared with no change for placebo. (See the **Sustained Hypertension** section of **WARNINGS** for effects on blood pressure.)

In a flexible-dose study, with Effexor doses in the range of 200 to 375 mg/day and mean dose greater than 300 mg/day, the mean pulse was increased by about 2 beats per minute compared with a decrease of about 1 beat per minute for placebo.

### *Laboratory Changes*

Effexor XR (venlafaxine hydrochloride) extended-release capsules treatment for up to 12 weeks in premarketing placebo-controlled trials for major depressive disorder was associated with a mean final on-therapy increase in serum cholesterol concentration of approximately 1.5 mg/dL compared with a mean final decrease of 7.4 mg/dL for placebo. Effexor XR treatment for up to 8 weeks and up to 6 months in premarketing placebo-controlled GAD trials was associated with mean final on-therapy increases in serum cholesterol concentration of approximately 1.0 mg/dL and 2.3 mg/dL, respectively while placebo subjects experienced mean final decreases of 4.9 mg/dL and 7.7 mg/dL, respectively. Effexor XR treatment for up to 12 weeks in premarketing placebo-controlled Social Anxiety Disorder trials was associated with mean final on-therapy increases in serum cholesterol concentration of approximately 11.4 mg/dL compared with a mean final decrease of 2.2 mg/dL for placebo.

Patients treated with Effexor tablets (the immediate-release form of venlafaxine) for at least 3 months in placebo-controlled 12-month extension trials had a mean final on-therapy increase in total cholesterol of 9.1 mg/dL compared with a decrease of 7.1 mg/dL among placebo-treated patients. This increase was duration dependent over the study period and tended to be greater with higher doses. Clinically relevant increases in serum cholesterol, defined as 1) a final on-therapy increase in serum cholesterol  $\geq 50$  mg/dL from baseline and to a value  $\geq 261$  mg/dL, or 2) an average on-therapy increase in serum cholesterol  $\geq 50$  mg/dL from baseline and to a value  $\geq 261$  mg/dL, were recorded in 5.3% of venlafaxine-treated patients and 0.0% of placebo-treated patients (see **PRECAUTIONS-General-Serum Cholesterol Elevation**).

### *ECG Changes*

In a flexible-dose study, with Effexor doses in the range of 200 to 375 mg/day and mean dose greater than 300 mg/day, the mean change in heart rate was 8.5 beats per minute compared with 1.7 beats per minute for placebo.

(See the *Use in Patients with Concomitant Illness* section of **PRECAUTIONS**).

## **Other Adverse Events Observed During the Premarketing Evaluation of Effexor and Effexor XR**

During its premarketing assessment, multiple doses of Effexor XR were administered to 705 patients in Phase 3 major depressive disorder studies and Effexor was administered to 96 patients. During its premarketing assessment, multiple doses of Effexor XR were also administered to 1381 patients in Phase 3 GAD studies and 277 patients in Phase 3 Social Anxiety Disorder studies. In addition, in premarketing assessment of Effexor, multiple doses were administered to 2897 patients in Phase 2 to Phase 3 studies for major depressive disorder. The conditions and duration of exposure to venlafaxine in both development programs varied greatly, and included (in overlapping categories) open and double-blind studies, uncontrolled and controlled studies, inpatient (Effexor only) and outpatient studies, fixed-dose, and titration studies. Untoward events associated with this exposure were recorded by clinical investigators using terminology of their own choosing. Consequently, it is not possible to provide a meaningful estimate of the proportion of individuals experiencing adverse events without first grouping similar types of untoward events into a smaller number of standardized event categories.

In the tabulations that follow, reported adverse events were classified using a standard COSTART-based Dictionary terminology. The frequencies presented, therefore, represent the proportion of the 5356 patients exposed to multiple doses of either formulation of venlafaxine who experienced an event of the type cited on at least one occasion while receiving venlafaxine. All reported events are included except those already listed in Tables 3, 4, and 5 and those events for which a drug cause was remote. If the COSTART term for an event was so general as to be uninformative, it was replaced with a more informative term. It is important to emphasize that, although the events reported occurred during treatment with venlafaxine, they were not necessarily caused by it.

Events are further categorized by body system and listed in order of decreasing frequency using the following definitions: **frequent** adverse events are defined as those occurring on one or more occasions in at least 1/100 patients; **infrequent** adverse events are those occurring in 1/100 to 1/1000 patients; **rare** events are those occurring in fewer than 1/1000 patients.

Body as a whole - **Frequent:** chest pain substernal, chills, fever, neck pain; **Infrequent:** face edema, intentional injury, malaise, moniliasis, neck rigidity, pelvic pain, photosensitivity reaction, suicide attempt, withdrawal syndrome; **Rare:** appendicitis, bacteremia, carcinoma, cellulitis.

Cardiovascular system - **Frequent:** migraine, postural hypotension, tachycardia; **Infrequent:** angina pectoris, arrhythmia, extrasystoles, hypotension, peripheral vascular disorder (mainly cold feet and/or cold hands), syncope, thrombophlebitis; **Rare:** aortic aneurysm, arteritis, first-degree atrioventricular block, bigeminy, bradycardia, bundle branch block, capillary fragility, cerebral ischemia, coronary artery disease, congestive heart failure, heart arrest, cardiovascular disorder (mitral valve and circulatory disturbance), mucocutaneous hemorrhage, myocardial infarct, pallor.

Digestive system - **Frequent:** increased appetite; **Infrequent:** bruxism, colitis, dysphagia, tongue edema, esophagitis, gastritis, gastroenteritis, gastrointestinal ulcer, gingivitis, glossitis, rectal hemorrhage, hemorrhoids, melena, oral moniliasis, stomatitis, mouth ulceration; **Rare:** cheilitis, cholecystitis, cholelithiasis, esophageal spasms, duodenitis, hematemesis, gastrointestinal hemorrhage, gum hemorrhage, hepatitis, ileitis, jaundice, intestinal obstruction, parotitis, periodontitis, proctitis, increased salivation, soft stools, tongue discoloration.

Endocrine system - **Rare:** goiter, hyperthyroidism, hypothyroidism, thyroid nodule, thyroiditis.

Hemic and lymphatic system - **Frequent:** ecchymosis; **Infrequent:** anemia, leukocytosis, leukopenia, lymphadenopathy, thrombocythemia, thrombocytopenia; **Rare:** basophilia, bleeding time increased, cyanosis, eosinophilia, lymphocytosis, multiple myeloma, purpura.

Metabolic and nutritional - **Frequent:** edema, weight gain; **Infrequent:** alkaline phosphatase increased, dehydration, hypercholesteremia, hyperglycemia, hyperlipemia, hypokalemia, SGOT increased, SGPT increased, thirst; **Rare:** alcohol intolerance, bilirubinemia, BUN increased, creatinine increased, diabetes mellitus, glycosuria, gout, healing abnormal, hemochromatosis, hypercalcinuria, hyperkalemia, hyperphosphatemia, hyperuricemia, hypocholesteremia, hypoglycemia, hyponatremia, hypophosphatemia, hypoproteinemia, uremia.

Musculoskeletal system - **Frequent:** arthralgia; **Infrequent:** arthritis, arthrosis, bone pain, bone spurs, bursitis, leg cramps, myasthenia, tenosynovitis; **Rare:** pathological fracture, myopathy, osteoporosis, osteosclerosis, plantar fasciitis, rheumatoid arthritis, tendon rupture.

Nervous system - **Frequent:** amnesia, confusion, depersonalization, hypesthesia, thinking abnormal, trismus, vertigo; **Infrequent:** akathisia, apathy, ataxia, circumoral paresthesia, CNS stimulation, emotional lability, euphoria, hallucinations, hostility, hyperesthesia, hyperkinesia, hypotonia, incoordination, libido increased, manic reaction, myoclonus, neuralgia, neuropathy, psychosis, seizure, abnormal speech, stupor; **Rare:** akinesia, alcohol abuse, aphasia, bradykinesia, buccoglossal syndrome, cerebrovascular accident, feeling drunk, loss of consciousness, delusions, dementia, dystonia, facial paralysis, abnormal gait, Guillain-Barre Syndrome, hyperchlorhydria, hypokinesia, impulse control difficulties, neuritis, nystagmus, paranoid reaction, paresis, psychotic depression, reflexes decreased, reflexes increased, suicidal ideation, torticollis.

Respiratory system - **Frequent:** cough increased, dyspnea; **Infrequent:** asthma, chest congestion, epistaxis, hyperventilation, laryngismus, laryngitis, pneumonia, voice alteration; **Rare:** atelectasis, hemoptysis, hypoventilation, hypoxia, larynx edema, pleurisy, pulmonary embolus, sleep apnea.

Skin and appendages - **Frequent:** pruritus; **Infrequent:** acne, alopecia, brittle nails, contact dermatitis, dry skin, eczema, skin hypertrophy, maculopapular rash, psoriasis, urticaria; **Rare:** erythema nodosum, exfoliative dermatitis, lichenoid dermatitis, hair discoloration, skin discoloration, furunculosis, hirsutism, leukoderma, petechial rash, pustular rash, vesiculobullous rash, seborrhea, skin atrophy, skin striae.

**Special senses - Frequent:** abnormality of accommodation, mydriasis, taste perversion; **Infrequent:** cataract, conjunctivitis, corneal lesion, diplopia, dry eyes, eye pain, hyperacusis, otitis media, parosmia, photophobia, taste loss, visual field defect; **Rare:** blepharitis, chromatopsia, conjunctival edema, deafness, exophthalmos, glaucoma, retinal hemorrhage, subconjunctival hemorrhage, keratitis, labyrinthitis, miosis, papilledema, decreased pupillary reflex, otitis externa, scleritis, uveitis.

**Urogenital system - Frequent:** metrorrhagia,\* prostatic disorder (prostatitis and enlarged prostate),\* urination impaired, vaginitis\*; **Infrequent:** albuminuria, amenorrhea,\* cystitis, dysuria, hematuria, leukorrhea,\* menorrhagia,\* nocturia, bladder pain, breast pain, polyuria, pyuria, urinary incontinence, urinary retention, urinary urgency, vaginal hemorrhage\*; **Rare:** abortion,\* anuria, breast discharge, breast engorgement, balanitis,\* breast enlargement, endometriosis,\* female lactation,\* fibrocystic breast, calcium crystalluria, cervicitis,\* orchitis,\* ovarian cyst,\* prolonged erection,\* gynecomastia (male),\* hypomenorrhea,\* kidney calculus, kidney pain, kidney function abnormal, mastitis, menopause,\* pyelonephritis, oliguria, salpingitis,\* urolithiasis, uterine hemorrhage,\* uterine spasm,\* vaginal dryness.\*

\*Based on the number of men and women as appropriate.

### **Postmarketing Reports**

Voluntary reports of other adverse events temporally associated with the use of venlafaxine that have been received since market introduction and that may have no causal relationship with the use of venlafaxine include the following: agranulocytosis, anaphylaxis, aplastic anemia, catatonia, congenital anomalies, CPK increased, deep vein thrombophlebitis, delirium, EKG abnormalities such as QT prolongation; cardiac arrhythmias including atrial fibrillation, supraventricular tachycardia, ventricular extrasystoles, and rare reports of ventricular fibrillation and ventricular tachycardia, including torsade de pointes; epidermal necrosis/Stevens-Johnson Syndrome, erythema multiforme, extrapyramidal symptoms (including tardive dyskinesia), hemorrhage (including eye and gastrointestinal bleeding), hepatic events (including GGT elevation; abnormalities of unspecified liver function tests; liver damage, necrosis, or failure; and fatty liver), involuntary movements, LDH increased, neuroleptic malignant syndrome-like events (including a case of a 10-year-old who may have been taking methylphenidate, was treated and recovered), neutropenia, night sweats, pancreatitis, pancytopenia, panic, prolactin increased, pulmonary eosinophilia, renal failure, serotonin syndrome, shock-like electrical sensations (in some cases, subsequent to the discontinuation of venlafaxine or tapering of dose), and syndrome of inappropriate antidiuretic hormone secretion (usually in the elderly).

There have been reports of elevated clozapine levels that were temporally associated with adverse events, including seizures, following the addition of venlafaxine. There have been reports of increases in prothrombin time, partial thromboplastin time, or INR when venlafaxine was given to patients receiving warfarin therapy.

### **DRUG ABUSE AND DEPENDENCE**

#### **Controlled Substance Class**

Effexor XR (venlafaxine hydrochloride) extended-release capsules is not a controlled substance.

### **Physical and Psychological Dependence**

In vitro studies revealed that venlafaxine has virtually no affinity for opiate, benzodiazepine, phencyclidine (PCP), or N-methyl-D-aspartic acid (NMDA) receptors.

Venlafaxine was not found to have any significant CNS stimulant activity in rodents. In primate drug discrimination studies, venlafaxine showed no significant stimulant or depressant abuse liability.

Discontinuation effects have been reported in patients receiving venlafaxine (see **DOSAGE AND ADMINISTRATION**).

While venlafaxine has not been systematically studied in clinical trials for its potential for abuse, there was no indication of drug-seeking behavior in the clinical trials. However, it is not possible to predict on the basis of premarketing experience the extent to which a CNS active drug will be misused, diverted, and/or abused once marketed. Consequently, physicians should carefully evaluate patients for history of drug abuse and follow such patients closely, observing them for signs of misuse or abuse of venlafaxine (eg, development of tolerance, incrementation of dose, drug-seeking behavior).

### **OVERDOSAGE**

#### **Human Experience**

Among the patients included in the premarketing evaluation of Effexor XR, there were 2 reports of acute overdosage with Effexor XR in major depressive disorder trials, either alone or in combination with other drugs. One patient took a combination of 6 g of Effexor XR and 2.5 mg of lorazepam. This patient was hospitalized, treated symptomatically, and recovered without any untoward effects. The other patient took 2.85 g of Effexor XR. This patient reported paresthesia of all four limbs but recovered without sequelae.

There were 2 reports of acute overdose with Effexor XR in GAD trials. One patient took a combination of 0.75 g of Effexor XR and 200 mg of paroxetine and 50 mg of zolpidem. This patient was described as being alert, able to communicate, and a little sleepy. This patient was hospitalized, treated with activated charcoal, and recovered without any untoward effects. The other patient took 1.2 g of Effexor XR. This patient recovered and no other specific problems were found. The patient had moderate dizziness, nausea, numb hands and feet, and hot-cold spells 5 days after the overdose. These symptoms resolved over the next week.

There were no reports of acute overdose with Effexor XR in Social Anxiety Disorder trials.

Among the patients included in the premarketing evaluation with Effexor, there were 14 reports of acute overdose with venlafaxine, either alone or in combination with other drugs and/or alcohol. The majority of the reports involved ingestion in which the total dose of venlafaxine taken was estimated to be no more than several-fold higher than the usual therapeutic dose. The 3 patients who took the highest doses were estimated to have ingested approximately 6.75 g, 2.75 g, and 2.5 g. The resultant peak plasma levels of venlafaxine for the latter 2 patients were 6.24 and 2.35  $\mu\text{g/mL}$ , respectively, and the peak plasma levels of O-desmethylvenlafaxine were 3.37 and 1.30  $\mu\text{g/mL}$ , respectively. Plasma venlafaxine levels were not obtained for the patient who ingested 6.75 g of venlafaxine. All 14 patients recovered without sequelae. Most patients

reported no symptoms. Among the remaining patients, somnolence was the most commonly reported symptom. The patient who ingested 2.75 g of venlafaxine was observed to have 2 generalized convulsions and a prolongation of QTc to 500 msec, compared with 405 msec at baseline. Mild sinus tachycardia was reported in 2 of the other patients.

