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• General information

• **Information on endometriosis**

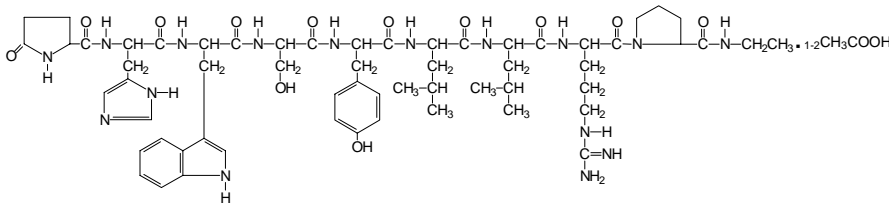
• Information on uterine fibroids

**LUPRON DEPOT® 3.75 mg**

(leuprolide acetate for depot suspension)

## DESCRIPTION

Leuprolide acetate is a synthetic nonapeptide analog of naturally occurring gonadotropin-releasing hormone (GnRH or LH-RH). The analog possesses greater potency than the natural hormone. The chemical name is 5-oxo-L-prolyl-L-histidyl-L-tryptophyl-L-seryl-L-tyrosyl-D-leucyl-L-leucyl-L-arginyl-N-ethyl-L-prolinamide acetate (salt) with the following structural formula:



LUPRON DEPOT is available in a prefilled dual-chamber syringe containing sterile lyophilized microspheres which, when mixed with diluent, become a suspension intended as a monthly intramuscular injection.

The front chamber of LUPRON DEPOT 3.75 mg prefilled dual-chamber syringe contains leuprolide acetate (3.75 mg), purified gelatin (0.65 mg), DL-lactic and glycolic acids copolymer (33.1 mg), and D-mannitol (6.6 mg). The second chamber of diluent contains carboxymethylcellulose sodium (5 mg), D-mannitol (50 mg), polysorbate 80 (1 mg), water for injection, USP, and glacial acetic acid, USP to control pH.

During the manufacture of LUPRON DEPOT 3.75 mg, acetic acid is lost, leaving the peptide.

## CLINICAL PHARMACOLOGY

Leuprolide acetate is a long-acting GnRH analog. A single monthly injection of LUPRON DEPOT 3.75 mg results in an initial stimulation followed by a prolonged suppression of pituitary gonadotropins. Repeated dosing at monthly intervals results in decreased secretion of gonadal steroids; consequently, tissues and functions that depend on gonadal steroids for their maintenance become quiescent. This effect is reversible on discontinuation of drug therapy.

Leuprolide acetate is not active when given orally. Intramuscular injection of the depot formulation provides plasma concentrations of leuprolide over a period of one month.

## Pharmacokinetics

**Absorption** A single dose of LUPRON DEPOT 3.75 mg was administered by intramuscular injection to healthy female volunteers. The absorption of leuprolide was characterized by an initial increase in plasma concentration, with peak concentration ranging from 4.6 to 10.2 ng/mL at four hours postdosing. However, intact leuprolide and an inactive metabolite could not be distinguished by the assay used in the study. Following the initial rise, leuprolide concentrations started to plateau within two days after dosing and remained relatively stable for about four to five weeks with plasma concentrations of about 0.30 ng/mL.

**Distribution** The mean steady-state volume of distribution of leuprolide following intravenous bolus administration to healthy male volunteers was 27 L. *In vitro* binding to human plasma proteins ranged from 43% to 49%.

**Metabolism** In healthy male volunteers, a 1 mg bolus of leuprolide administered intravenously revealed that the mean systemic clearance was 7.6 L/h, with a terminal elimination half-life of approximately 3 hours based on a two compartment model.

In rats and dogs, administration of <sup>14</sup>C-labeled leuprolide was shown to be metabolized to smaller inactive peptides, a pentapeptide (Metabolite I), tripeptides (Metabolites II and III) and a dipeptide (Metabolite IV). These fragments may be further catabolized.

The major metabolite (M-I) plasma concentrations measured in 5 prostate cancer patients reached maximum concentration 2 to 6 hours after dosing and were approximately 6% of the peak parent drug concentration. One week after dosing, mean plasma M-I concentrations were approximately 20% of mean leuprolide concentrations.

**Excretion** Following administration of LUPRON DEPOT 3.75 mg to 3 patients, less than 5% of the dose was recovered as parent and M-I metabolite in the urine.

**Special Populations** The pharmacokinetics of the drug in hepatically and renally impaired patients have not been determined.

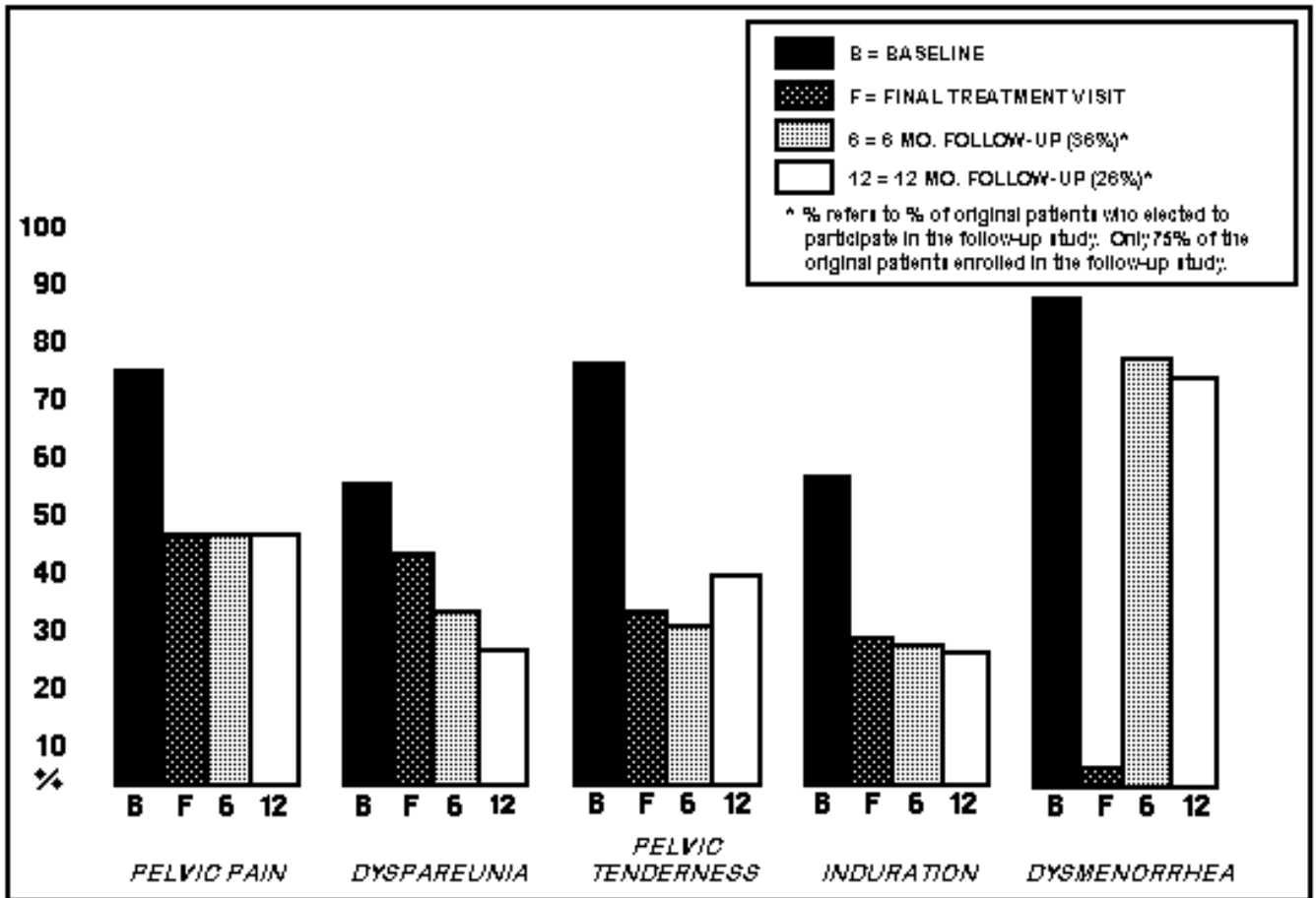
## CLINICAL STUDIES

**Endometriosis:** In controlled clinical studies, LUPRON DEPOT 3.75 mg monthly for six months was shown to be comparable to danazol 800 mg/day in relieving the clinical sign/symptoms of endometriosis (pelvic pain, dysmenorrhea, dyspareunia, pelvic tenderness, and induration) and in reducing the size of endometrial implants as evidenced by laparoscopy. The clinical significance of a decrease in endometriotic lesions is not known at this time, and in addition laparoscopic staging of endometriosis does not necessarily correlate with the severity of symptoms.

LUPRON DEPOT 3.75 mg monthly induced amenorrhea in 74% and 98% of the patients after the first and second treatment months respectively. Most of the remaining patients reported episodes of only light bleeding or spotting. In the first, second and third post-treatment months, normal menstrual cycles resumed in 7%, 71% and 95% of patients, respectively, excluding those who became pregnant.

Figure 1 illustrates the percent of patients with symptoms at baseline, final treatment visit and sustained relief at 6 and 12 months following discontinuation of treatment for the various symptoms evaluated during the study. This included all patients at end of treatment and those who elected to participate in the follow-up periods. This might provide a slight bias in the results at follow-up as 75% of the original patients entered the follow-up study, and 36% were evaluated at 6 months and 26% at 12 months.

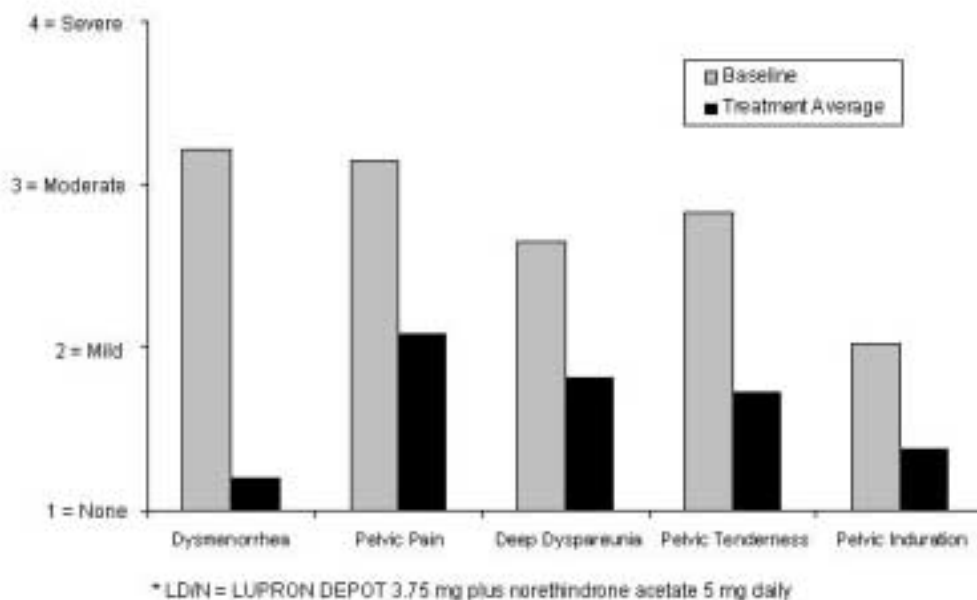
**FIGURE 1-PERCENT OF PATIENTS WITH SIGN/SYMPTOMS AT BASELINE, FINAL TREATMENT VISIT, AND AFTER 6 AND 12 MONTHS OF FOLLOW-UP**



*Hormonal add-back therapy:* Two clinical studies with a treatment duration of 12 months indicate that concurrent hormonal therapy (norethindrone acetate 5 mg daily) is effective in significantly reducing the loss of bone mineral density associated with LUPRON, without compromising the efficacy of LUPRON in relieving symptoms of endometriosis. (All patients in these studies received calcium supplementation with 1000 mg elemental calcium). One controlled, randomized and double-blind study included 51 women treated with Lupron Depot alone and 55 women treated with Lupron plus norethindrone acetate 5 mg daily. The second study was an open label study in which 136 women were treated with Lupron plus norethindrone acetate 5 mg daily (LD/N) daily. This study confirmed the reduction in loss of bone mineral density that was observed in the controlled study. Suppression of menses was maintained throughout treatment in 84% and 73% of patients receiving LD/N in the controlled study and the open label study, respectively. The median time for menses resumption after treatment with LD/N was 8 weeks.

Figure 2 illustrates the mean pain scores for the LD/N group from the controlled study.

Figure 2  
Treatment Period Mean Pain Scores For LD/N\* Patients



*Uterine Leiomyomata (Fibroids):* In controlled clinical trials, administration of LUPRON DEPOT 3.75 mg for a period of three or six months was shown to decrease uterine and fibroid volume, thus allowing for relief of clinical symptoms (abdominal bloating, pelvic pain, and pressure). Excessive vaginal bleeding (menorrhagia and menometrorrhagia) decreased, resulting in improvement in hematologic parameters.

In three clinical trials, enrollment was not based on hematologic status. Mean uterine volume decreased by 41% and myoma volume decreased by 37% at final visit as evidenced by ultrasound or MRI. These patients also experienced a decrease in symptoms including excessive vaginal bleeding and pelvic discomfort. Benefit occurred by three months of therapy, but additional gain was observed with an additional three months of LUPRON DEPOT 3.75 mg. Ninety-five percent of these patients became amenorrheic with 61%, 25%, and 4% experiencing amenorrhea during the first, second, and third treatment months respectively.