In postmarketing experience, overdose with venlafaxine has occurred predominantly in combination with alcohol and/or other drugs. Electrocardiogram changes (eg, prolongation of QT interval, bundle branch block, QRS prolongation), sinus and ventricular tachycardia, bradycardia, hypotension, altered level of consciousness (ranging from somnolence to coma), seizures, vertigo, and death have been reported.

### **Management of Overdosage**

Treatment should consist of those general measures employed in the management of overdosage with any antidepressant.

Ensure an adequate airway, oxygenation, and ventilation. Monitor cardiac rhythm and vital signs. General supportive and symptomatic measures are also recommended. Induction of emesis is not recommended. Gastric lavage with a large bore orogastric tube with appropriate airway protection, if needed, may be indicated if performed soon after ingestion or in symptomatic patients.

Activated charcoal should be administered. Due to the large volume of distribution of this drug, forced diuresis, dialysis, hemoperfusion, and exchange transfusion are unlikely to be of benefit. No specific antidotes for venlafaxine are known.

In managing overdosage, consider the possibility of multiple drug involvement. The physician should consider contacting a poison control center for additional information on the treatment of any overdose. Telephone numbers for certified poison control centers are listed in the *Physicians' Desk Reference*<sup>®</sup> (PDR).

### **DOSAGE AND ADMINISTRATION**

Effexor XR should be administered in a single dose with food either in the morning or in the evening at approximately the same time each day. Each capsule should be swallowed whole with fluid and not divided, crushed, chewed, or placed in water, or it may be administered by carefully opening the capsule and sprinkling the entire contents on a spoonful of applesauce. This drug/food mixture should be swallowed immediately without chewing and followed with a glass of water to ensure complete swallowing of the pellets.

#### **Initial Treatment**

##### *Major Depressive Disorder*

For most patients, the recommended starting dose for Effexor XR is 75 mg/day, administered in a single dose. In the clinical trials establishing the efficacy of Effexor XR in moderately depressed outpatients, the initial dose of venlafaxine was 75 mg/day. For some patients, it may be desirable to start at 37.5 mg/day for 4 to 7 days, to allow new patients to adjust to the medication before increasing to 75 mg/day. While the relationship between dose and antidepressant response for Effexor XR has not been adequately explored, patients not responding to the initial 75 mg/day dose may benefit from dose increases to a maximum of

approximately 225 mg/day. Dose increases should be in increments of up to 75 mg/day, as needed, and should be made at intervals of not less than 4 days, since steady state plasma levels of venlafaxine and its major metabolites are achieved in most patients by day 4. In the clinical trials establishing efficacy, upward titration was permitted at intervals of 2 weeks or more; the average doses were about 140 to 180 mg/day (see **Clinical Trials** under **CLINICAL PHARMACOLOGY**).

It should be noted that, while the maximum recommended dose for moderately depressed outpatients is also 225 mg/day for Effexor (the immediate release form of venlafaxine), more severely depressed inpatients in one study of the development program for that product responded to a mean dose of 350 mg/day (range of 150 to 375 mg/day). Whether or not higher doses of Effexor XR are needed for more severely depressed patients is unknown; however, the experience with Effexor XR doses higher than 225 mg/day is very limited. (See **PRECAUTIONS-General-Use in Patients with Concomitant Illness**.)

#### *Generalized Anxiety Disorder*

For most patients, the recommended starting dose for Effexor XR is 75 mg/day, administered in a single dose. In clinical trials establishing the efficacy of Effexor XR in outpatients with Generalized Anxiety Disorder (GAD), the initial dose of venlafaxine was 75 mg/day. For some patients, it may be desirable to start at 37.5 mg/day for 4 to 7 days, to allow new patients to adjust to the medication before increasing to 75 mg/day. Although a dose-response relationship for effectiveness in GAD was not clearly established in fixed-dose studies, certain patients not responding to the initial 75 mg/day dose may benefit from dose increases to a maximum of approximately 225 mg/day. Dose increases should be in increments of up to 75 mg/day, as needed, and should be made at intervals of not less than 4 days. (See the *Use in Patients with Concomitant Illness* section of **PRECAUTIONS**.)

#### *Social Anxiety Disorder (Social Phobia)*

For most patients, the recommended starting dose for Effexor XR is 75 mg/day, administered in a single dose. In clinical trials establishing the efficacy of Effexor XR in outpatients with Social Anxiety Disorder, the initial dose of Effexor XR was 75 mg/day and the maximum dose was 225 mg/day. For some patients, it may be desirable to start at 37.5 mg/day for 4 to 7 days, to allow new patients to adjust to the medication before increasing to 75 mg/day. Although a dose-response relationship for effectiveness in patients with Social Anxiety Disorder was not clearly established in fixed-dose studies, certain patients not responding to the initial 75 mg/day dose may benefit from dose increases to a maximum of approximately 225 mg/day. Dose increases should be in increments of up to 75 mg/day, as needed, and should be made at intervals of not less than 4 days. (See the *Use in Patients with Concomitant Illness* section of **PRECAUTIONS**.)

#### **Switching Patients from Effexor Tablets**

Depressed patients who are currently being treated at a therapeutic dose with Effexor may be switched to Effexor XR at the nearest equivalent dose (mg/day), eg, 37.5 mg venlafaxine two-times-a-day to 75 mg Effexor XR once daily. However, individual dosage adjustments may be necessary.

### **Patients with Hepatic Impairment**

Given the decrease in clearance and increase in elimination half-life for both venlafaxine and ODV that is observed in patients with hepatic cirrhosis compared with normal subjects (see **CLINICAL PHARMACOLOGY**), it is recommended that the starting dose be reduced by 50% in patients with moderate hepatic impairment. Because there was much individual variability in clearance between patients with cirrhosis, individualization of dosage may be desirable in some patients.

### **Patients with Renal Impairment**

Given the decrease in clearance for venlafaxine and the increase in elimination half-life for both venlafaxine and ODV that is observed in patients with renal impairment (GFR = 10 to 70 mL/min) compared with normal subjects (see **CLINICAL PHARMACOLOGY**), it is recommended that the total daily dose be reduced by 25% to 50%. In patients undergoing hemodialysis, it is recommended that the total daily dose be reduced by 50% and that the dose be withheld until the dialysis treatment is completed (4 hrs). Because there was much individual variability in clearance between patients with renal impairment, individualization of dosage may be desirable in some patients.

### **Elderly Patients**

No dose adjustment is recommended for elderly patients solely on the basis of age. As with any drug for the treatment of major depressive disorder, Generalized Anxiety Disorder, or Social Anxiety Disorder, however, caution should be exercised in treating the elderly. When individualizing the dosage, extra care should be taken when increasing the dose.

### **Maintenance Treatment**

There is no body of evidence available from controlled trials to indicate how long patients with major depressive disorder, Generalized Anxiety Disorder, or Social Anxiety Disorder should be treated with Effexor XR.

It is generally agreed that acute episodes of major depressive disorder require several months or longer of sustained pharmacological therapy beyond response to the acute episode. In one study, in which patients responding during 8 weeks of acute treatment with Effexor XR were assigned randomly to placebo or to the same dose of Effexor XR (75, 150, or 225 mg/day, qAM) during 26 weeks of maintenance treatment as they had received during the acute stabilization phase, longer-term efficacy was demonstrated. A second longer-term study has demonstrated the efficacy of Effexor in maintaining a response in patients with recurrent major depressive disorder who had responded and continued to be improved during an initial 26 weeks of treatment and were then randomly assigned to placebo or Effexor for periods of up to 52 weeks on the same dose (100 to 200 mg/day, on a b.i.d. schedule) (see **Clinical Trials** under **CLINICAL PHARMACOLOGY**). Based on these limited data, it is not known whether or not the dose of Effexor/Effexor XR needed for maintenance treatment is identical to the dose needed to achieve an initial response. Patients should be periodically reassessed to determine the need for maintenance treatment and the appropriate dose for such treatment.

In patients with Generalized Anxiety Disorder, Effexor XR has been shown to be effective in 6-month clinical trials. The need for continuing medication in patients with GAD who improve with Effexor XR treatment should be periodically reassessed.

In patients with Social Anxiety Disorder, there are no efficacy data beyond 12 weeks of treatment with Effexor XR. The need for continuing medication in patients with Social Anxiety Disorder who improve with Effexor XR treatment should be periodically reassessed.

#### **Discontinuing Effexor XR**

When discontinuing Effexor XR after more than 1 week of therapy, it is generally recommended that the dose be tapered to minimize the risk of discontinuation symptoms. Patients who have received Effexor XR for 6 weeks or more should have their dose tapered over at least a 2-week period. In clinical trials with Effexor XR, tapering was achieved by reducing the daily dose by 75 mg at 1 week intervals. Individualization of tapering may be necessary.

Discontinuation symptoms have been systematically evaluated in patients taking venlafaxine, to include prospective analyses of clinical trials in Generalized Anxiety Disorder and retrospective surveys of trials of major depressive disorder. Abrupt discontinuation or dose reduction of venlafaxine at various doses has been found to be associated with the appearance of new symptoms, the frequency of which increased with increased dose level and with longer duration of treatment. Reported symptoms include agitation, anorexia, anxiety, confusion, coordination impaired, diarrhea, dizziness, dry mouth, dysphoric mood, fasciculation, fatigue, headaches, hypomania, insomnia, nausea, nervousness, nightmares, sensory disturbances (including shock-like electrical sensations), somnolence, sweating, tremor, vertigo, and vomiting. It is therefore recommended that the dosage of Effexor XR be tapered gradually and the patient monitored. The period required for tapering may depend on the dose, duration of therapy and the individual patient. Discontinuation effects are well known to occur with antidepressants.

#### **Switching Patients To or From a Monoamine Oxidase Inhibitor**

At least 14 days should elapse between discontinuation of an MAOI and initiation of therapy with Effexor XR. In addition, at least 7 days should be allowed after stopping Effexor XR before starting an MAOI (see **CONTRAINDICATIONS** and **WARNINGS**).

#### **HOW SUPPLIED**

Effexor<sup>®</sup> XR (venlafaxine hydrochloride) extended-release capsules are available as follows:

37.5 mg, grey cap/peach body with **W** and “Effexor XR” on the cap and “37.5” on the body.  
NDC 0008-0837-01, bottle of 100 capsules.  
NDC 0008-0837-03, carton of 10 Redipak<sup>®</sup> blister strips of 10 capsules each.

**Store at controlled room temperature, 20°C to 25°C (68°F to 77°F).**

**Bottles: Protect from light. Dispense in light-resistant container.**

**Blisters: Protect from light. Use blister carton to protect contents from light.**

75 mg, peach cap and body with **W** and “Effexor XR” on the cap and “75” on the body.  
NDC 0008-0833-01, bottle of 100 capsules.  
NDC 0008-0833-03, carton of 10 Redipak<sup>®</sup> blister strips of 10 capsules each.

**Store at controlled room temperature, 20°C to 25°C (68°F to 77°F).**

150 mg, dark orange cap and body with **W** and “Effexor XR” on the cap and “150” on the body.  
NDC 0008-0836-01, bottle of 100 capsules.  
NDC 0008-0836-03, carton of 10 Redipak<sup>®</sup> blister strips of 10 capsules each.

**Store at controlled room temperature, 20°C to 25°C (68°F to 77°F).**

The appearance of these capsules is a trademark of Wyeth-Ayerst Laboratories.

 Wyeth Laboratories  
A Wyeth-Ayerst Company  
Philadelphia, PA 19101

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ET02  
Rev 02/03

**ATTACHMENT B**

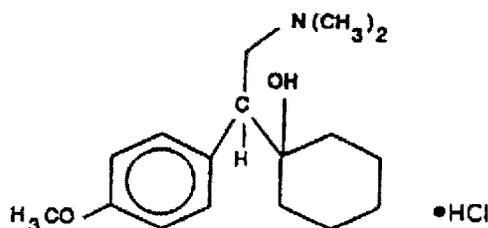
## Venlafaxine Hydrochloride Extended-Release Tablets

37.5 mg, 75 mg and 150 mg

Rx only

### DESCRIPTION

Venlafaxine Hydrochloride Extended-Release Tablets, for oral administration, contains venlafaxine hydrochloride, a structurally novel antidepressant. It is designated (R/S)-1-[2-(dimethylamino)-1-(4-methoxyphenyl)ethyl]cyclohexanol hydrochloride or ( $\pm$ )-1-[ $\alpha$ -[(dimethylamino)methyl]-p-methoxybenzyl]cyclohexanol hydrochloride and has the empirical formula of  $C_{17}H_{27}NO_2$  hydrochloride. Its molecular weight is 313.87. The structural formula is shown below.



venlafaxine hydrochloride

Venlafaxine hydrochloride is a white to off-white crystalline solid with a solubility of 572 mg/mL in water (adjusted to ionic strength of 0.2 M with sodium chloride). Its octanol:water (0.2 M sodium chloride) partition coefficient is 0.43.

Venlafaxine Hydrochloride Extended-Release Tablets are formulated as an extended-release product for once-a-day oral administration. Tablets contain venlafaxine hydrochloride equivalent to 37.5 mg, 75 mg, or 150 mg venlafaxine. (The inactive ingredients will be furnished when the ANDA is submitted, since this is proprietary information. The inactive ingredients are at the appropriate levels).

### CLINICAL PHARMACOLOGY

#### Pharmacodynamics

The mechanism of the antidepressant action of venlafaxine in humans is believed to be associated with its potentiation of neurotransmitter activity in the CNS. Preclinical studies have shown that venlafaxine and its active metabolite, O-desmethylvenlafaxine (ODV), are potent inhibitors of neuronal serotonin and norepinephrine reuptake and weak inhibitors of dopamine reuptake. Venlafaxine and ODV have no significant affinity for muscarinic cholinergic, H<sub>1</sub>-histaminergic, or  $\alpha_1$ -adrenergic receptors *in vitro*. Pharmacologic activity at these receptors is hypothesized to be associated with the various anticholinergic, sedative, and cardiovascular effects seen with other psychotropic drugs. Venlafaxine and ODV do not possess monoamine oxidase (MAO) inhibitory activity.

#### Pharmacokinetics

Steady-state concentrations of venlafaxine and ODV in plasma are attained within 3 days of oral multiple dose therapy. Venlafaxine and ODV exhibited linear kinetics over the dose range of 75 to 450 mg/day. Mean  $\pm$  SD steady-state plasma clearance of venlafaxine and ODV is

1.3±0.6 and 0.4±0.2 L/h/kg, respectively; apparent elimination half-life is 5±2 and 11±2 hours, respectively; and apparent (steady-state) volume of distribution is 7.5±3.7 and 5.7±1.8 L/kg, respectively. Venlafaxine and ODV are minimally bound at therapeutic concentrations to plasma proteins (27% and 30%, respectively).