Post-treatment follow-up was carried out for a small percentage of LUPRON DEPOT 3.75 mg patients among the 77% who demonstrated a  $\geq 25\%$  decrease in uterine volume while on therapy. Menses usually returned within two months of cessation of therapy. Mean time to return to pretreatment uterine size was 8.3 months. Regrowth did not appear to be related to pretreatment uterine volume.

In another controlled clinical study, enrollment was based on hematocrit  $\leq 30\%$  and/or hemoglobin  $\leq 10.2$  g/dL. Administration of LUPRON DEPOT 3.75 mg, concomitantly with iron, produced an increase of  $\geq 6\%$  hematocrit and  $\geq 2$  g/dL hemoglobin in 77% of patients at three months of therapy. The mean change in hematocrit was 10.1% and the mean change in hemoglobin was 4.2 g/dL. Clinical response was judged to be a hematocrit of  $\geq 36\%$  and hemoglobin of  $\geq 12$  g/dL, thus allowing for autologous blood donation prior to surgery. At three months, 75% of patients met this criterion.

At three months, 80% of patients experienced relief from either menorrhagia or menometrorrhagia. As with the previous studies, episodes of spotting and menstrual-like bleeding were noted in some patients.

*In this same study, a decrease of  $\geq 25\%$  was seen in uterine and myoma volumes in 60% and 54% of patients respectively. LUPRON DEPOT 3.75 mg was found to relieve symptoms of bloating, pelvic pain, and pressure.*

There is no evidence that pregnancy rates are enhanced or adversely affected by the use of LUPRON DEPOT 3.75 mg.

## **INDICATIONS AND USAGE**

### ***Endometriosis:***

LUPRON DEPOT 3.75 mg is indicated for management of endometriosis, including pain relief and reduction of endometriotic lesions. LUPRON DEPOT monthly with norethindrone acetate 5 mg daily is also indicated for initial management of endometriosis and for management of recurrence of symptoms ( Refer also to norethindrone acetate prescribing information for **WARNINGS, PRECAUTIONS, CONTRAINDICATIONS and ADVERSE REACTIONS** associated with norethindrone acetate). Duration of initial treatment or retreatment should be limited to 6 months.

### ***Uterine Leiomyomata (Fibroids):***

LUPRON DEPOT 3.75 mg concomitantly with iron therapy is indicated for the preoperative hematologic improvement of patients with anemia caused by uterine leiomyomata. The clinician may wish to consider a one-month trial period on iron alone inasmuch as some of the patients will respond to iron alone. (See Table 1.) LUPRON may be added if the response to iron alone is considered inadequate. Recommended duration of therapy with LUPRON DEPOT 3.75 mg is **up to** three months.

Experience with LUPRON DEPOT in females has been limited to women 18 years of age and older.

TABLE 1  
PERCENT OF PATIENTS ACHIEVING  
HEMOGLOBIN  $\geq$  12 GM/DL

Treatment Group	Week 4	Week 8	Week 12
LUPRON DEPOT 3.75 mg with Iron	41*	71**	79*
Iron Alone	17	40	56

\* P-Value < 0.01

\*\* P-Value < 0.001

### CONTRAINDICATIONS

1. Hypersensitivity to GnRH, GnRH agonist analogs or any of the excipients in LUPRON DEPOT.
2. Undiagnosed abnormal vaginal bleeding.
3. LUPRON DEPOT is contraindicated in women who are or may become pregnant while receiving the drug. LUPRON DEPOT may cause fetal harm when administered to a pregnant woman. Major fetal abnormalities were observed in rabbits but not in rats after administration of LUPRON DEPOT throughout gestation. There was increased fetal mortality and decreased fetal weights in rats and rabbits. (See **Pregnancy** section.) The effects on fetal mortality are expected consequences of the alterations in hormonal levels brought about by the drug. If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus.
4. Use in women who are breast-feeding. (See **Nursing Mothers** section.)
5. Norethindrone acetate is contraindicated in women with the following conditions:
  - Thrombophlebitis, thromboembolic disorders, cerebral apoplexy, or a past history of these conditions
  - Markedly impaired liver function or liver disease
  - Known or suspected carcinoma of the breast

### WARNINGS

Safe use of leuprolide acetate or norethindrone acetate in pregnancy has not been established clinically. Before starting treatment with LUPRON DEPOT, pregnancy must be excluded.

When used monthly at the recommended dose, LUPRON DEPOT usually inhibits ovulation and stops menstruation. Contraception is not insured, however, by taking LUPRON DEPOT. Therefore, patients should use non-hormonal methods of contraception. Patients should be advised to see their physician if they believe they may be pregnant. If a patient becomes pregnant during treatment, the drug must be discontinued and the patient must be apprised of the potential risk to the fetus.

During the early phase of therapy, sex steroids temporarily rise above baseline because of the physiologic effect of the drug. Therefore, an increase in clinical signs and symptoms may be observed during the initial days of therapy, but these will dissipate with continued therapy.

Symptoms consistent with an anaphylactoid or asthmatic process have been rarely reported post-marketing.

The following applies to co-treatment with Lupron and norethindrone acetate:

Norethindrone acetate treatment should be discontinued if there is a sudden partial or complete loss of vision or if there is sudden onset of protosis, diplopia, or migraine. If examination reveals papilledema or retinal vascular lesions, medication should be withdrawn.

Because of the occasional occurrence of thrombophlebitis and pulmonary embolism in patients taking progestogens, the physician should be alert to the earliest manifestations of the disease in women taking norethindrone acetate.

Assessment and management of risk factors for cardiovascular disease is recommended prior to initiation of add-back therapy with norethindrone acetate. Norethindrone acetate should be used with caution in women with risk factors, including lipid abnormalities or cigarette smoking.

## **PRECAUTIONS**

**Information for Patients** An information pamphlet for patients is included with the product. Patients should be aware of the following information:

1. Since menstruation should stop with effective doses of LUPRON DEPOT, the patient should notify her physician if regular menstruation persists. Patients missing successive doses of LUPRON DEPOT may experience breakthrough bleeding.
2. Patients should not use LUPRON DEPOT if they are pregnant, breast feeding, have undiagnosed abnormal vaginal bleeding, or are allergic to any of the ingredients in LUPRON DEPOT.
3. Safe use of the drug in pregnancy has not been established clinically. Therefore, a non-hormonal method of contraception should be used during treatment. Patients should be advised that if they miss successive doses of LUPRON DEPOT, breakthrough bleeding or ovulation may occur with the potential for conception. If a patient becomes pregnant during treatment, she should discontinue treatment and consult her physician.
4. Adverse events occurring in clinical studies with LUPRON DEPOT that are associated with hypoestrogenism include: hot flashes, headaches, emotional lability, decreased libido, acne, myalgia, reduction in breast size, and vaginal dryness. Estrogen levels returned to normal after treatment was discontinued.
5. The induced hypoestrogenic state **also** results in a loss in bone density over the course of treatment, some of which may not be reversible. For a period up to six months, this bone loss should not be clinically significant. Clinical studies show that concurrent hormonal therapy with norethindrone acetate 5 mg daily is effective in reducing loss of bone mineral density that occurs with LUPRON. (All patients received calcium supplementation with 1000 mg elemental calcium.) (See *Changes In Bone Density* section).

6. If the symptoms of endometriosis recur after a course of therapy, retreatment with a six-month course of LUPRON DEPOT and norethindrone acetate 5 mg daily may be considered. Retreatment beyond this one six month course can not be recommended. It is recommended that bone density be assessed before retreatment begins to ensure that values are within normal limits. Retreatment with Lupron Depot alone is not recommended.
7. In patients with major risk factors for decreased bone mineral content such as chronic alcohol and/or tobacco use, strong family history of osteoporosis, or chronic use of drugs that can reduce bone mass such as anticonvulsants or corticosteroids, Lupron Depot therapy may pose an additional risk. In these patients, the risks and benefits must be weighed carefully before therapy with LUPRON DEPOT alone is instituted, and concomitant treatment with norethindrone acetate 5 mg daily should be considered. Retreatment with gonadotropin releasing hormone analogs, including LUPRON is not advisable in patients with major risk factors for loss of bone mineral content.
8. Because norethindrone acetate may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy, migraine, asthma, cardiac or renal dysfunctions require careful observation during norethindrone acetate add-back therapy.
9. Patients who have a history of depression should be carefully observed during treatment with norethindrone acetate and norethindrone acetate should be discontinued if severe depression occurs.

**Laboratory Tests** See **ADVERSE REACTIONS** section.

**Drug Interactions** No pharmacokinetic-based drug-drug interaction studies have been conducted with LUPRON DEPOT. However, because leuprolide acetate is a peptide that is primarily degraded by peptidase and not by cytochrome P-450 enzymes as noted in specific studies, and the drug is only about 46% bound to plasma proteins, drug interactions would not be expected to occur.

**Drug/Laboratory Test Interactions** Administration of LUPRON DEPOT in therapeutic doses results in suppression of the pituitary-gonadal system. Normal function is usually restored within three months after treatment is discontinued. Therefore, diagnostic tests of pituitary gonadotropic and gonadal functions conducted during treatment and for up to three months after discontinuation of LUPRON DEPOT may be misleading.

**Carcinogenesis, Mutagenesis, Impairment of Fertility** A two-year carcinogenicity study was conducted in rats and mice. In rats, a dose-related increase of benign pituitary hyperplasia and benign pituitary adenomas was noted at 24 months when the drug was administered subcutaneously at high daily doses (0.6 to 4 mg/kg). There was a significant but not dose-related increase of pancreatic islet-cell adenomas in females and of testicular interstitial cell adenomas in males (highest incidence in the low dose group). In mice, no leuprolide acetate-induced tumors or pituitary abnormalities were observed at a dose as high as 60 mg/kg for two years. Patients have been treated with leuprolide acetate for up to three years with doses as high as 10 mg/day and for two years with doses as high as 20 mg/day without demonstrable pituitary abnormalities.

Mutagenicity studies have been performed with leuprolide acetate using bacterial and mammalian systems. These studies provided no evidence of a mutagenic potential.



Clinical and pharmacologic studies in adults (>18 years) with leuprolide acetate and similar analogs have shown reversibility of fertility suppression when the drug is discontinued after continuous administration for periods of up to 24 weeks. Although no clinical studies have been completed in children to assess the full reversibility of fertility suppression, animal studies (prepubertal and adult rats and monkeys) with leuprolide acetate and other GnRH analogs have shown functional recovery.

**Pregnancy, Teratogenic Effects** Pregnancy Category X. (See **CONTRAINDICATIONS** section.) When administered on day 6 of pregnancy at test dosages of 0.00024, 0.0024, and 0.024 mg/kg (1/300 to 1/3 of the human dose) to rabbits, LUPRON DEPOT produced a dose-related increase in major fetal abnormalities. Similar studies in rats failed to demonstrate an increase in fetal malformations. There was increased fetal mortality and decreased fetal weights with the two higher doses of LUPRON DEPOT in rabbits and with the highest dose (0.024 mg/kg) in rats.

**Nursing Mothers** It is not known whether LUPRON DEPOT is excreted in human milk. Because many drugs are excreted in human milk, and because the effects of LUPRON DEPOT on lactation and/or the breast-fed child have not been determined, LUPRON DEPOT should not be used by nursing mothers.

**Pediatric Use** Experience with LUPRON DEPOT 3.75 mg for treatment of endometriosis has been limited to women 18 years of age and older.

See LUPRON DEPOT-PED<sup>®</sup> (leuprolide acetate for depot suspension) labeling for the safety and effectiveness in children with central precocious puberty.

**Geriatric Use** This product has not been studied in women over 65 years of age and is not indicated in this population.