#### *Absorption*

Venlafaxine is well absorbed and extensively metabolized in the liver. O-desmethylvenlafaxine (ODV) is the only major active metabolite. On the basis of mass balance studies, at least 92% of a single oral dose of venlafaxine is absorbed. The absolute bioavailability of venlafaxine is about 45%.

Administration of Venlafaxine Hydrochloride Extended-Release Capsules (150 mg q24 hours) generally resulted in lower  $C_{max}$  (150 ng/mL for venlafaxine and 260 ng/mL for ODV) and later  $T_{max}$  (5.5 hours for venlafaxine and 9 hours for ODV) than for immediate release venlafaxine tablets ( $C_{max}$ 's for immediate release 75 mg q12 hours were 225 ng/mL for venlafaxine and 290 ng/mL for ODV;  $T_{max}$ 's were 2 hours for venlafaxine and 3 hours for ODV). When equal daily doses of venlafaxine were administered as either an immediate release tablet or the extended-release capsule, the exposure to both venlafaxine and ODV was similar for the two treatments, and the fluctuation in plasma concentrations was slightly lower with the Venlafaxine Hydrochloride Extended-Release Capsules. Venlafaxine Hydrochloride Extended-Release Capsules, therefore, provides a slower rate of absorption, but the same extent of absorption compared with the immediate release tablet.

Food did not affect the bioavailability of venlafaxine or its active metabolite, ODV. Time of administration (AM vs PM) did not affect the pharmacokinetics of venlafaxine and ODV from the 75 mg Venlafaxine Hydrochloride Extended-Release Capsules.

#### *Metabolism and Excretion*

Following absorption, venlafaxine undergoes extensive presystemic metabolism in the liver, primarily to ODV, but also to N-desmethylvenlafaxine, N,O-didesmethylvenlafaxine, and other minor metabolites. In vitro studies indicate that the formation of ODV is catalyzed by CYP2D6; this has been confirmed in a clinical study showing that patients with low CYP2D6 levels ("poor metabolizers") had increased levels of venlafaxine and reduced levels of ODV compared to people with normal CYP2D6 ("extensive metabolizers"). The differences between the CYP2D6 poor and extensive metabolizers, however, are not expected to be clinically important because the sum of venlafaxine and ODV is similar in the two groups and venlafaxine and ODV are pharmacologically approximately equiactive and equipotent.

Approximately 87% of a venlafaxine dose is recovered in the urine within 48 hours as unchanged venlafaxine (5%), unconjugated ODV (29%), conjugated ODV (26%), or other minor inactive metabolites (27%). Renal elimination of venlafaxine and its metabolites is thus the primary route of excretion.

### *Special Populations*

**Age and Gender:** A population pharmacokinetic analysis of 404 venlafaxine-treated patients from two studies involving both b.i.d. and t.i.d. regimens showed that dose-normalized trough plasma levels of either venlafaxine or ODV were unaltered by age or gender differences. Dosage adjustment based on the age or gender of a patient is generally not necessary (see **DOSAGE AND ADMINISTRATION**).

**Extensive/Poor Metabolizers:** Plasma concentrations of venlafaxine were higher in CYP2D6 poor metabolizers than extensive metabolizers. Because the total exposure (AUC) of venlafaxine and ODV was similar in poor and extensive metabolizer groups, however, there is no need for different venlafaxine dosing regimens for these two groups.

**Liver Disease:** In 9 patients with hepatic cirrhosis, the pharmacokinetic disposition of both venlafaxine and ODV was significantly altered after oral administration of venlafaxine. Venlafaxine elimination half-life was prolonged by about 30%, and clearance decreased by about 50% in cirrhotic patients compared to normal subjects. ODV elimination half-life was prolonged by about 60%, and clearance decreased by about 30% in cirrhotic patients compared to normal subjects. A large degree of intersubject variability was noted. Three patients with more severe cirrhosis had a more substantial decrease in venlafaxine clearance (about 90%) compared to normal subjects. Dosage adjustment is necessary in these patients (see **DOSAGE AND ADMINISTRATION**).

**Renal Disease:** In a renal impairment study, venlafaxine elimination half-life after oral administration was prolonged by about 50% and clearance was reduced by about 24% in renally impaired patients (GFR=10 to 70 mL/min), compared to normal subjects. In dialysis patients, venlafaxine elimination half-life was prolonged by about 180% and clearance was reduced by about 57% compared to normal subjects. Similarly, ODV elimination half-life was prolonged by about 40% although clearance was unchanged in patients with renal impairment (GFR=10 to 70 mL/min) compared to normal subjects. In dialysis patients, ODV elimination half-life was prolonged by about 142% and clearance was reduced by about 56% compared to normal subjects. A large degree of inter-subject variability was noted. Dosage adjustment is necessary in these patients (see **DOSAGE AND ADMINISTRATION**).

### **Clinical Trials**

#### *Major Depressive Disorder*

The efficacy of Venlafaxine Hydrochloride Extended-Release Capsules as a treatment for major depressive disorder was established in two placebo-controlled, short-term, flexible-dose studies in adult outpatients meeting DSM-III-R or DSM-IV criteria for major depressive disorder.

A 12-week study utilizing Venlafaxine Hydrochloride Extended-Release Capsule doses in a range 75 to 150 mg/day (mean dose for completers was 136 mg/day) and an 8-week study utilizing Venlafaxine Hydrochloride Extended-Release Capsule doses in a range 75 to 225 mg/day (mean dose for completers was 177 mg/day) both demonstrated superiority of Venlafaxine Hydrochloride Extended-Release Capsules over placebo on the HAM-D total score, HAM-D Depressed Mood Item, the MADRS total score, the Clinical Global Impressions

(CGI) Severity of Illness item, and the CGI Global Improvement item. In both studies, Venlafaxine Hydrochloride Extended-Release Capsules were also significantly better than placebo for certain factors of the HAM-D, including the anxiety/somatization factor, the cognitive disturbance factor, and the retardation factor, as well as for the psychic anxiety score.

A 4-week study of inpatients meeting DSM-III-R criteria for major depressive disorder with melancholia utilizing Venlafaxine Hydrochloride Tablets in a range of 150 to 375 mg/day (t.i.d. schedule) demonstrated superiority of Venlafaxine Hydrochloride Tablets over placebo. The mean dose in completers was 350 mg/day.

Examination of gender subsets of the population studied did not reveal any differential responsiveness on the basis of gender.

In one longer-term study, outpatients meeting DSM-IV criteria for major depressive disorder who had responded during an 8-week open trial on Venlafaxine Hydrochloride Extended-Release Capsules (75, 150, or 225 mg, qAM) were randomized to continuation of their same Venlafaxine Hydrochloride Extended-Release Capsule dose or to placebo, for up to 26 weeks of observation for relapse. Response during the open phase was defined as a CGI Severity of Illness item score of  $\leq 3$  and a HAM-D-21 total score of  $\leq 10$  at the day 56 evaluation. Relapse during the double-blind phase was defined as follows: (1) a reappearance of major depressive disorder as defined by DSM-IV criteria and a CGI Severity of Illness item score of  $\geq 4$  (moderately ill), (2) 2 consecutive CGI Severity of Illness item scores of  $\geq 4$ , or (3) a final CGI Severity of Illness item score of  $\geq 4$  for any patient who withdrew from the study for any reason. Patients receiving continued Venlafaxine Hydrochloride Extended-Release Capsules treatment experienced significantly lower relapse rates over the subsequent 26 weeks compared with those receiving placebo.

In a second longer-term trial, outpatients meeting DSM-III-R criteria for major depressive disorder, recurrent type, who had responded (HAM-D-21 total score  $\leq 12$  at the day 56 evaluation) and continued to be improved [defined as the following criteria being met for days 56 through 180: (1) no HAM-D-21 total score  $\geq 20$ ; (2) no more than 2 HAM-D-21 total scores  $>10$ , and (3) no single CGI Severity of Illness item score  $\geq 4$  (moderately ill)] during an initial 26 weeks of treatment on Venlafaxine Hydrochloride Tablets (100 to 200 mg/day, on a b.i.d. schedule) were randomized to continuation of their same Venlafaxine Hydrochloride Tablets dose or to placebo. The follow-up period to observe patients for relapse, defined as a CGI Severity of Illness item score  $\geq 4$ , was for up to 52 weeks. Patients receiving continued Venlafaxine Hydrochloride Tablets treatment experienced significantly lower relapse rates over the subsequent 52 weeks compared with those receiving placebo.

#### *Generalized Anxiety Disorder*

The efficacy of Venlafaxine Hydrochloride Extended-Release Capsules as a treatment for Generalized Anxiety Disorder (GAD) was established in two 8-week, placebo-controlled, fixed-dose studies, one 6-month, placebo-controlled, fixed-dose study, and one 6-month, placebo-controlled, flexible-dose study in outpatients meeting DSM-IV criteria for GAD.

One 8-week study evaluating Venlafaxine Hydrochloride Extended-Release Capsule doses of 75, 150, and 225 mg/day, and placebo showed that the 225 mg/day dose was more effective than placebo on the Hamilton Rating Scale for Anxiety (HAM-A) total score, both the HAM-A anxiety and tension items, and the Clinical Global Impressions (CGI) scale. While there was also evidence for superiority over placebo for the 75 and 150 mg/day doses, these doses were not as consistently effective as the highest dose. A second 8-week study evaluating Venlafaxine Hydrochloride Extended-Release Capsule doses of 75 and 150 mg/day and placebo showed that both doses were more effective than placebo on some of these same outcomes; however, the 75 mg/day dose was more consistently effective than the 150 mg/day dose. A dose-response relationship for effectiveness in GAD was not clearly established in the 75 to 225 mg/day dose range utilized in these two studies.

Two 6-month studies, one evaluating Venlafaxine Hydrochloride Extended-Release Capsule doses of 37.5, 75, and 150 mg/day and the other evaluating Venlafaxine Hydrochloride Extended-Release Capsule doses of 75 to 225 mg/day, showed that daily doses of 75 mg or higher were more effective than placebo on the HAM-A total, both the HAM-A anxiety and tension items, and the CGI scale during 6 months of treatment. While there was also evidence for superiority over placebo for the 37.5 mg/day dose, this dose was not as consistently effective as the higher doses.

Examination of gender subsets of the population studied did not reveal any differential responsiveness on the basis of gender.

#### *Social Anxiety Disorder (Social Phobia)*

The efficacy of Venlafaxine Hydrochloride Extended-Release Capsules as a treatment for Social Anxiety Disorder (also known as Social Phobia) was established in two double-blind, parallel group, 12-week, multicenter, placebo-controlled, flexible-dose studies in adult outpatients meeting DSM-IV criteria for Social Anxiety Disorder. Patients received doses in a range of 75 to 225 mg/day. Efficacy was assessed with the Liebowitz Social Anxiety Scale (LSAS). In these two trials, Venlafaxine Hydrochloride Extended-Release Capsules were significantly more effective than placebo on change from baseline to endpoint on the LSAS total score.

Examination of subsets of the population studied did not reveal any differential responsiveness on the basis of gender. There was insufficient information to determine the effect of age or race on outcome in these studies.

## **INDICATIONS AND USAGE**

### **Major Depressive Disorder**

Venlafaxine Hydrochloride Extended-Release Tablets are indicated for the treatment of major depressive disorder.

The efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in the treatment of major depressive disorder was established in 8- and 12-week controlled trials of outpatients whose diagnoses corresponded most closely to the DSM-III-R or DSM-IV category of major depressive disorder (see **Clinical Trials**).

A major depressive episode (DSM-IV) implies a prominent and relatively persistent (nearly every day for at least 2 weeks) depressed mood or the loss of interest or pleasure in nearly all activities, representing a change from previous functioning, and includes the presence of at least five of the following nine symptoms during the same two-week period: depressed mood, markedly diminished interest or pleasure in usual activities, significant change in weight and/or appetite, insomnia or hypersomnia, psychomotor agitation or retardation, increased fatigue, feelings of guilt or worthlessness, slowed thinking or impaired concentration, a suicide attempt or suicidal ideation.

The efficacy of Venlafaxine Hydrochloride Tablets in the treatment of major depressive disorder in inpatients meeting diagnostic criteria for major depressive disorder with melancholia was established in a 4-week controlled trial (see **Clinical Trials**). The safety and efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in hospitalized depressed patients have not been adequately studied.

The efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in maintaining a response in major depressive disorder for up to 26 weeks following 8 weeks of acute treatment was demonstrated in a placebo-controlled trial. The efficacy of Venlafaxine Hydrochloride Tablets in maintaining a response in patients with recurrent major depressive disorder who had responded and continued to be improved during an initial 26 weeks of treatment and were then followed for a period of up to 52 weeks was demonstrated in a second placebo-controlled trial (see **Clinical Trials**). Nevertheless, the physician who elects to use Venlafaxine Hydrochloride Tablets/ Venlafaxine Hydrochloride Extended-Release Tablets for extended periods should periodically re-evaluate the long-term usefulness of the drug for the individual patient (see **DOSAGE AND ADMINISTRATION**).

#### **Generalized Anxiety Disorder**

Venlafaxine Hydrochloride Extended-Release Tablets are indicated for the treatment of Generalized Anxiety Disorder (GAD) as defined in DSM-IV. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic.

The efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in the treatment of GAD was established in 8-week and 6-month placebo-controlled trials in outpatients diagnosed with GAD according to DSM-IV criteria (see **Clinical Trials**).

Generalized Anxiety Disorder (DSM-IV) is characterized by excessive anxiety and worry (apprehensive expectation) that is persistent for at least 6 months and which the person finds difficult to control. It must be associated with at least 3 of the following 6 symptoms: restlessness or feeling keyed up or on edge, being easily fatigued, difficulty concentrating or mind going blank, irritability, muscle tension, sleep disturbance.

Although the effectiveness of Venlafaxine Hydrochloride Extended-Release Capsules has been demonstrated in 6-month clinical trials in patients with GAD, the physician who elects to use Venlafaxine Hydrochloride Extended-Release Tablets for extended periods should periodically

re-evaluate the long-term usefulness of the drug for the individual patient (see **DOSAGE AND ADMINISTRATION**).

### **Social Anxiety Disorder**

Venlafaxine Hydrochloride Extended-Release Tablets are indicated for the treatment of Social Anxiety Disorder, also known as Social Phobia, as defined in DSM-IV (300.23).

Social Anxiety Disorder (DSM-IV) is characterized by a marked and persistent fear of 1 or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. Exposure to the feared situation almost invariably provokes anxiety, which may approach the intensity of a panic attack. The feared situations are avoided or endured with intense anxiety or distress. The avoidance, anxious anticipation, or distress in the feared situation(s) interferes significantly with the person's normal routine, occupational or academic functioning, or social activities or relationships, or there is a marked distress about having the phobias. Lesser degrees of performance anxiety or shyness generally do not require psychopharmacological treatment.

The efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in the treatment of Social Anxiety Disorder was established in two 12-week placebo-controlled trials in adult outpatients with Social Anxiety Disorder (DSM-IV). Venlafaxine Hydrochloride Extended-Release Tablets has not been studied in children or adolescents with Social Anxiety Disorder (see **Clinical Trials**).

The effectiveness of Venlafaxine Hydrochloride Extended-Release Capsules in the long-term treatment of Social Anxiety Disorder, ie, for more than 12 weeks, has not been systematically evaluated in adequate and well-controlled trials. Therefore, the physician who elects to use Venlafaxine Hydrochloride Extended-Release Tablets for extended periods should periodically re-evaluate the long-term usefulness of the drug for the individual patient (see **DOSAGE AND ADMINISTRATION**).

### **CONTRAINDICATIONS**

Hypersensitivity to venlafaxine hydrochloride or to any excipients in the formulation.

Concomitant use in patients taking monoamine oxidase inhibitors (MAOIs) is contraindicated (see **WARNINGS**).

### **WARNINGS**

#### **Potential for Interaction with Monoamine Oxidase Inhibitors**

Adverse reactions, some of which were serious, have been reported in patients who have recently been discontinued from a monoamine oxidase inhibitor (MAOI) and started on venlafaxine, or who have recently had venlafaxine therapy discontinued prior to initiation of an MAOI. These reactions have included tremor, myoclonus, diaphoresis, nausea, vomiting, flushing, dizziness, hyperthermia with features resembling neuroleptic malignant syndrome, seizures, and death. In patients receiving antidepressants with pharmacological properties similar to venlafaxine in combination with an MAOI, there have also been reports of serious, sometimes fatal, reactions. For a selective serotonin

reuptake inhibitor, these reactions have included hyperthermia, rigidity, myoclonus, autonomic instability with possible rapid fluctuations of vital signs, and mental status changes that include extreme agitation progressing to delirium and coma. Some cases presented with features resembling neuroleptic malignant syndrome. Severe hyperthermia and seizures, sometimes fatal, have been reported in association with the combined use of tricyclic antidepressants and MAOIs. These reactions have also been reported in patients who have recently discontinued these drugs and have been started on an MAOI. The effects of combined use of venlafaxine and MAOIs have not been evaluated in humans or animals. Therefore, because venlafaxine is an inhibitor of both norepinephrine and serotonin reuptake, it is recommended that Venlafaxine Hydrochloride Extended-Release Tablets not be used in combination with an MAOI, or within at least 14 days of discontinuing treatment with an MAOI. Based on the half-life of venlafaxine, at least 7 days should be allowed after stopping venlafaxine before starting an MAOI.

### **Sustained Hypertension**

Venlafaxine treatment is associated with sustained increases in blood pressure in some patients. Among patients treated with 75 to 375 mg/day of Venlafaxine Hydrochloride Extended-Release Capsules in premarketing studies in patients with major depressive disorder, 3% (19/705) experienced sustained hypertension [defined as treatment-emergent supine diastolic blood pressure (SDBP)  $\geq 90$  mm Hg and  $\geq 10$  mm Hg above baseline for 3 consecutive on-therapy visits]. Among patients treated with 37.5 to 225 mg/day of Venlafaxine Hydrochloride Extended-Release Capsules in premarketing GAD studies, 0.5% (5/1011) experienced sustained hypertension. Among patients treated with 75 to 225 mg/day of Venlafaxine Hydrochloride Extended-Release Capsules in premarketing Social Anxiety Disorder studies, 1.4% (4/277) experienced sustained hypertension. Experience with the immediate-release venlafaxine showed that sustained hypertension was dose-related, increasing from 3% to 7% at 100 to 300 mg/day to 13% at doses above 300 mg/day. An insufficient number of patients received mean doses of Venlafaxine Hydrochloride Extended-Release Capsules over 300 mg/day to fully evaluate the incidence of sustained increases in blood pressure at these higher doses.

In placebo-controlled premarketing studies in patients with major depressive disorder with Venlafaxine Hydrochloride Extended-Release Capsules 75 to 225 mg/day, a final on-drug mean increase in supine diastolic blood pressure (SDBP) of 1.2 mm Hg was observed for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients compared with a mean decrease of 0.2 mm Hg for placebo-treated patients. In placebo-controlled premarketing GAD studies with Venlafaxine Hydrochloride Extended-Release Capsules 37.5 to 225 mg/day, up to 8 weeks or up to 6 months, a final on-drug mean increase in SDBP of 0.3 mm Hg was observed for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients compared with a mean decrease of 0.9 and 0.8 mm Hg, respectively, for placebo-treated patients.

In placebo-controlled premarketing Social Anxiety Disorder studies with Venlafaxine Hydrochloride Extended-Release Capsules 75 to 225 mg/day up to 12 weeks, a final on-drug mean increase in SDBP of 1.6 mm Hg was observed for Venlafaxine Hydrochloride Extended-

Release Capsules-treated patients compared with a mean decrease of 1.1 mm Hg for placebo-treated patients.

In premarketing major depressive disorder studies, 0.7% (5/705) of the Venlafaxine Hydrochloride Extended-Release Capsules-treated patients discontinued treatment because of elevated blood pressure. Among these patients, most of the blood pressure increases were in a modest range (12 to 16 mm Hg, SDBP). In premarketing GAD studies up to 8 weeks and up to 6 months, 0.7% (10/1381) and 1.3% (7/535) of the Venlafaxine Hydrochloride Extended-Release Capsules-treated patients, respectively, discontinued treatment because of elevated blood pressure. Among these patients, most of the blood pressure increases were in a modest range (12 to 25mmHg, SDBP up to 8 weeks; 8 to 28 mm Hg up to 6 months). In premarketing Social Anxiety Disorder studies up to 12 weeks, 0.4% (1/277) of the Venlafaxine Hydrochloride Extended-Release Capsules-treated patients discontinued treatment because of elevated blood pressure. In this patient, the blood pressure increase was modest (13 mm Hg, SDBP).

Sustained increases of SDBP could have adverse consequences. Therefore, it is recommended that patients receiving Venlafaxine Hydrochloride Extended-Release Tablets have regular monitoring of blood pressure. For patients who experience a sustained increase in blood pressure while receiving venlafaxine, either dose reduction or discontinuation should be considered.

## PRECAUTIONS

### General

#### *Insomnia and Nervousness*

Treatment-emergent insomnia and nervousness were more commonly reported for patients treated with Venlafaxine Hydrochloride Extended-Release Capsules than with placebo in pooled analyses of short-term major depressive disorder, GAD, and Social Anxiety Disorder studies, as shown in Table 1.

Table 1  
Incidence of Insomnia and Nervousness in Placebo-Controlled Major Depressive Disorder, GAD, and Social Anxiety Disorder Trials

Symptom	Major Depressive Disorder		GAD		Social Anxiety Disorder	
	Venlafaxine Hydrochloride Extended-Release Capsules n = 357	Placebo n = 285	Venlafaxine Hydrochloride Extended-Release Capsules n = 1381	Placebo n = 555	Venlafaxine Hydrochloride Extended-Release Capsules n = 277	Placebo n = 274
Insomnia	17 %	11 %	15 %	10 %	23 %	7 %
Nervousness	10 %	5 %	6 %	4 %	11 %	3 %

Insomnia and nervousness each led to drug discontinuation in 0.9% of the patients treated with Venlafaxine Hydrochloride Extended-Release Capsules in major depressive disorder studies.

In GAD trials, insomnia and nervousness led to drug discontinuation in 3% and 2%, respectively, of the patients treated with Venlafaxine Hydrochloride Extended-Release

Capsules up to 8 weeks and 2% and 0.7%, respectively, of the patients treated with Venlafaxine Hydrochloride Extended-Release Capsules up to 6 months.

In Social Anxiety Disorder trials, insomnia and nervousness led to drug discontinuation in 3% and 0%, respectively, of the patients treated with Venlafaxine Hydrochloride Extended-Release Capsules up to 12 weeks.

#### *Changes in Appetite and Weight*

Treatment-emergent anorexia was more commonly reported for Venlafaxine Hydrochloride Extended-Release Capsules-treated (8%) than placebo-treated patients (4%) in the pool of short-term studies in major depressive disorder. Significant weight loss, especially in underweight depressed patients, may be an undesirable result of Venlafaxine Hydrochloride Extended-Release Capsules treatment. A loss of 5% or more of body weight occurred in 7% of Venlafaxine Hydrochloride Extended-Release Capsules-treated and 2% of placebo-treated patients in placebo-controlled major depressive disorder trials. Discontinuation rates for anorexia and weight loss associated with Venlafaxine Hydrochloride Extended-Release Capsules were low (1.0% and 0.1%, respectively, of Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in major depressive disorder studies).

In the pool of GAD studies, treatment-emergent anorexia was reported in 8% and 2% of patients receiving Venlafaxine Hydrochloride Extended-Release Capsules and placebo up to 8 weeks, respectively. A loss of 7% or more of body weight occurred in 3% of the Venlafaxine Hydrochloride Extended-Release Capsules-treated and 1% of the placebo-treated patients up to 6 months in these trials. Discontinuation rates for anorexia and weight loss were low for patients receiving Venlafaxine Hydrochloride Extended-Release Capsules up to 8 weeks (0.9% and 0.3%, respectively).

In the pool of Social Anxiety Disorder studies, treatment-emergent anorexia was reported in 20% and 2% of patients receiving Venlafaxine Hydrochloride Extended-Release Capsules and placebo up to 12 weeks, respectively. A loss of 7% or more of body weight occurred in none of the Venlafaxine Hydrochloride Extended-Release Capsules-treated or the placebo-treated patients up to 12 weeks in these trials. Discontinuation rates for anorexia and weight loss were low for patients receiving Venlafaxine Hydrochloride Extended-Release Capsules up to 12 weeks (0.4% and 0.0%, respectively).

The safety and efficacy of venlafaxine therapy in combination with weight loss agents, including phentermine, have not been established. Co-administration of Venlafaxine Hydrochloride Extended-Release Tablets and weight loss agents is not recommended. Venlafaxine Hydrochloride Extended-Release Tablets are not indicated for weight loss alone or in combination with other products.

#### *Activation of Mania/Hypomania*

During premarketing major depressive disorder studies, mania or hypomania occurred in 0.3% of Venlafaxine Hydrochloride Extended-Release Capsules-treated patients and 0.0% placebo patients. In premarketing GAD studies, 0.0% of Venlafaxine Hydrochloride Extended-Release Capsules-treated patients and 0.2% of placebo-treated patients experienced

mania or hypomania. In premarketing Social Anxiety Disorder studies, no Venlafaxine Hydrochloride Extended-Release Capsules-treated patients and no placebo-treated patients experienced mania or hypomania. In all premarketing major depressive disorder trials with Venlafaxine Hydrochloride Tablets, mania or hypomania occurred in 0.5% of venlafaxine-treated patients compared with 0% of placebo patients. Mania/ hypomania has also been reported in a small proportion of patients with mood disorders who were treated with other marketed drugs to treat major depressive disorder. As with all drugs effective in the treatment of major depressive disorder, Venlafaxine Hydrochloride Extended-Release Capsules should be used cautiously in patients with a history of mania.

#### *Hyponatremia*

Hyponatremia and/or the syndrome of inappropriate antidiuretic hormone secretion (SIADH) may occur with venlafaxine. This should be taken into consideration in patients who are, for example, volume-depleted, elderly, or taking diuretics.

#### *Mydriasis*

Mydriasis has been reported in association with venlafaxine; therefore patients with raised intraocular pressure or those at risk of acute narrow-angle glaucoma should be monitored.

#### *Seizures*

During premarketing experience, no seizures occurred among 705 Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in the major depressive disorder studies, among 1381 Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in GAD studies, or among 277 Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in Social Anxiety Disorder studies. In all premarketing major depressive disorder trials with Venlafaxine Hydrochloride Tablets, seizures were reported at various doses in 0.3% (8/3082) of venlafaxine-treated patients. Venlafaxine Hydrochloride Extended-Release Capsules, like many antidepressants, should be used cautiously in patients with a history of seizures and should be discontinued in any patient who develops seizures.

#### *Abnormal Bleeding*

There have been reports of abnormal bleeding (most commonly ecchymosis) associated with venlafaxine treatment. While a causal relationship to venlafaxine is unclear, impaired platelet aggregation may result from platelet serotonin depletion and contribute to such occurrences.

#### *Serum Cholesterol Elevation*

Clinically relevant increases in serum cholesterol were recorded in 5.3% of venlafaxine-treated patients and 0.0% of placebo-treated patients treated for at least 3 months in placebo-controlled trials (see **ADVERSE REACTIONS-Laboratory Changes**). Measurement of serum cholesterol levels should be considered during long-term treatment.

#### *Suicide*

The possibility of a suicide attempt is inherent in major depressive disorder and may persist until significant remission occurs. Close supervision of high-risk patients should accompany initial drug therapy. Prescriptions for Venlafaxine Hydrochloride Extended-Release Tablets

should be written for the smallest quantity of tablet consistent with good patient management in order to reduce the risk of overdose.

The same precautions observed when treating patients with major depressive disorder should be observed when treating patients with GAD or Social Anxiety Disorder.

*Use in Patients With Concomitant Illness*

Premarketing experience with venlafaxine in patients with concomitant systemic illness is limited. Caution is advised in administering Venlafaxine Hydrochloride Extended-Release Tablets to patients with diseases or conditions that could affect hemodynamic responses or metabolism.

Venlafaxine has not been evaluated or used to any appreciable extent in patients with a recent history of myocardial infarction or unstable heart disease. Patients with these diagnoses were systematically excluded from many clinical studies during venlafaxine's premarketing testing. The electrocardiograms were analyzed for 275 patients who received Venlafaxine Hydrochloride Extended-Release Capsules and 220 patients who received placebo in 8- to 12-week double-blind, placebo-controlled trials in major depressive disorder, for 610 patients who received Venlafaxine Hydrochloride Extended-Release Capsules and 298 patients who received placebo in 8-week double-blind, placebo-controlled trials in GAD, and for 195 patients who received Venlafaxine Hydrochloride Extended-Release Capsules and 228 patients who received placebo in 12-week double-blind, placebo-controlled trials in Social Anxiety Disorder. The mean change from baseline in corrected QT interval (QTc) for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in major depressive disorder studies was increased relative to that for placebo-treated patients (increase of 4.7 msec for Venlafaxine Hydrochloride Extended-Release Capsules and decrease of 1.9 msec for placebo). The mean change from baseline in corrected QT interval (QTc) for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in the GAD studies did not differ significantly from that with placebo. The mean change from baseline in QTc for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in the Social Anxiety Disorder studies was increased relative to that for placebo-treated patients (increase of 2.8 msec for Venlafaxine Hydrochloride Extended-Release Capsules and decrease of 2.0 msec for placebo).