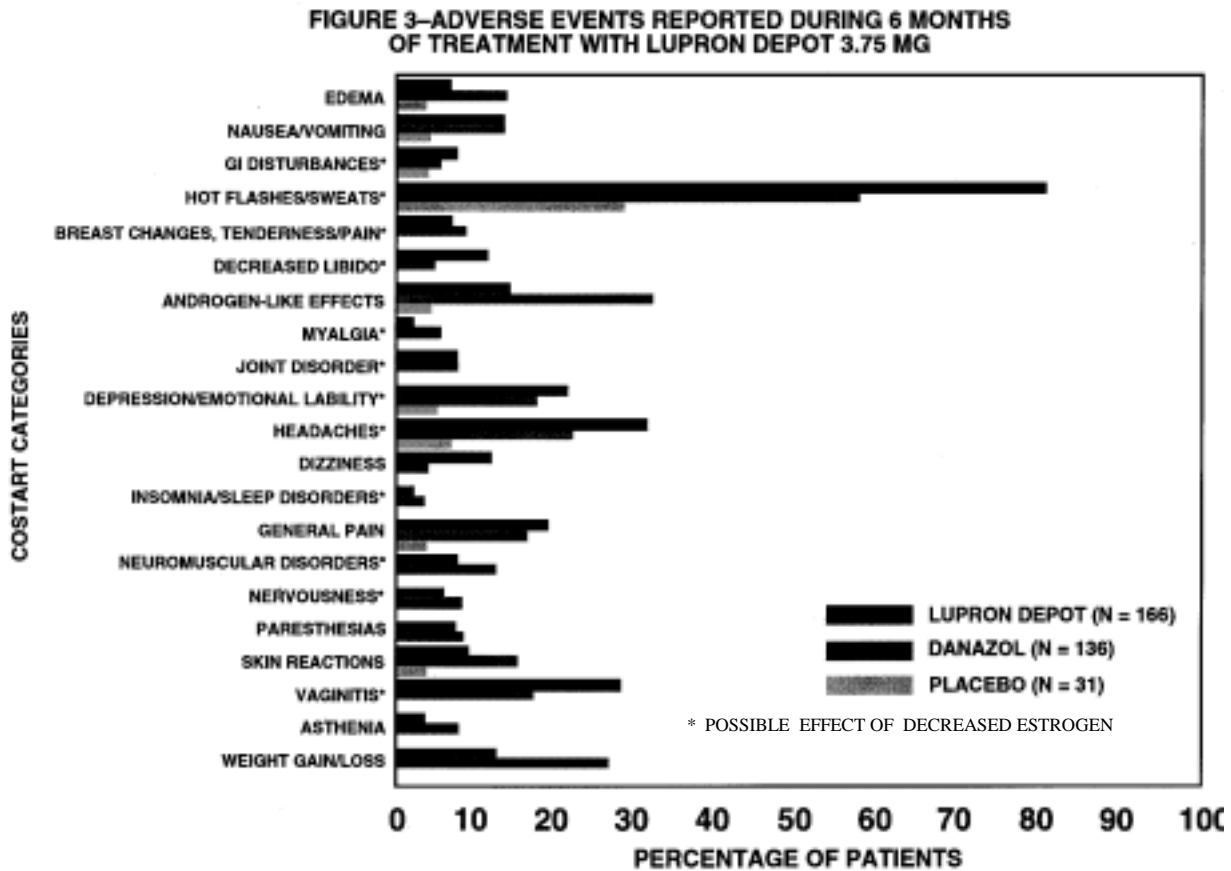
## **ADVERSE REACTIONS**

### **Clinical Trials**

Estradiol levels may increase during the first weeks following the initial injection of LUPRON, but then decline to menopausal levels. This transient increase in estradiol can be associated with a temporary worsening of signs and symptoms. (See **WARNINGS** section.)

As would be expected with a drug that lowers serum estradiol levels, the most frequently reported adverse reactions were those related to hypoestrogenism.

*Endometriosis:* In controlled studies comparing LUPRON DEPOT 3.75 mg monthly and danazol (800 mg/day) or placebo, adverse reactions most frequently reported and thought to be possibly or probably drug-related are shown in Figure 3.



In these same studies, other symptoms reported included: *Cardiovascular System* – Palpitations, Syncope, Tachycardia; *Gastrointestinal System* - Appetite changes; Dry mouth, Thirst, *Central/Peripheral Nervous System* – Anxiety, Delusions, Memory disorder, \* Personality disorder; *Integumentary System* – Alopecia, Ecchymosis, Hair disorder; *Urogenital System* – Dysuria, \* Lactation; *Miscellaneous* - \* Lymphadenopathy, Ophthalmologic disorders.

\*Possible effect of decreased estrogen

Table 2 lists the potentially drug-related adverse events observed in at least 5 % of patients in any treatment group during the first 6 months of treatment in the add back clinical studies.

**Table 2: Treatment-Related Adverse Events Occurring in  $\geq$  5% Of Patients**

Adverse Events	Controlled Study				Open Label Study	
	LD- Only <sup>1</sup> N= 51		LD/N <sup>2</sup> N=55		LD/N <sup>2</sup> N=136	
	N	(%)	N	(%)	N	(%)
<i>Any Adverse Event</i>	50	(98)	53	(96)	126	(93)
<i>Body as a Whole</i>						
Asthenia	9	(18)	10	(18)	15	(11)
Headache/Migraine	33	(65)	28	(51)	63	(46)
Injection Site Reaction	1	(2)	5	(9)	4	(3)
Pain	12	(24)	16	(29)	29	(21)
<i>Cardiovascular System</i>						
Hot flashes/Sweats	50	(98)	48	(87)	78	(57)
<i>Digestive System</i>						
Altered Bowel Function	7	(14)	8	(15)	14	(10)
Changes in Appetite	2	(4)	0	(0)	8	(6)
GI Disturbance	2	(4)	4	(7)	6	(4)
Nausea/Vomiting	13	(25)	16	(29)	17	(13)
<i>Metabolic and Nutritional Disorders</i>						
Edema	0	(0)	5	(9)	9	(7)
Weight Changes	6	(12)	7	(13)	6	(4)
<i>Nervous System</i>						
Anxiety	3	(6)	0	(0)	11	(8)
Depression/Emotional Lability	16	(31)	15	(27)	46	(34)
Dizziness/Vertigo	8	(16)	6	(11)	10	(7)
Insomnia/Sleep Disorders	16	(31)	7	(13)	20	(15)
Libido Changes	5	(10)	2	(4)	10	(7)

Memory Disorder	3	(6)	1	(2)	6	(4)
Nervousness	4	(8)	2	(4)	15	(11)
Neuromuscular Disorder	1	(2)	5	(9)	4	(3)
Skin and Appendages						
Alopecia	0	(0)	5	(9)	4	(3)
Androgen-Like Effects	2	(4)	3	(5)	24	(18)
Skin/Mucous Membrane Reaction	2	(4)	5	(9)	15	(11)
Urogenital System						
Breast Changes/Pain/Tenderness	3	(6)	7	(13)	11	(8)
Menstrual Disorders	1	(2)	0	(0)	7	(5)
Vaginitis	10	(20)	8	(15)	11	(8)

<sup>1</sup> LD Only =Lupron Depot 3.75 mg

<sup>2</sup>LD/N =Lupron Depot 3.75 mg plus norethindrone acetate 5mg

In the controlled clinical trial, 50 of 51 (98%) patients in the LD group and 48 of 55 (87%) patients in the LD/N group reported experiencing hot flashes on one or more occasions during treatment. During Month 6 of treatment, 32 of 37 (86%) patients in the LD group and 22 of 38 (58%) patients in the LD/N group reported having experienced hot flashes. The mean number of days on which hot flashes were reported during this month of treatment was 19 and 7 in the LD and LD/N treatment groups, respectively. The mean maximum number of hot flashes in a day during this month of treatment was 5.8 and 1.9 in the LD and LD/N treatment groups, respectively.

*Uterine Leiomyomata (Fibroids):* In controlled clinical trials comparing LUPRON DEPOT 3.75 mg and placebo, adverse events reported in > 5% of patients and thought to be potentially related to drug are noted in Table 3.

**TABLE 3**  
**ADVERSE EVENTS OBSERVED IN > 5% OF PATIENTS AND THOUGHT**  
**TO BE POTENTIALLY RELATED TO DRUG**

	Lupron Depot 3.75 mg		Placebo	
	N=166	(%)	N=163	(%)
Body as a Whole				
Asthenia	14	(8.4)	8	(4.9)
General pain	14	(8.4)	10	(6.1)
Headache*	43	(25.9)	29	(17.8)
Cardiovascular System				
Hot flashes/sweats*	121	(72.9)	29	(17.8)
Metabolic and Nutritional disorders				
Edema	9	(5.4)	2	(1.2)

**Musculoskeletal System**

Joint disorder*	13	(7.8)	5	(3.1)
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**Nervous System**

Depression/emotional lability*	18	(10.8)	7	(4.3)
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**Urogenital System**

Vaginitis*	19	(11.4)	3	(1.8)
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Symptoms reported in < 5% of patients included: *Body as Whole* - Body odor, Flu syndrome, Injection site reactions; *Cardiovascular System* - Tachycardia; *Digestive System* - Appetite changes, Dry mouth, GI disturbances, Nausea/vomiting; *Metabolic and Nutritional Disorders* - Weight changes; *Musculoskeletal System* - Myalgia; *Nervous System* - Anxiety, Decreased libido,\* Dizziness, Insomnia, Nervousness,\* Neuromuscular disorders, \* Paresthesias; *Respiratory System* - Rhinitis; *Integumentary System* - Androgen-like effects, Nail disorder, Skin reactions; *Special Senses* - Conjunctivitis, Taste perversion; *Urogenital System* - Breast changes,\* Menstrual disorders.

\* = Possible effect of decreased estrogen.

In one controlled clinical trial, patients received a higher dose (7.5 mg) of LUPRON DEPOT. Events seen with this dose that were thought to be potentially related to drug and were not seen at the lower dose included palpitations, syncope, glossitis, ecchymosis, hypesthesia, confusion, lactation, pyelonephritis, and urinary disorders. Generally, a higher incidence of hypoestrogenic effects was observed at the higher dose.

**Changes in Bone Density**

In controlled clinical studies, patients with endometriosis (six months of therapy) or uterine fibroids (three months of therapy) were treated with LUPRON DEPOT 3.75 mg. In endometriosis patients, vertebral bone density as measured by dual energy x-ray absorptiometry (DEXA) decreased by an average of 3.2% at six months compared with the pretreatment value. Clinical studies demonstrate that concurrent hormonal therapy (norethindrone acetate 5 mg daily) and calcium supplementation is effective in significantly reducing the loss of bone mineral density that occurs with LUPRON treatment, without compromising the efficacy of LUPRON in relieving symptoms of endometriosis.

LUPRON DEPOT 3.75 mg plus norethindrone acetate 5 mg daily was evaluated in two clinical trials. The results from this regimen were similar in both studies. LUPRON DEPOT 3.75 mg was used as a control group in one study. The bone mineral density data of the lumbar spine from these two studies are presented in Table 4.

**Table 4 Mean Percent Change from Baseline in Bone Mineral Density of Lumbar Spine**

	Lupron Depot 3.75mg		Lupron Depot 3.75 mg plus norethindrone acetate 5 mg daily			
	Controlled Study		Controlled Study		Open Label Study	
	N	Change	N	Change	N	Change
Week 24 <sup>1</sup>	41	-3.2%	42	-0.3%	115	-0.2%
Week 52 <sup>2</sup>	29	-6.3%	32	-1.0%	84	-1.1%

<sup>1</sup> Includes on-treatment measurements that fell within 2-252 days after the first day of treatment.

<sup>2</sup> Includes on-treatment measurements >252 days after the first day of treatment.

When LUPRON DEPOT 3.75 mg was administered for three months in uterine fibroid patients, vertebral trabecular bone mineral density as assessed by quantitative digital radiography (QDR) revealed a mean decrease of 2.7% compared with baseline. Six months after discontinuation of therapy, a trend toward recovery was observed. Use of LUPRON DEPOT for longer than three months (uterine fibroids) or six months (endometriosis) or in the presence of other known risk factors for decreased bone mineral content may cause additional bone loss **and is not recommended**.

### Changes in Laboratory Values During Treatment

#### Plasma Enzymes

*Endometriosis:* During early clinical trials with LUPRON DEPOT 3.75 mg, regular laboratory monitoring revealed that AST levels were more than twice the upper limit of normal in only one patient. There was no clinical or other laboratory evidence of abnormal liver function.

In two other clinical trials, 6 of 191 patients receiving LUPRON DEPOT 3.75 mg plus norethindrone acetate 5 mg daily for up to 12 months developed an elevated (at least twice the upper limit of normal) SGPT or GGT. Five of the 6 increases were observed beyond 6 months of treatment. None were associated with elevated bilirubin concentration.

*Uterine Leiomyomata (Fibroids):* In clinical trials with LUPRON DEPOT 3.75 mg, five (3%) patients had a post-treatment transaminase value that was at least twice the baseline value and above the upper limit of the normal range. None of the laboratory increases were associated with clinical symptoms.

#### Lipids

*Endometriosis:* In earlier clinical studies, 4% of the LUPRON DEPOT 3.75 mg patients and 1% of the danazol patients had total cholesterol values above the normal range at enrollment. These patients also had cholesterol values above the normal range at the end of treatment.

Of those patients whose pretreatment cholesterol values were in the normal range, 7% of the LUPRON DEPOT 3.75 mg patients and 9% of the danazol patients had post-treatment values above the normal range.

The mean ( $\pm$ SEM) pretreatment values for total cholesterol from all patients were 178.8 (2.9) mg/dL in the LUPRON DEPOT 3.75 mg groups and 175.3 (3.0) mg/dL in the danazol group. At the end of treatment, the mean values for total cholesterol from all patients were 193.3 mg/dL in the LUPRON DEPOT 3.75 mg group and 194.4 mg/dL in the danazol group. These increases from the pretreatment values were statistically significant ( $p < 0.03$ ) in both groups.

Triglycerides were increased above the upper limit of normal in 12% of the patients who received LUPRON DEPOT 3.75 mg and in 6% of the patients who received danazol.

At the end of treatment, HDL cholesterol fractions decreased below the lower limit of the normal range in 2% of the LUPRON DEPOT 3.75 mg patients compared with 54% of those receiving danazol. LDL cholesterol fractions increased above the upper limit of the normal range in 6% of the patients receiving LUPRON DEPOT 3.75 mg compared with 23% of those receiving danazol. There was no increase in the LDL/HDL ratio in patients receiving LUPRON DEPOT 3.75 mg but there was approximately a two-fold increase in the LDL/HDL ratio in patients receiving danazol.

In two other clinical trials, LUPRON DEPOT 3.75 mg plus norethindrone acetate 5 mg daily were evaluated for 12 months of treatment. LUPRON DEPOT 3.75 mg was used as a control group in one study. Percent changes from baseline for serum lipids and percentages of patients with serum lipid values outside of the normal range in the two studies are summarized in the tables below.