In these same trials, the mean change from baseline in heart rate for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in the major depressive disorder studies was significantly higher than that for placebo (a mean increase of 4 beats per minute for Venlafaxine Hydrochloride Extended-Release Capsules and 1 beat per minute for placebo). The mean change from baseline in heart rate for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in the GAD studies was significantly higher than that for placebo (a mean increase of 3 beats per minute for Venlafaxine Hydrochloride Extended-Release Capsules and no change for placebo). The mean change from baseline in heart rate for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in the Social Anxiety Disorder studies was significantly higher than that for placebo (a mean increase of 5 beats per minute for Venlafaxine Hydrochloride Extended-Release Capsules and no change for placebo).

In a flexible-dose study, with Venlafaxine Hydrochloride Tablets doses in the range of 200 to 375 mg/day and mean dose greater than 300 mg/day, Venlafaxine Hydrochloride Tablets-treated patients had a mean increase in heart rate of 8.5 beats per minute compared with 1.7 beats per minute in the placebo group.

As increases in heart rate were observed, caution should be exercised in patients whose underlying medical conditions might be compromised by increases in heart rate (eg, patients with hyperthyroidism, heart failure, or recent myocardial infarction), particularly when using doses of Venlafaxine Hydrochloride Tablets above 200 mg/day.

Evaluation of the electrocardiograms for 769 patients who received Venlafaxine Hydrochloride Tablets in 4- to 6-week double-blind, placebo-controlled trials showed that the incidence of trial-emergent conduction abnormalities did not differ from that with placebo.

In patients with renal impairment (GFR = 10 to 70 mL/min) or cirrhosis of the liver, the clearances of venlafaxine and its active metabolites were decreased, thus prolonging the elimination half-lives of these substances. A lower dose may be necessary (see **DOSAGE AND ADMINISTRATION**). Venlafaxine Hydrochloride Extended-Release Tablets, like all drugs effective in the treatment of major depressive disorder, should be used with caution in such patients.

### **Information for Patients**

Physicians are advised to discuss the following issues with patients for whom they prescribe Venlafaxine Hydrochloride Extended-Release Tablets:

#### *Interference with Cognitive and Motor Performance*

Clinical studies were performed to examine the effects of venlafaxine on behavioral performance of healthy individuals. The results revealed no clinically significant impairment of psychomotor, cognitive, or complex behavior performance. However, since any psychoactive drug may impair judgment, thinking, or motor skills, patients should be cautioned about operating hazardous machinery, including automobiles, until they are reasonably certain that venlafaxine therapy does not adversely affect their ability to engage in such activities.

#### *Concomitant Medication*

Patients should be advised to inform their physicians if they are taking, or plan to take, any prescription or over-the-counter drugs, including herbal preparations, since there is a potential for interactions.

#### *Alcohol*

Although venlafaxine has not been shown to increase the impairment of mental and motor skills caused by alcohol, patients should be advised to avoid alcohol while taking venlafaxine.

#### *Allergic Reactions*

Patients should be advised to notify their physician if they develop a rash, hives, or a related allergic phenomenon.

### *Pregnancy*

Patients should be advised to notify their physician if they become pregnant or intend to become pregnant during therapy.

### *Nursing*

Patients should be advised to notify their physician if they are breast-feeding an infant.

### **Laboratory Tests**

There are no specific laboratory tests recommended.

### **Drug Interactions**

As with all drugs, the potential for interaction by a variety of mechanisms is a possibility.

### *Alcohol*

A single dose of ethanol (0.5 g/kg) had no effect on the pharmacokinetics of venlafaxine or O-desmethylvenlafaxine (ODV) when venlafaxine was administered at 150 mg/day in 15 healthy male subjects. Additionally, administration of venlafaxine in a stable regimen did not exaggerate the psychomotor and psychometric effects induced by ethanol in these same subjects when they were not receiving venlafaxine.

### *Cimetidine*

Concomitant administration of cimetidine and venlafaxine in a steady-state study for both drugs resulted in inhibition of first-pass metabolism of venlafaxine in 18 healthy subjects. The oral clearance of venlafaxine was reduced by about 43%, and the exposure (AUC) and maximum concentration ( $C_{max}$ ) of the drug were increased by about 60%. However, coadministration of cimetidine had no apparent effect on the pharmacokinetics of ODV, which is present in much greater quantity in the circulation than venlafaxine. The overall pharmacological activity of venlafaxine plus ODV is expected to increase only slightly, and no dosage adjustment should be necessary for most normal adults. However, for patients with pre-existing hypertension, and for elderly patients or patients with hepatic dysfunction, the interaction associated with the concomitant use of venlafaxine and cimetidine is not known and potentially could be more pronounced. Therefore, caution is advised with such patients.

### *Diazepam*

Under steady-state conditions for venlafaxine administered at 150 mg/day, a single 10 mg dose of diazepam did not appear to affect the pharmacokinetics of either venlafaxine or ODV in 18 healthy male subjects. Venlafaxine also did not have any effect on the pharmacokinetics of diazepam or its active metabolite, desmethyldiazepam, or affect the psychomotor and psychometric effects induced by diazepam.

### *Haloperidol*

Venlafaxine administered under steady-state conditions at 150 mg/day in 24 healthy subjects decreased total oral-dose clearance (Cl/F) of a single 2 mg dose of haloperidol by 42%, which resulted in a 70% increase in haloperidol AUC. In addition, the haloperidol  $C_{max}$  increased 88% when coadministered with venlafaxine, but the haloperidol elimination half-life ( $t_{1/2}$ ) was unchanged. The mechanism explaining this finding is unknown.

### *Lithium*

The steady-state pharmacokinetics of venlafaxine administered at 150 mg/day were not affected when a single 600 mg oral dose of lithium was administered to 12 healthy male subjects. ODV also was unaffected. Venlafaxine had no effect on the pharmacokinetics of lithium.

### *Drugs Highly Bound to Plasma Proteins*

Venlafaxine is not highly bound to plasma proteins; therefore, administration of Venlafaxine Hydrochloride Extended-Release Tablets to a patient taking another drug that is highly protein bound should not cause increased free concentrations of the other drug.

### *Drugs that Inhibit Cytochrome P450 Isoenzymes*

**CYP2D6 Inhibitors:** In vitro and in vivo studies indicate that venlafaxine is metabolized to its active metabolite, ODV, by CYP2D6, the isoenzyme that is responsible for the genetic polymorphism seen in the metabolism of many antidepressants. Therefore, the potential exists for a drug interaction between drugs that inhibit CYP2D6-mediated metabolism of venlafaxine, reducing the metabolism of venlafaxine to ODV, resulting in increased plasma concentrations of venlafaxine and decreased concentrations of the active metabolite. CYP2D6 inhibitors such as quinidine would be expected to do this, but the effect would be similar to what is seen in patients who are genetically CYP2D6 poor metabolizers (see *Metabolism and Excretion* under **CLINICAL PHARMACOLOGY**). Therefore, no dosage adjustment is required when venlafaxine is coadministered with a CYP2D6 inhibitor.

The concomitant use of venlafaxine with drug treatment(s) that potentially inhibits both CYP2D6 and CYP3A4, the primary metabolizing enzymes for venlafaxine, has not been studied.

Therefore, caution is advised should a patient's therapy include venlafaxine and any agent(s) that produce simultaneous inhibition of these two enzyme systems.

### *Drugs Metabolized by Cytochrome P450 Isoenzymes*

**CYP2D6:** In vitro studies indicate that venlafaxine is a relatively weak inhibitor of CYP2D6. These findings have been confirmed in a clinical drug interaction study comparing the effect of venlafaxine with that of fluoxetine on the CYP2D6-mediated metabolism of dextromethorphan to dextrorphan.

**Imipramine** - Venlafaxine did not affect the pharmacokinetics of imipramine and 2-OH-imipramine. However, desipramine AUC, C<sub>max</sub>, and C<sub>min</sub> increased by about 35% in the presence of venlafaxine. The 2-OH-desipramine AUC's increased by at least 2.5 fold (with venlafaxine 37.5 mg q12h) and by 4.5 fold (with venlafaxine 75 mg q12h). Imipramine did not affect the pharmacokinetics of venlafaxine and ODV. The clinical significance of elevated 2-OH-desipramine levels is unknown.

**Risperidone** - Venlafaxine administered under steady-state conditions at 150 mg/day slightly inhibited the CYP2D6-mediated metabolism of risperidone (administered as a single 1 mg oral

dose) to its active metabolite, 9-hydroxyrisperidone, resulting in an approximate 32% increase in risperidone AUC. However, venlafaxine coadministration did not significantly alter the pharmacokinetic profile of the total active moiety (risperidone plus 9-hydroxyrisperidone).

**CYP3A4:** Venlafaxine did not inhibit CYP3A4 in vitro. This finding was confirmed in vivo by clinical drug interaction studies in which venlafaxine did not inhibit the metabolism of several CYP3A4 substrates, including alprazolam, diazepam, and terfenadine.

**Indinavir** - In a study of 9 healthy volunteers, venlafaxine administered under steady-state conditions at 150 mg/day resulted in a 28% decrease in the AUC of a single 800 mg oral dose of indinavir and a 36% decrease in indinavir C<sub>max</sub>. Indinavir did not affect the pharmacokinetics of venlafaxine and ODV. The clinical significance of this finding is unknown.

**CYP1A2:** Venlafaxine did not inhibit CYP1A2 in vitro. This finding was confirmed in vivo by a clinical drug interaction study in which venlafaxine did not inhibit the metabolism of caffeine, a CYP1A2 substrate.

**CYP2C9:** Venlafaxine did not inhibit CYP2C9 in vitro. The clinical significance of this finding is unknown.

**CYP2C19:** Venlafaxine did not inhibit the metabolism of diazepam, which is partially metabolized by CYP2C19 (see *Diazepam* above).

#### *Monoamine Oxidase Inhibitors*

See **CONTRAINDICATIONS** and **WARNINGS**.

#### *CNS-Active Drugs*

The risk of using venlafaxine in combination with other CNS-active drugs has not been systematically evaluated (except in the case of those CNS-active drugs noted above). Consequently, caution is advised if the concomitant administration of venlafaxine and such drugs is required.

#### *Electroconvulsive Therapy*

There are no clinical data establishing the benefit of electroconvulsive therapy combined with Venlafaxine Hydrochloride Extended-Release Tablets treatment.

#### *Postmarketing Spontaneous Drug Interaction Reports*

See **ADVERSE REACTIONS, Postmarketing Reports**.

### **Carcinogenesis, Mutagenesis, Impairment of Fertility**

#### *Carcinogenesis*

Venlafaxine was given by oral gavage to mice for 18 months at doses up to 120 mg/kg per day, which was 1.7 times the maximum recommended human dose on a mg/m<sup>2</sup> basis. Venlafaxine was also given to rats by oral gavage for 24 months at doses up to 120 mg/kg per day. In rats receiving the 120 mg/kg dose, plasma concentrations of venlafaxine at necropsy were 1 times

(male rats) and 6 times (female rats) the plasma concentrations of patients receiving the maximum recommended human dose. Plasma levels of the O-desmethyl metabolite were lower in rats than in patients receiving the maximum recommended dose. Tumors were not increased by venlafaxine treatment in mice or rats.

#### *Mutagenesis*

Venlafaxine and the major human metabolite, O-desmethylvenlafaxine (ODV), were not mutagenic in the Ames reverse mutation assay in Salmonella bacteria or the Chinese hamster ovary/HGPRT mammalian cell forward gene mutation assay. Venlafaxine was also not mutagenic or clastogenic in the in vitro BALB/c-3T3 mouse cell transformation assay, the sister chromatid exchange assay in cultured Chinese hamster ovary cells, or in the in vivo chromosomal aberration assay in rat bone marrow. ODV was not clastogenic in the in vitro Chinese hamster ovary cell chromosomal aberration assay, but elicited a clastogenic response in the in vivo chromosomal aberration assay in rat bone marrow.

#### *Impairment of Fertility*

Reproduction and fertility studies in rats showed no effects on male or female fertility at oral doses of up to 2 times the maximum recommended human dose on a mg/m<sup>2</sup> basis.

#### **Pregnancy**

##### *Teratogenic Effects - Pregnancy Category C*

Venlafaxine did not cause malformations in offspring of rats or rabbits given doses up to 2.5 times (rat) or 4 times (rabbit) the maximum recommended human daily dose on a mg/m<sup>2</sup> basis. However, in rats, there was a decrease in pup weight, an increase in stillborn pups, and an increase in pup deaths during the first 5 days of lactation, when dosing began during pregnancy and continued until weaning. The cause of these deaths is not known. These effects occurred at 2.5 times (mg/m<sup>2</sup>) the maximum human daily dose. The no effect dose for rat pup mortality was 0.25 times the human dose on a mg/m<sup>2</sup> basis. There are no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

##### *Non-teratogenic Effects*

If venlafaxine is used until or shortly before birth, discontinuation effects in the newborn should be considered.

#### **Labor and Delivery**

The effect of venlafaxine on labor and delivery in humans is unknown.

#### **Nursing Mothers**

Venlafaxine and ODV have been reported to be excreted in human milk. Because of the potential for serious adverse reactions in nursing infants from Venlafaxine Hydrochloride Extended-Release Tablets, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother.

#### **Pediatric Use**

Safety and effectiveness in pediatric patients have not been established.

### **Geriatric Use**

Approximately 4% (14/357), 6% (77/1381), and 2% (6/277) of Venlafaxine Hydrochloride Extended-Release Capsules-treated patients in placebo-controlled premarketing major depressive disorder, GAD, and Social Anxiety Disorder trials, respectively, were 65 years of age or over. Of 2,897 Venlafaxine Hydrochloride Tablets-treated patients in premarketing phase major depressive disorder studies, 12% (357) were 65 years of age or over. No overall differences in effectiveness or safety were observed between geriatric patients and younger patients, and other reported clinical experience generally has not identified differences in response between the elderly and younger patients. However, greater sensitivity of some older individuals cannot be ruled out. As with other antidepressants, several cases of hyponatremia and syndrome of inappropriate antidiuretic hormone secretion (SIADH) have been reported, usually in the elderly.

The pharmacokinetics of venlafaxine and ODV are not substantially altered in the elderly (see **CLINICAL PHARMACOLOGY**). No dose adjustment is recommended for the elderly on the basis of age alone, although other clinical circumstances, some of which may be more common in the elderly, such as renal or hepatic impairment, may warrant a dose reduction (see **DOSAGE AND ADMINISTRATION**).

### **ADVERSE REACTIONS**

The information included in the **Adverse Findings Observed in Short-Term, Placebo-Controlled Studies with Venlafaxine Hydrochloride Extended-Release Capsules** subsection is based on data from a pool of three 8- and 12-week controlled clinical trials in major depressive disorder (includes two U.S. trials and one European trial) and on data up to 8 weeks from a pool of five controlled clinical trials in GAD with Venlafaxine Hydrochloride Extended-Release Capsules, and on data up to 12 weeks from a pool of two controlled clinical trials in Social Anxiety Disorder. Information on additional adverse events associated with Venlafaxine Hydrochloride Extended-Release Capsules in the entire development program for the formulation and with Venlafaxine Hydrochloride Tablets is included in the **Other Adverse Events Observed During the Premarketing Evaluation of Venlafaxine Hydrochloride Tablets and Venlafaxine Hydrochloride Extended-Release Capsules** subsection (see also **WARNINGS** and **PRECAUTIONS**).