**Table 5 Serum Lipids: Mean Percent Changes from Baseline Values At Treatment Week 24**

Lupron		Lupron plus Norethindrone Acetate			
Controlled Study (n = 39)		Controlled Study (n = 41)		Open Label Study (n = 117)	
Baseline Value *	Week 24 % Change	Baseline Value *	Week 24 % Change	Baseline Value *	Week 24 % Change

Total Cholesterol	170.5	9.2%	179.3	0.2%	181.2	2.8%
HDL Cholesterol	52.4	7.4%	51.8	-18.8%	51.0	-14.6%
LDL Cholesterol	96.6	10.9%	101.5	14.1%	109.1	13.1%
LDL/HDL RATIO	2.0**	5.0%	2.1**	43.4%	2.3**	39.4%
Triglycerides	107.8	17.5%	130.2	9.5%	105.4	13.8%

\* mg/dL  
\*\* ratio

Changes from baseline tended to be greater at Week 52. After treatment, mean serum lipid levels from patients with follow up data returned to pretreatment values.

**Table 6 Percentage of Patients With Serum Lipid Values Outside of the Normal Range**

	Lupron		Lupron plus Norethindrone Acetate			
	Controlled Study (n = 39)		Controlled Study (n = 41)		Open Label Study (n = 117)	
	Wk 0	Wk 24*	Wk 0	Wk 24*	Wk 0	Wk 24*
Total Cholesterol (>240 mg/dL)	15%	23%	15%	20%	6%	7%
HDL Cholesterol (<40 mg/dL)	15%	10%	15%	44%	15%	41%
LDL Cholesterol (>160 mg/dL)	0%	8%	5%	7%	9%	11%
LDL/HDL RATIO >4.0	0%	3%	2%	15%	7%	21%
Triglycerides(>200 mg/dL)	13%	13%	12%	10%	5%	9%

\* Includes all patients regardless of baseline value.

Low HDL- cholesterol (<40 mg/dL) and elevated LDL- cholesterol (> 160 mg/dL) are recognized risk factors for cardiovascular disease. The long-term significance of the observed treatment-related changes in serum lipids in women with endometriosis is unknown. Therefore assessment of cardiovascular risk factors should be considered prior to initiation of concurrent treatment with Lupron and norethindrone acetate.



*Uterine Leiomyomata (Fibroids):* In patients receiving LUPRON DEPOT 3.75 mg, mean changes in cholesterol (+11 mg/dL to +29 mg/dL), LDL cholesterol (+8 mg/dL to +22 mg/dL), HDL cholesterol (0 to +6 mg/dL), and the LDL/HDL ratio (-0.1 to +0.5) were observed across studies. In the one study in which triglycerides were determined, the mean increase from baseline was 32 mg/dL.

#### Other Changes

*Endometriosis:* The following changes were seen in approximately 5% to 8% of patients. In the earlier comparative studies, LUPRON DEPOT 3.75 mg was associated with elevations of LDH and phosphorus, and decreases in WBC counts. Danazol therapy was associated with increases in hematocrit, platelet count, and LDH. In the hormonal add-back studies LUPRON DEPOT in combination with norethindrone acetate was associated with elevations of GGT and SGPT.

#### *Uterine Leiomyomata (Fibroids):*

**Hematology:** (See **CLINICAL STUDIES** section.) In LUPRON DEPOT 3.75 mg treated patients, although there were statistically significant mean decreases in platelet counts from baseline to final visit, the last mean platelet counts were within the normal range. Decreases in total WBC count and neutrophils were observed, but were not clinically significant.

**Chemistry:** Slight to moderate mean increases were noted for glucose, uric acid, BUN, creatinine, total protein, albumin, bilirubin, alkaline phosphatase, LDH, calcium, and phosphorus. None of these increases were clinically significant.

#### **Postmarketing**

During postmarketing surveillance, the following adverse events were reported. Like other drugs in this class, mood swings, including depression, have been reported. There have been rare reports of suicidal ideation and attempt. Many, but not all, of these patients had a history of depression or other psychiatric illness. Patients should be counseled on the possibility of development or worsening of depression during treatment with Lupron.

Symptoms consistent with an anaphylactoid or asthmatic process have been rarely reported. Rash, urticaria, and photosensitivity reactions have also been reported.

Localized reactions including induration and abscess have been reported at the site of injection. Symptoms consistent with fibromyalgia (eg: joint and muscle pain, headaches, sleep disorder, gastrointestinal distress, and shortness of breath) have been reported individually and collectively. Other events reported are:

*Cardiovascular System* - Hypotension; *Hemic and Lymphatic System* - Decreased WBC; *Central/Peripheral Nervous System* - Peripheral neuropathy, Spinal fracture/paralysis; *Musculoskeletal System* - Tenosynovitis-like symptoms; *Urogenital System* - Prostate pain.

See other LUPRON DEPOT and LUPRON Injection package inserts for other events reported in different patient populations.

## **OVERDOSAGE**

In rats subcutaneous administration of 250 to 500 times the recommended human dose, expressed on a per body weight basis, resulted in dyspnea, decreased activity, and local irritation at the injection site. There is no evidence that there is a clinical counterpart of this phenomenon. In early clinical trials using daily subcutaneous leuprolide acetate in patients with prostate cancer, doses as high as 20 mg/day for up to two years caused no adverse effects differing from those observed with the 1 mg/day dose.

## **DOSAGE AND ADMINISTRATION**

*LUPRON DEPOT Must Be Administered Under The Supervision Of A Physician.*

The recommended dose of LUPRON DEPOT is 3.75 mg, incorporated in a depot formulation. The lyophilized microspheres are to be reconstituted and administered monthly as a single intramuscular injection, in accord with the following directions:

1. To prepare for injection, screw the white plunger into the end stopper until the stopper begins to turn
2. Remove and discard the tab around the base of the needle.
3. Holding the syringe upright, release the diluent by **SLOWLY PUSHING** the plunger until the first stopper is at the blue line in the middle of the barrel.
4. Gently shake the syringe to thoroughly mix the particles to form a uniform suspension. The suspension will appear milky.
5. If the microspheres (particles) adhere to the stopper, tap the syringe against your finger.
6. Then remove the needle guard and advance the plunger to expel the air from the syringe.
7. At the time of reconstitution, inject the entire contents of the syringe intramuscularly as you would for a normal injection. The suspension settles very quickly following reconstitution; therefore, it is preferable that LUPRON DEPOT 3.75 mg be mixed and used immediately. Reshake suspension if settling occurs.

Since the product does not contain a preservative, the suspension should be discarded if not used immediately.

***Endometriosis:*** The recommended duration of treatment with LUPRON DEPOT 3.75 mg alone or in combination with norethindrone acetate is six months.