#### **Adverse Findings Observed in Short-Term, Placebo-Controlled Studies with Venlafaxine Hydrochloride Extended-Release Capsules**

##### *Adverse Events Associated with Discontinuation of Treatment*

Approximately 11% of the 357 patients who received Venlafaxine Hydrochloride Extended-Release Capsules in placebo-controlled clinical trials for major depressive disorder discontinued treatment due to an adverse experience, compared with 6% of the 285 placebo-treated patients in those studies. Approximately 18% of the 1381 patients who received Venlafaxine Hydrochloride Extended-Release Capsules in placebo-controlled clinical trials for GAD discontinued treatment due to an adverse experience, compared with 12% of the 555 placebo-treated patients in those studies. Approximately 17% of the 277 patients who received Venlafaxine Hydrochloride Extended-Release Capsules in placebo-controlled clinical trials for

Social Anxiety Disorder discontinued treatment due to an adverse experience, compared with 5% of the 274 placebo-treated patients in those studies. The most common events leading to discontinuation and considered to be drug-related (ie, leading to discontinuation in at least 1% of the Venlafaxine Hydrochloride Extended-Release Capsules-treated patients at a rate at least twice that of placebo for either indication) are shown in Table 2.

Table 2  
Common Adverse Events Leading to Discontinuation of Treatment in  
Placebo-Controlled Trials<sup>1</sup>

Adverse Event	Percentage of Patients Discontinuing Due to Adverse Event					
	Major Depressive Disorder Indication <sup>2</sup>		GAD Indication <sup>3,4</sup>		Social Anxiety Disorder Indication	
	Venlafaxine Hydrochloride Extended-Release Capsules n = 357	Placebo n = 285	Venlafaxine Hydrochloride Extended-Release Capsules n = 1381	Placebo n = 555	Venlafaxine Hydrochloride Extended-Release Capsules n = 277	Placebo n = 274
<b>Body as a Whole</b>						
Asthenia	--	--	3 %	< 1 %	1 %	< 1 %
Headache	--	--	--	--	2 %	< 1 %
<b>Digestive System</b>						
Nausea	4 %	< 1 %	8 %	< 1 %	4 %	0 %
Anorexia	1 %	< 1 %	--	--	--	--
Dry Mouth	1 %	0 %	2 %	< 1 %	--	--
Vomiting	--	--	1 %	< 1 %	--	--
<b>Nervous System</b>						
Dizziness	2 %	1 %	--	--	2 %	0 %
Insomnia	1 %	< 1 %	3 %	< 1 %	3 %	< 1 %
Somnolence	2 %	< 1 %	3 %	< 1 %	2 %	< 1 %
Nervousness	--	--	2 %	< 1 %	--	--
Tremor	--	--	1 %	0 %	--	--
Anxiety	--	--	--	--	1 %	< 1 %
<b>Skin</b>						
Sweating	--	--	2 %	< 1 %	1 %	0 %
<b>Urogenital System</b>						
Impotence <sup>5</sup>	--	--	--	--	3 %	0 %

<sup>1</sup> Two of the major depressive disorder studies were flexible dose and one was fixed dose. Four of the GAD studies were fixed dose and one was flexible dose. Both of the Social Anxiety Disorder studies were flexible dose.

<sup>2</sup> In U.S. placebo-controlled trials for major depressive disorder, the following were also common events leading to discontinuation and were considered to be drug-related for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients (% Venlafaxine Hydrochloride Extended-Release Capsules [n=192], % Placebo [n=202]): hypertension (1%, <1%); diarrhea (1%, 0%); paresthesia (1%, 0%); tremor (1%, 0%); abnormal vision, mostly blurred vision (1%, 0%); and abnormal, mostly delayed, ejaculation (1%, 0%).

<sup>3</sup> In two short-term U.S. placebo-controlled trials for GAD, the following were also common events leading to discontinuation and were considered to be drug-related for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients (% Venlafaxine Hydrochloride Extended-Release Capsules [n = 476]), % Placebo [n = 201]: headache (4%, <1%); vasodilatation (1%, 0%); anorexia (2%, <1%); dizziness (4%, 1%); thinking abnormal (1%, 0%); and abnormal vision (1%, 0%).

<sup>4</sup> In long-term placebo-controlled trials for GAD, the following was also a common event

leading to discontinuation and was considered to be drug-related for Venlafaxine Hydrochloride Extended-Release Capsules-treated patients (% Venlafaxine Hydrochloride Extended-Release Capsules [n = 535], % Placebo [n = 257]): decreased libido (1%, 0%).

<sup>s</sup> Incidence is based on the number of men (Venlafaxine Hydrochloride Extended-Release Capsules = 158, placebo = 153).

*Adverse Events Occurring at an Incidence of 2% or More Among Venlafaxine Hydrochloride Extended-Release Capsules-Treated Patients*

Tables 3, 4, and 5 enumerate the incidence, rounded to the nearest percent, of treatment-emergent adverse events that occurred during acute therapy of major depressive disorder (up to 12 weeks; dose range of 75 to 225 mg/day), of GAD (up to 8 weeks; dose range of 37.5 to 225 mg/day), and of Social Anxiety Disorder (up to 12 weeks; dose range of 75 to 225 mg/day, respectively, in 2% or more of patients treated with Venlafaxine Hydrochloride Extended-Release Capsules where the incidence in patients treated with Venlafaxine Hydrochloride Extended-Release Capsules was greater than the incidence for the respective placebo-treated patients. The table shows the percentage of patients in each group who had at least one episode of an event at some time during their treatment. Reported adverse events were classified using a standard COSTART-based Dictionary terminology.

The prescriber should be aware that these figures cannot be used to predict the incidence of side effects in the course of usual medical practice where patient characteristics and other factors differ from those which prevailed in the clinical trials. Similarly, the cited frequencies cannot be compared with figures obtained from other clinical investigations involving different treatments, uses and investigators. The cited figures, however, do provide the prescribing physician with some basis for estimating the relative contribution of drug and nondrug factors to the side effect incidence rate in the population studied.

*Commonly Observed Adverse Events from Tables 3, 4, and 5:*

Major Depressive Disorder

Note in particular the following adverse events that occurred in at least 5% of the patients on Venlafaxine Hydrochloride Extended-Release Capsules and at a rate at least twice that of the placebo group for all placebo-controlled trials for the major depressive disorder (Table 3): Abnormal ejaculation, gastrointestinal complaints (nausea, dry mouth, and anorexia), CNS complaints (dizziness, somnolence, and abnormal dreams), and sweating. In the two U.S. placebo-controlled trials, the following additional events occurred in at least 5% of Venlafaxine Hydrochloride Extended-Release Capsules-treated patients (n = 192) and at a rate at least twice that of the placebo group: Abnormalities of sexual function (impotence in men, anorgasmia in women, and libido decreased), gastrointestinal complaints (constipation and flatulence), CNS complaints (insomnia, nervousness, and tremor), problems of special senses (abnormal vision), cardiovascular effects (hypertension and vasodilatation), and yawning.

Generalized Anxiety Disorder

Note in particular the following adverse events that occurred in at least 5% of the patients on Venlafaxine Hydrochloride Extended-Release Capsules and at a rate at least twice that of the placebo group for all placebo-controlled trials for the GAD indication (Table 4): Abnormalities

of sexual function (abnormal ejaculation and impotence), gastrointestinal complaints (nausea, dry mouth, anorexia, and constipation), problems of special senses (abnormal vision), and sweating.

### Social Anxiety Disorder

Note in particular the following adverse events that occurred in at least 5% of the patients on Venlafaxine Hydrochloride Extended-Release Capsules and at a rate at least twice that of the placebo group for the 2 placebo-controlled trials for the Social Anxiety Disorder indication (Table 5): Asthenia, gastrointestinal complaints (anorexia, dry mouth, nausea), CNS complaints (anxiety, insomnia, libido decreased, nervousness, somnolence, dizziness), abnormalities of sexual function (abnormal ejaculation, orgasmic dysfunction, impotence), yawn, sweating, and abnormal vision.

**Table 3**  
**Treatment-Emergent Adverse Event Incidence in Short-Term Placebo-Controlled Venlafaxine Hydrochloride Extended-Release Capsules Clinical Trials in Patients with Major Depressive Disorder<sup>1,2</sup>**

Body System Preferred Term	% Reporting Event	
	Venlafaxine Hydrochloride Extended-Release Capsules (n = 357)	Placebo (n = 285)
<b>Body as a Whole</b>		
Asthenia	8 %	7 %
<b>Cardiovascular System</b>		
Vasodilatation <sup>3</sup>	4 %	2 %
Hypertension	4 %	1 %
<b>Digestive System</b>		
Nausea	31 %	12 %
Constipation	8 %	5 %
Anorexia	8 %	4 %
Vomiting	4 %	2 %
Flatulence	4 %	3 %
<b>Metabolic/Nutritional</b>		
Weight Loss	3 %	0 %
<b>Nervous System</b>		
Dizziness	20 %	9 %
Somnolence	17 %	8 %
Insomnia	17 %	11 %
Dry Mouth	12 %	6 %
Nervousness	10 %	5 %
Abnormal Dreams <sup>4</sup>	7 %	2 %
Tremor	5 %	2 %
Depression	3 %	< 1 %
Paresthesia	3 %	1 %
Libido Decreased	3 %	< 1 %
Agitation	3 %	1 %
<b>Respiratory System</b>		
Pharyngitis	7 %	6 %
Yawn	3 %	0 %
<b>Skin</b>		
Sweating	14 %	3 %
<b>Special Senses</b>		
Abnormal Vision <sup>5</sup>	4 %	< 1 %
<b>Urogenital System</b>		
Abnormal Ejaculation (male) <sup>6,7</sup>	16 %	< 1 %
Impotence <sup>7</sup>	4 %	< 1 %
Anorgasmia (female) <sup>8,9</sup>	3 %	< 1 %

<sup>1</sup> Incidence, rounded to the nearest %, for events reported by at least 2% of patients treated with Venlafaxine Hydrochloride Extended-Release Capsules, except the following events which had an incidence equal to or less than placebo: abdominal pain, accidental injury, anxiety, back pain, bronchitis, diarrhea, dysmenorrhea, dyspepsia, flu syndrome, headache, infection, pain, palpitation, rhinitis, and sinusitis.

<sup>2</sup> <1% indicates an incidence greater than zero but less than 1%.

<sup>3</sup> Mostly "hot flashes."

<sup>4</sup> Mostly "vivid dreams," "nightmares," and "increased dreaming."

<sup>5</sup> Mostly "blurred vision" and "difficulty focusing eyes."

<sup>6</sup> Mostly "delayed ejaculation."

<sup>7</sup> Incidence is based on the number of male patients.

<sup>8</sup> Mostly "delayed orgasm" or "anorgasmia."

<sup>9</sup> Incidence is based on the number of female patients.

Table 4  
Treatment-Emergent Adverse Event Incidence in Short-Term Placebo-Controlled  
Venlafaxine Hydrochloride Extended-Release Capsules Clinical Trials in GAD Patients<sup>1,2</sup>

Body System Preferred Term	% Reporting Event	
	Venlafaxine Hydrochloride Extended-Release Capsules (n = 1381)	Placebo (n = 555)
<b>Body as a Whole</b>		
Asthenia	12%	8 %
<b>Cardiovascular System</b>		
Vasodilatation <sup>3</sup>	4%	2 %
<b>Digestive System</b>		
Nausea	35%	12 %
Constipation	10%	4 %
Anorexia	8%	2 %
Vomiting	5%	3 %
<b>Nervous System</b>		
Dizziness	16%	11 %
Dry Mouth	16%	6 %
Insomnia	15%	10 %
Somnolence	14%	8 %
Nervousness	6%	4 %
Libido Decreased	4 %	2 %
Tremor	4 %	< 1 %
Abnormal Dreams <sup>4</sup>	3 %	2 %
Hypertonia	3 %	2 %
Paresthesia	2 %	1 %
<b>Respiratory System</b>		
Yawn	3 %	< 1 %
<b>Skin</b>		
Sweating	10 %	3 %
<b>Special Senses</b>		
Abnormal Vision <sup>5</sup>	5 %	< 1 %
<b>Urogenital System</b>		
Abnormal Ejaculation <sup>6,7</sup>	11 %	< 1 %
Impotence <sup>7</sup>	5 %	< 1 %
Orgasmic Dysfunction (female) <sup>8,9</sup>	2 %	0 %

<sup>1</sup> Adverse events for which the Venlafaxine Hydrochloride Extended-Release Capsules reporting rate was less than or equal to the placebo rate are not included. These events are: abdominal pain, accidental injury, anxiety, back pain, diarrhea, dysmenorrhea, dyspepsia, flu syndrome, headache, infection, myalgia, pain, palpitation, pharyngitis, rhinitis, tinnitus, and urinary frequency.

<sup>2</sup> < 1 % means greater than zero but less than 1.

<sup>3</sup> Mostly "hot flashes."

<sup>4</sup> Mostly “vivid dreams,” “nightmares,” and “increased dreaming.”

<sup>5</sup> Mostly “blurred vision” and “difficulty focusing eyes.”

<sup>6</sup> Includes “delayed ejaculation” and “anorgasmia.”

<sup>7</sup> Percentage based on the number of males (Venlafaxine Hydrochloride Extended-Release Capsules = 525, placebo = 220).

<sup>8</sup> Includes “delayed orgasm,” “abnormal orgasm,” and “anorgasmia.”

<sup>9</sup> Percentage based on the number of females (Venlafaxine Hydrochloride Extended-Release Capsules = 856, placebo = 335).

**Table 5**  
**Treatment-Emergent Adverse Event Incidence in Short-Term Placebo-Controlled**  
**Venlafaxine Hydrochloride Extended-Release Capsules Clinical Trials in**  
**Social Anxiety Disorder Patients<sup>1,2</sup>**

Body System Preferred Term	% Reporting Event	
	Venlafaxine Hydrochloride Extended-Release Capsules (n = 277)	Placebo (n = 274)
<b>Body as a Whole</b>		
Headache	34 %	33 %
Asthenia	17 %	8 %
Flu Syndrome	6 %	5 %
Accidental Injury	5 %	3 %
Abdominal Pain	4 %	3 %
<b>Cardiovascular System</b>		
Hypertension	5 %	4 %
Vasodilatation <sup>3</sup>	3 %	1 %
Palpitation	3 %	1 %
<b>Digestive System</b>		
Nausea	29 %	9 %
Anorexia <sup>4</sup>	20 %	1 %
Constipation	8 %	4 %
Diarrhea	6 %	5 %
Vomiting	3 %	2 %
Eructation	2 %	0 %
<b>Metabolic/ Nutritional</b>		
Weight Loss	4 %	0 %
<b>Nervous System</b>		
Insomnia	23 %	7 %
Dry Mouth	17 %	4 %
Dizziness	16 %	8 %
Somnolence	16 %	8 %
Nervousness	11 %	3 %
Libido Decreased	9 %	< 1 %
Anxiety	5 %	3 %
Agitation	4 %	1 %
Tremor	4 %	< 1 %
Abnormal Dreams <sup>5</sup>	4 %	< 1 %
Paresthesia	3 %	< 1 %
Twitching	2 %	0 %
<b>Respiratory System</b>		
Yawn	5 %	< 1 %
Sinusitis	2 %	1 %
<b>Skin</b>		
Sweating	13 %	2 %
<b>Special Senses</b>		
Abnormal Vision <sup>6</sup>	6 %	3 %
<b>Urogenital System</b>		
Abnormal Ejaculation <sup>7,8</sup>	16 %	1 %
Impotence <sup>8</sup>	10 %	1 %
Orgasmic Dysfunction <sup>9,10</sup>	8 %	0 %

<sup>1</sup> Adverse events for which the Venlafaxine Hydrochloride Extended-Release Capsules reporting rate was less than or equal to the placebo rate are not included. These events are: back pain, depression, dysmenorrhea, dyspepsia, infection, myalgia, pain, pharyngitis, rash, rhinitis, and upper respiratory infection.

<sup>2</sup> < 1% means greater than zero but less than 1.

<sup>3</sup> Mostly "hot flashes."

<sup>4</sup> Mostly "decreased appetite" and "loss of appetite."

<sup>5</sup> Mostly "vivid dreams," "nightmares," and "increased dreaming."

<sup>6</sup> Mostly "blurred vision."

<sup>7</sup> Includes "delayed ejaculation" and "anorgasmia."

<sup>8</sup> Percentage based on the number of males (Venlafaxine Hydrochloride Extended-Release Capsules = 158, placebo = 153).

<sup>9</sup> Includes "abnormal orgasm" and "anorgasmia."

<sup>10</sup> Percentage based on the number of females (Venlafaxine Hydrochloride Extended-Release Capsules = 119, placebo = 121).

### *Vital Sign Changes*

Venlafaxine Hydrochloride Extended-Release Capsules treatment for up to 12 weeks in premarketing placebo-controlled major depressive disorder trials was associated with a mean final on-therapy increase in pulse rate of approximately 2 beats per minute, compared with 1 beat per minute for placebo. Venlafaxine Hydrochloride Extended-Release Capsules treatment for up to 8 weeks in premarketing placebo-controlled GAD trials was associated with a mean final on-therapy increase in pulse rate of approximately 2 beats per minute, compared with less than 1 beat per minute for placebo. Venlafaxine Hydrochloride Extended-Release Capsules treatment for up to 12 weeks in premarketing placebo-controlled Social Anxiety Disorder trials was associated with mean final on-therapy increase in pulse rate of approximately 4 beats per minute, compared with no change for placebo. (See the **Sustained Hypertension** section of **WARNINGS** for effects on blood pressure.)

In a flexible-dose study, with Venlafaxine Hydrochloride Tablet doses in the range of 200 to 375 mg/day and mean dose greater than 300 mg/day, the mean pulse was increased by about 2 beats per minute compared with a decrease of about 1 beat per minute for placebo.

### *Laboratory Changes*

Venlafaxine Hydrochloride Extended-Release Capsules treatment for up to 12 weeks in premarketing placebo-controlled trials for major depressive disorder was associated with a mean final on-therapy increase in serum cholesterol concentration of approximately 1.5 mg/dL compared with a mean final decrease of 7.4 mg/dL for placebo. Venlafaxine Hydrochloride Extended-Release Capsules treatment for up to 8 weeks and up to 6 months in premarketing placebo-controlled GAD trials was associated with mean final on-therapy increases in serum cholesterol concentration of approximately 1.0 mg/dL and 2.3 mg/dL, respectively while placebo subjects experienced mean final decreases of 4.9 mg/dL and 7.7 mg/dL, respectively. Venlafaxine Hydrochloride Extended-Release Capsules treatment for up to 12 weeks in premarketing placebo-controlled Social Anxiety Disorder trials was associated with mean final on-therapy increases in serum cholesterol concentration of approximately 11.4 mg/dL compared with a mean final decrease of 2.2 mg/dL for placebo.

Patients treated with Venlafaxine Hydrochloride Tablets for at least 3 months in placebo-controlled 12-month extension trials had a mean final on-therapy increase in total cholesterol of 9.1 mg/dL compared with a decrease of 7.1 mg/dL among placebo-treated patients. This

increase was duration dependent over the study period and tended to be greater with higher doses. Clinically relevant increases in serum cholesterol, defined as 1) a final on-therapy increase in serum cholesterol  $\geq 50$  mg/dL from baseline and to a value  $\geq 261$  mg/dL, or 2) an average on-therapy increase in serum cholesterol  $\geq 50$  mg/dL from baseline and to a value  $\geq 261$  mg/dL, were recorded in 5.3% of venlafaxine-treated patients and 0.0% of placebo-treated patients (see **PRECAUTIONS-General-Serum Cholesterol Elevation**).

#### *ECG Changes*

In a flexible-dose study, with Venlafaxine Hydrochloride Tablet doses in the range of 200 to 375 mg/day and mean dose greater than 300 mg/day, the mean change in heart rate was 8.5 beats per minute compared with 1.7 beats per minute for placebo.

(See the *Use in Patients with Concomitant Illness* section of **PRECAUTIONS**).

#### **Other Adverse Events Observed During the Premarketing Evaluation of Venlafaxine Hydrochloride Tablets and Venlafaxine Hydrochloride Extended-Release Capsules**

During its premarketing assessment, multiple doses of Venlafaxine Hydrochloride Extended-Release Capsules were administered to 705 patients in Phase 3 major depressive disorder studies and Venlafaxine Hydrochloride Tablets were administered to 96 patients. During its premarketing assessment, multiple doses of Venlafaxine Hydrochloride Extended-Release Capsules were also administered to 1381 patients in Phase 3 GAD studies and 277 patients in Phase 3 Social Anxiety Disorder studies. In addition, in premarketing assessment of Venlafaxine Hydrochloride Tablets, multiple doses were administered to 2897 patients in Phase 2 to Phase 3 studies for major depressive disorder. The conditions and duration of exposure to venlafaxine in both development programs varied greatly, and included (in overlapping categories) open and double-blind studies, uncontrolled and controlled studies, inpatient (Venlafaxine Hydrochloride Tablets only) and outpatient studies, fixed-dose, and titration studies. Untoward events associated with this exposure were recorded by clinical investigators using terminology of their own choosing. Consequently, it is not possible to provide a meaningful estimate of the proportion of individuals experiencing adverse events without first grouping similar types of untoward events into a smaller number of standardized event categories.

In the tabulations that follow, reported adverse events were classified using a standard COSTART-based Dictionary terminology. The frequencies presented, therefore, represent the proportion of the 5356 patients exposed to multiple doses of either formulation of venlafaxine who experienced an event of the type cited on at least one occasion while receiving venlafaxine. All reported events are included except those already listed in Tables 3, 4, and 5 and those events for which a drug cause was remote. If the COSTART term for an event was so general as to be uninformative, it was replaced with a more informative term. It is important to emphasize that, although the events reported occurred during treatment with venlafaxine, they were not necessarily caused by it.

Events are further categorized by body system and listed in order of decreasing frequency using the following definitions: **frequent** adverse events are defined as those occurring on one

or more occasions in at least 1/100 patients; **infrequent** adverse events are those occurring in 1/100 to 1/1000 patients; **rare** events are those occurring in fewer than 1/1000 patients.

Body as a whole - **Frequent:** chest pain substernal, chills, fever, neck pain; **Infrequent:** face edema, intentional injury, malaise, moniliasis, neck rigidity, pelvic pain, photosensitivity reaction, suicide attempt, withdrawal syndrome; **Rare:** appendicitis, bacteremia, carcinoma, cellulitis.

Cardiovascular system - **Frequent:** migraine, postural hypotension, tachycardia; **Infrequent:** angina pectoris, arrhythmia, extrasystoles, hypotension, peripheral vascular disorder (mainly cold feet and/or cold hands), syncope, thrombophlebitis; **Rare:** aortic aneurysm, arteritis, first-degree atrioventricular block, bigeminy, bradycardia, bundle branch block, capillary fragility, cerebral ischemia, coronary artery disease, congestive heart failure, heart arrest, cardiovascular disorder (mitral valve and circulatory disturbance), mucocutaneous hemorrhage, myocardial infarct, pallor.

Digestive system - **Frequent:** increased appetite; **Infrequent:** bruxism, colitis, dysphagia, tongue edema, esophagitis, gastritis, gastroenteritis, gastrointestinal ulcer, gingivitis, glossitis, rectal hemorrhage, hemorrhoids, melena, oral moniliasis, stomatitis, mouth ulceration; **Rare:** cheilitis, cholecystitis, cholelithiasis, esophageal spasms, duodenitis, hematemesis, gastrointestinal hemorrhage, gum hemorrhage, hepatitis, ileitis, jaundice, intestinal obstruction, parotitis, periodontitis, proctitis, increased salivation, soft stools, tongue discoloration.

Endocrine system - **Rare:** goiter, hyperthyroidism, hypothyroidism, thyroid nodule, thyroiditis.

Hemic and lymphatic system - **Frequent:** ecchymosis; **Infrequent:** anemia, leukocytosis, leukopenia, lymphadenopathy, thrombocythemia, thrombocytopenia; **Rare:** basophilia, bleeding time increased, cyanosis, eosinophilia, lymphocytosis, multiple myeloma, purpura.

Metabolic and nutritional - **Frequent:** edema, weight gain; **Infrequent:** alkaline phosphatase increased, dehydration, hypercholesteremia, hyperglycemia, hyperlipemia, hypokalemia, SGOT increased, SGPT increased, thirst; **Rare:** alcohol intolerance, bilirubinemia, BUN increased, creatinine increased, diabetes mellitus, glycosuria, gout, healing abnormal, hemochromatosis, hypercalcinuria, hyperkalemia, hyperphosphatemia, hyperuricemia, hypocholesteremia, hypoglycemia, hyponatremia, hypophosphatemia, hypoproteinemia, uremia.

Musculoskeletal system - **Frequent:** arthralgia; **Infrequent:** arthritis, arthrosis, bone pain, bone spurs, bursitis, leg cramps, myasthenia, tenosynovitis; **Rare:** pathological fracture, myopathy, osteoporosis, osteosclerosis, plantar fasciitis, rheumatoid arthritis, tendon rupture.

Nervous system - **Frequent:** amnesia, confusion, depersonalization, hypesthesia, thinking abnormal, trismus, vertigo; **Infrequent:** akathisia, apathy, ataxia, circumoral paresthesia, CNS stimulation, emotional lability, euphoria, hallucinations, hostility, hyperesthesia, hyperkinesia, hypotonia, incoordination, libido increased, manic reaction, myoclonus, neuralgia, neuropathy, psychosis, seizure, abnormal speech, stupor; **Rare:** akinesia, alcohol abuse, aphasia,

bradykinesia, buccoglossal syndrome, cerebrovascular accident, feeling drunk, loss of consciousness, delusions, dementia, dystonia, facial paralysis, abnormal gait, Guillain-Barre Syndrome, hyperchlorhydria, hypokinesia, impulse control difficulties, neuritis, nystagmus, paranoid reaction, paresis, psychotic depression, reflexes decreased, reflexes increased, suicidal ideation, torticollis.

Respiratory system - **Frequent:** cough increased, dyspnea; **Infrequent:** asthma, chest congestion, epistaxis, hyperventilation, laryngismus, laryngitis, pneumonia, voice alteration; **Rare:** atelectasis, hemoptysis, hypoventilation, hypoxia, larynx edema, pleurisy, pulmonary embolus, sleep apnea.

Skin and appendages - **Frequent:** pruritus; **Infrequent:** acne, alopecia, brittle nails, contact dermatitis, dry skin, eczema, skin hypertrophy, maculopapular rash, psoriasis, urticaria; **Rare:** erythema nodosum, exfoliative dermatitis, lichenoid dermatitis, hair discoloration, skin discoloration, furunculosis, hirsutism, leukoderma, petechial rash, pustular rash, vesiculobullous rash, seborrhea, skin atrophy, skin striae.

Special senses - **Frequent:** abnormality of accommodation, mydriasis, taste perversion; **Infrequent:** cataract, conjunctivitis, corneal lesion, diplopia, dry eyes, eye pain, hyperacusis, otitis media, parosmia, photophobia, taste loss, visual field defect; **Rare:** blepharitis, chromatopsia, conjunctival edema, deafness, exophthalmos, glaucoma, retinal hemorrhage, subconjunctival hemorrhage, keratitis, labyrinthitis, miosis, papilledema, decreased papillary reflex, otitis externa, scleritis, uveitis.

Urogenital system - **Frequent:** metrorrhagia,\* prostatic disorder (prostatitis and enlarged prostate),\* urination impaired, vaginitis\*; **Infrequent:** albuminuria, amenorrhea,\* cystitis, dysuria, hematuria, leukorrhea,\* menorrhagia,\* nocturia, bladder pain, breast pain, polyuria, pyuria, urinary incontinence, urinary retention, urinary urgency, vaginal hemorrhage\*; **Rare:** abortion,\* anuria, breast discharge, breast engorgement, balanitis,\* breast enlargement, endometriosis,\* female lactation,\* fibrocystic breast, calcium crystalluria, cervicitis,\* orchitis,\* ovarian cyst,\* prolonged erection,\* gynecomastia (male),\* hypomenorrhea,\* kidney calculus, kidney pain, kidney function abnormal, mastitis, menopause,\* pyelonephritis, oliguria, salpingitis,\* urolithiasis, uterine hemorrhage,\* uterine spasm,\* vaginal dryness.\*

\*Based on the number of men and women as appropriate.

### **Postmarketing Reports**

Voluntary reports of other adverse events temporally associated with the use of venlafaxine that have been received since market introduction and that may have no causal relationship with the use of venlafaxine include the following: agranulocytosis, anaphylaxis, aplastic anemia, catatonia, congenital anomalies, CPK increased, deep vein thrombophlebitis, delirium, EKG abnormalities such as QT prolongation; cardiac arrhythmias including atrial fibrillation, supraventricular tachycardia, ventricular extrasystoles, and rare reports of ventricular fibrillation and ventricular tachycardia, including torsade de pointes; epidermal necrosis/Stevens-Johnson Syndrome, erythema multiforme, extrapyramidal symptoms (including tardive dyskinesia), hemorrhage (including eye and gastrointestinal bleeding),

hepatic events (including GGT elevation; abnormalities of unspecified liver function tests; liver damage, necrosis, or failure; and fatty liver), involuntary movements, LDH increased, neuroleptic malignant syndrome-like events (including a case of a 10-year-old who may have been taking methylphenidate, was treated and recovered), neutropenia, night sweats, pancreatitis, pancytopenia, panic, prolactin increased, pulmonary eosinophilia, renal failure, serotonin syndrome, shock-like electrical sensations (in some cases, subsequent to the discontinuation of venlafaxine or tapering of dose), and syndrome of inappropriate antidiuretic hormone secretion (usually in the elderly).

There have been reports of elevated clozapine levels that were temporally associated with adverse events, including seizures, following the addition of venlafaxine. There have been reports of increases in prothrombin time, partial thromboplastin time, or INR when venlafaxine was given to patients receiving warfarin therapy.

## **DRUG ABUSE AND DEPENDENCE**

### **Controlled Substance Class**

Venlafaxine Hydrochloride Extended-Release Tablets is not a controlled substance.

### **Physical and Psychological Dependence**

In vitro studies revealed that venlafaxine has virtually no affinity for opiate, benzodiazepine, phencyclidine (PCP), or N-methyl-D-aspartic acid (NMDA) receptors.

Venlafaxine was not found to have any significant CNS stimulant activity in rodents. In primate drug discrimination studies, venlafaxine showed no significant stimulant or depressant abuse liability.

Discontinuation effects have been reported in patients receiving venlafaxine (see **DOSAGE AND ADMINISTRATION**).

While venlafaxine has not been systematically studied in clinical trials for its potential for abuse, there was no indication of drug-seeking behavior in the clinical trials. However, it is not possible to predict on the basis of premarketing experience the extent to which a CNS active drug will be misused, diverted, and/or abused once marketed. Consequently, physicians should carefully evaluate patients for history of drug abuse and follow such patients closely, observing them for signs of misuse or abuse of venlafaxine (eg, development of tolerance, incrementation of dose, drug-seeking behavior).

## **OVERDOSAGE**

### **Human Experience**

Among the patients included in the premarketing evaluation of Venlafaxine Hydrochloride Extended-Release Capsules, there were 2 reports of acute overdosage with Venlafaxine Hydrochloride Extended-Release Capsules in major depressive disorder trials, either alone or in combination with other drugs. One patient took a combination of 6 g of Venlafaxine Hydrochloride Extended-Release Capsules and 2.5 mg of lorazepam. This patient was hospitalized, treated symptomatically, and recovered without any untoward effects. The other

patient took 2.85 g of Venlafaxine Hydrochloride Extended-Release Capsules. This patient reported paresthesia of all four limbs but recovered without sequelae.

There were 2 reports of acute overdose with Venlafaxine Hydrochloride Extended-Release Capsules in GAD trials. One patient took a combination of 0.75 g of Venlafaxine Hydrochloride Extended-Release Capsules and 200 mg of paroxetine and 50 mg of zolpidem. This patient was described as being alert, able to communicate, and a little sleepy. This patient was hospitalized, treated with activated charcoal, and recovered without any untoward effects. The other patient took 1.2 g of Venlafaxine Hydrochloride Extended-Release Capsules. This patient recovered and no other specific problems were found. The patient had moderate dizziness, nausea, numb hands and feet, and hot-cold spells 5 days after the overdose. These symptoms resolved over the next week.

There were no reports of acute overdose with Venlafaxine Hydrochloride Extended-Release Capsules in Social Anxiety Disorder trials.

Among the patients included in the premarketing evaluation with Venlafaxine Hydrochloride Tablets, there were 14 reports of acute overdose with venlafaxine, either alone or in combination with other drugs and/or alcohol. The majority of the reports involved ingestion in which the total dose of venlafaxine taken was estimated to be no more than several-fold higher than the usual therapeutic dose. The 3 patients who took the highest doses were estimated to have ingested approximately 6.75 g, 2.75 g, and 2.5 g. The resultant peak plasma levels of venlafaxine for the latter 2 patients were 6.24 and 2.35  $\mu\text{g/mL}$ , respectively, and the peak plasma levels of O-desmethylvenlafaxine were 3.37 and 1.30  $\mu\text{g/mL}$ , respectively. Plasma venlafaxine levels were not obtained for the patient who ingested 6.75 g of venlafaxine. All 14 patients recovered without sequelae. Most patients reported no symptoms. Among the remaining patients, somnolence was the most commonly reported symptom. The patient who ingested 2.75 g of venlafaxine was observed to have 2 generalized convulsions and a prolongation of QTc to 500 msec, compared with 405 msec at baseline. Mild sinus tachycardia was reported in 2 of the other patients.

In postmarketing experience, overdose with venlafaxine has occurred predominantly in combination with alcohol and/or other drugs. Electrocardiogram changes (eg, prolongation of QT interval, bundle branch block, QRS prolongation), sinus and ventricular tachycardia, bradycardia, hypotension, altered level of consciousness (ranging from somnolence to coma), seizures, vertigo, and death have been reported.

### **Management of Overdosage**

Treatment should consist of those general measures employed in the management of overdosage with any antidepressant.

Ensure an adequate airway, oxygenation, and ventilation. Monitor cardiac rhythm and vital signs. General supportive and symptomatic measures are also recommended. Induction of emesis is not recommended. Gastric lavage with a large bore orogastric tube with appropriate airway protection, if needed, may be indicated if performed soon after ingestion or in symptomatic patients.

Activated charcoal should be administered. Due to the large volume of distribution of this drug, forced diuresis, dialysis, hemoperfusion, and exchange transfusion are unlikely to be of benefit. No specific antidotes for venlafaxine are known.

In managing overdosage, consider the possibility of multiple drug involvement. The physician should consider contacting a poison control center for additional information on the treatment of any overdose. Telephone numbers for certified poison control centers are listed in the *Physicians' Desk Reference*<sup>®</sup> (PDR).

## **DOSAGE AND ADMINISTRATION**

Venlafaxine Hydrochloride Extended-Release Tablets should be administered in a single dose with food either in the morning or in the evening at approximately the same time each day. Each tablet should be swallowed whole with fluid and not divided, crushed, chewed, or placed in water. This drug mixture should be swallowed immediately without chewing and followed with a glass of water to ensure complete swallowing of the tablet.

### **Initial Treatment**

#### *Major Depressive Disorder*

For most patients, the recommended starting dose for Venlafaxine Hydrochloride Extended-Release Tablets is 75 mg/day, administered in a single dose. In the clinical trials establishing the efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in moderately depressed outpatients, the initial dose of venlafaxine was 75 mg/day. For some patients, it may be desirable to start at 37.5 mg/day for 4 to 7 days, to allow new patients to adjust to the medication before increasing to 75 mg/day. While the relationship between dose and antidepressant response for Venlafaxine Hydrochloride Extended-Release Capsules has not been adequately explored, patients not responding to the initial 75 mg/day dose may benefit from dose increases to a maximum of approximately 225 mg/day. Dose increases should be in increments of up to 75 mg/day, as needed, and should be made at intervals of not less than 4 days, since steady state plasma levels of venlafaxine and its major metabolites are achieved in most patients by day 4. In the clinical trials establishing efficacy, upward titration was permitted at intervals of 2 weeks or more; the average doses were about 140 to 180 mg/day (see **Clinical Trials** under **CLINICAL PHARMACOLOGY**).

It should be noted that, while the maximum recommended dose for moderately depressed outpatients is also 225 mg/day for Venlafaxine Hydrochloride Tablets, more severely depressed inpatients in one study of the development program for that product responded to a mean dose of 350 mg/day (range of 150 to 375 mg/day). Whether or not higher doses of Venlafaxine Hydrochloride Extended-Release Tablets are needed for more severely depressed patients is unknown; however, the experience with Venlafaxine Hydrochloride Extended-Release Capsule doses higher than 225 mg/day is very limited. (See **PRECAUTIONS-General-Use in Patients with Concomitant Illness**.)

#### *Generalized Anxiety Disorder*

For most patients, the recommended starting dose for Venlafaxine Hydrochloride Extended-Release Tablets is 75 mg/day, administered in a single dose. In clinical trials establishing the

efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in outpatients with Generalized Anxiety Disorder (GAD), the initial dose of venlafaxine was 75 mg/day. For some patients, it may be desirable to start at 37.5 mg/day for 4 to 7 days, to allow new patients to adjust to the medication before increasing to 75 mg/day. Although a dose-response relationship for effectiveness in GAD was not clearly established in fixed-dose studies, certain patients not responding to the initial 75 mg/day dose may benefit from dose increases to a maximum of approximately 225 mg/day. Dose increases should be in increments of up to 75 mg/day, as needed, and should be made at intervals of not less than 4 days. (See the *Use in Patients with Concomitant Illness* section of **PRECAUTIONS**.)

#### *Social Anxiety Disorder (Social Phobia)*

For most patients, the recommended starting dose for Venlafaxine Hydrochloride Extended-Release Tablets is 75 mg/day, administered in a single dose. In clinical trials establishing the efficacy of Venlafaxine Hydrochloride Extended-Release Capsules in outpatients with Social Anxiety Disorder, the initial dose of Venlafaxine Hydrochloride Extended-Release Capsules was 75 mg/day and the maximum dose was 225 mg/day. For some patients, it may be desirable to start at 37.5 mg/day for 4 to 7 days, to allow new patients to adjust to the medication before increasing to 75 mg/day. Although a doseresponse relationship for effectiveness in patients with Social Anxiety Disorder was not clearly established in fixed-dose studies, certain patients not responding to the initial 75 mg/day dose may benefit from dose increases to a maximum of approximately 225 mg/day. Dose increases should be in increments of up to 75 mg/day, as needed, and should be made at intervals of not less than 4 days. (See the *Use in Patients with Concomitant Illness* section of **PRECAUTIONS**).

#### **Switching Patients from Venlafaxine Hydrochloride Tablets**

Depressed patients who are currently being treated at a therapeutic dose with Venlafaxine Hydrochloride Tablets may be switched to Venlafaxine Hydrochloride Extended-Release Tablets at the nearest equivalent dose (mg/day), eg, 37.5 mg venlafaxine two-times-a-day to 75 mg Venlafaxine Hydrochloride Extended-Release Tablets once daily. However, individual dosage adjustments may be necessary.

#### **Patients with Hepatic Impairment**

Given the decrease in clearance and increase in elimination half-life for both venlafaxine and ODV that is observed in patients with hepatic cirrhosis compared with normal subjects (see **CLINICAL PHARMACOLOGY**), it is recommended that the starting dose be reduced by 50% in patients with moderate hepatic impairment. Because there was much individual variability in clearance between patients with cirrhosis, individualization of dosage may be desirable in some patients.

#### **Patients with Renal Impairment**

Given the decrease in clearance for venlafaxine and the increase in elimination half-life for both venlafaxine and ODV that is observed in patients with renal impairment (GFR = 10 to 70 mL/min) compared with normal subjects (see **CLINICAL PHARMACOLOGY**), it is recommended that the total daily dose be reduced by 25% to 50%. In patients undergoing hemodialysis, it is recommended that the total daily dose be reduced by 50% and that the dose be withheld until the dialysis treatment is completed (4 hrs). Because there was much

individual variability in clearance between patients with renal impairment, individualization of dosage may be desirable in some patients.

### **Elderly Patients**

No dose adjustment is recommended for elderly patients solely on the basis of age. As with any drug for the treatment of major depressive disorder, Generalized Anxiety Disorder, or Social Anxiety Disorder, however, caution should be exercised in treating the elderly. When individualizing the dosage, extra care should be taken when increasing the dose.

### **Maintenance Treatment**

There is no body of evidence available from controlled trials to indicate how long patients with major depressive disorder, Generalized Anxiety Disorder, or Social Anxiety Disorder should be treated with Venlafaxine Hydrochloride Extended-Release Capsules.

It is generally agreed that acute episodes of major depressive disorder require several months or longer of sustained pharmacological therapy beyond response to the acute episode. In one study, in which patients responding during 8 weeks of acute treatment with Venlafaxine Hydrochloride Extended-Release Capsules were assigned randomly to placebo or to the same dose of Venlafaxine Hydrochloride Extended-Release Capsules (75, 150, or 225 mg/day, qAM) during 26 weeks of maintenance treatment as they had received during the acute stabilization phase, longer-term efficacy was demonstrated. A second longer-term study has demonstrated the efficacy of Venlafaxine Hydrochloride Tablets in maintaining a response in patients with recurrent major depressive disorder who had responded and continued to be improved during an initial 26 weeks of treatment and were then randomly assigned to placebo or Venlafaxine Hydrochloride Tablets for periods of up to 52 weeks on the same dose (100 to 200 mg/day, on a b.i.d. schedule) (see **Clinical Trials** under **CLINICAL PHARMACOLOGY**). Based on these limited data, it is not known whether or not the dose of Venlafaxine Hydrochloride Tablets/Venlafaxine Hydrochloride Extended-Release Capsules needed for maintenance treatment is identical to the dose needed to achieve an initial response. Patients should be periodically reassessed to determine the need for maintenance treatment and the appropriate dose for such treatment.

In patients with Generalized Anxiety Disorder, Venlafaxine Hydrochloride Extended-Release Capsules has been shown to be effective in 6-month clinical trials. The need for continuing medication in patients with GAD who improve with Venlafaxine Hydrochloride Extended-Release Tablets treatment should be periodically reassessed.

In patients with Social Anxiety Disorder, there are no efficacy data beyond 12 weeks of treatment with Venlafaxine Hydrochloride Extended-Release Capsules. The need for continuing medication in patients with Social Anxiety Disorder who improve with Venlafaxine Hydrochloride Extended-Release Tablets treatment should be periodically reassessed.

### **Discontinuing Venlafaxine Hydrochloride Extended-Release Tablets**

When discontinuing Venlafaxine Hydrochloride Extended-Release Tablets after more than 1 week of therapy, it is generally recommended that the dose be tapered to minimize the risk of discontinuation symptoms. Patients who have received Venlafaxine Hydrochloride Extended-

Release Tablets for 6 weeks or more should have their dose tapered over at least a 2-week period. In clinical trials with Venlafaxine Hydrochloride Extended-Release Capsules, tapering was achieved by reducing the daily dose by 75 mg at 1 week intervals. Individualization of tapering may be necessary.

Discontinuation symptoms have been systematically evaluated in patients taking venlafaxine, to include prospective analyses of clinical trials in Generalized Anxiety Disorder and retrospective surveys of trials of major depressive disorder. Abrupt discontinuation or dose reduction of venlafaxine at various doses has been found to be associated with the appearance of new symptoms, the frequency of which increased with increased dose level and with longer duration of treatment. Reported symptoms include agitation, anorexia, anxiety, confusion, coordination impaired, diarrhea, dizziness, dry mouth, dysphoric mood, fasciculation, fatigue, headaches, hypomania, insomnia, nausea, nervousness, nightmares, sensory disturbances (including shocklike electrical sensations), somnolence, sweating, tremor, vertigo, and vomiting. It is therefore recommended that the dosage of Venlafaxine Hydrochloride Extended-Release Tablets be tapered gradually and the patient monitored. The period required for tapering may depend on the dose, duration of therapy and the individual patient. Discontinuation effects are well known to occur with antidepressants.

#### **Switching Patients To or From a Monoamine Oxidase Inhibitor**

At least 14 days should elapse between discontinuation of an MAOI and initiation of therapy with Venlafaxine Hydrochloride Extended-Release Tablets. In addition, at least 7 days should be allowed after stopping Venlafaxine Hydrochloride Extended-Release Tablets before starting an MAOI (see **CONTRAINDICATIONS** and **WARNINGS**).

#### **HOW SUPPLIED**

Description of Venlafaxine Hydrochloride Extended-Release Tablets to be determined.

**Store at controlled room temperature, 20°C to 25°C (68°F to 77°F).**