The choice of Lupron alone or Lupron plus norethindrone acetate therapy for initial management of the symptoms and signs of endometriosis should be made by the health care professional in consultation with the patient and should take into consideration the risks and benefits of the addition of norethindrone to Lupron alone.

If the symptoms of endometriosis recur after a course of therapy, retreatment with a six-month course of LUPRON DEPOT monthly and norethindrone acetate 5 mg daily may be considered. Retreatment beyond this one six month course can not be recommended. It is recommended that bone density be assessed before retreatment begins to ensure that values are within normal limits. Lupron Depot alone is not recommended for retreatment. If norethindrone acetate is contraindicated for the individual patient, then retreatment is not recommended.

An assessment of cardiovascular risk and management of risk factors such as cigarette smoking is recommended before beginning treatment with Lupron and norethindrone acetate.

*Uterine Leiomyomata (Fibroids):* Recommended duration of therapy with LUPRON DEPOT 3.75 mg is **up to** 3 months. The symptoms associated with uterine leiomyomata will recur following discontinuation of therapy. If additional treatment with LUPRON DEPOT 3.75 mg is contemplated, bone density should be assessed prior to initiation of therapy to ensure that values are within normal limits.

As with other drugs administered by injection, the injection site should be varied periodically.

## **HOW SUPPLIED**

LUPRON DEPOT 3.75 mg is packaged as follows:

Kit with prefilled dual chamber syringe

NDC 0300-3641-01

Each syringe contains sterile lyophilized microspheres, which is leuprolide incorporated in a biodegradable copolymer of lactic and glycolic acids. When mixed with diluent, LUPRON DEPOT 3.75 mg is administered as a single monthly IM injection.

Store at 25°C (77°F); excursions permitted to 15-30°C (59-86°F)

[see USP Controlled Room Temperature]

## **Rx only**

U.S. Patent Nos. 4,652,441; 4,677,191; 4,728,721; 4,849,228; 4,917,893; 4,954,298; 5,330,767; 5,476,663; 5,575,987; 5,631,020; 5,631,021; and 5,716,640.



Lupron 3.75 mg Package Insert  
03-5043-R12 Vs Revised Add-back (9-21-01)

Manufactured for  
TAP Pharmaceuticals Inc.  
Lake Forest, IL 60045, U.S.A.  
by Takeda Chemical Industries, Ltd.  
Osaka, JAPAN 541

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(No. 3641)  
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PATIENT INFORMATION  
ON  
TREATMENT WITH  
LUPRON DEPOT 3.75 mg  
(leuprolide acetate for  
depot suspension)

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LUPRON DEPOT<sup>®</sup>  
*3.75 mg*

LEUPROLIDE ACETATE  
FOR DEPOT SUSPENSION

This is combined labeling. Examples of different colors and fonts appear below.

- General Information
- Information on Endometriosis
- Information on Uterine Fibroids

This patient education booklet provides information on the use of LUPRON DEPOT 3.75<sup>®</sup> mg (leuprolide acetate for depot suspension) for two different medical conditions:

1. Endometriosis
2. Anemia due to vaginal bleeding from fibroids

Your health care provider will direct you to the section that will discuss your condition.

This booklet is not intended to be a substitute for information provided to you by your health care provider. You should discuss with your health care provider any questions you have about your diagnosis and treatment, and you may ask your health care provider for a copy of the information provided to him or her by TAP Pharmaceuticals Inc.

LUPRON DEPOT 3.75 mg is given to decrease the production of estrogen by your ovaries. The information provided describes the drug's action in the treatment of either condition described in this booklet.

### **HOW IS LUPRON GIVEN ?**

LUPRON DEPOT 3.75 mg is a prescription drug that is prescribed by your health care provider. Once a month (approximately every 28 to 33 days), you will receive an injection of LUPRON DEPOT 3.75 mg.

You should get your injections on time. The recommended initial treatment is no more than six injections for endometriosis and up to 3 injections for uterine fibroids. If you need retreatment for endometriosis, it should be limited to 6 months.

## **WHAT SHOULD I EXPECT?**

At first, your estrogen level will increase for one or two weeks. During that time, you may notice an increase in your current symptoms. Then these hormones will decline to levels similar to those in menopausal women.

Therefore, the most common side effects of LUPRON DEPOT 3.75 mg include hot flashes, vaginal dryness, headaches, changes in mood, and a decreased interest in sex. Your menstrual periods will probably become less regular and the flow may be heavier or lighter. After a few months of therapy your periods may stop completely.

## **WHAT IS THE MOST IMPORTANT RISK OF TAKING LUPRON?**

When you take LUPRON DEPOT 3.75 mg, your hormone levels are decreased to menopausal levels or lower. This low level can result in thinning of the bones, which may not be completely reversible in some patients. There are certain conditions that may increase the possibility of the thinning of your bones when you take a drug such as LUPRON DEPOT 3.75 mg. They are:

- Excessive use of alcohol;
- Smoking;
- Family history of osteoporosis (thinning of the bones with fractures);
- Taking other medications that can cause thinning of the bones.

You should discuss the possibility of osteoporosis or thinning of the bones with your health care provider before starting LUPRON DEPOT 3.75 mg. You should also be aware that repeat treatment with LUPRON DEPOT 3.75 mg alone is not advisable, particularly if you have the above conditions.

## **WHO SHOULD NOT USE LUPRON DEPOT 3.75 mg?**

If you answer YES to any of the following questions, you should **not** use LUPRON DEPOT 3.75 mg.

- Are you pregnant?
- Are you breast-feeding?
- Do you have any abnormal vaginal bleeding that has not been evaluated by your health care provider?
- Have you experienced any type of allergic reaction to a drug like Lupron?

Remember, always ask your health care provider about any concerns you might have regarding this or any medication.

## **WHAT SHOULD I KNOW IF I AM RECEIVING CO-TREATMENT WITH LUPRON DEPOT 3.75 mg AND NORETHINDRONE ACETATE?**

Norethindrone acetate is related to the hormone progesterone and is used in some birth control pills. Your health care provider may recommend co-treatment with LUPRON DEPOT 3.75 mg and norethindrone acetate to reduce the risk of bone loss. It may also reduce some of the menopausal symptoms like hot flashes. To reduce bone loss, norethindrone acetate should be started with the first injection of LUPRON DEPOT 3.75 mg. This drug will not interfere with the desired effects of LUPRON DEPOT 3.75 mg in treating endometriosis.

LUPRON DEPOT 3.75 mg given with norethindrone acetate may lower your HDL-cholesterol level (the “good” cholesterol). Whether this change increases your long-term risk of heart disease is not known. Your health care provider should assess your risk of heart disease prior to starting this co-treatment.

You should not use co-treatment with norethindrone acetate if you have had or have any of the following conditions:

- Blood clots in your legs (phlebitis), heart disease, or stroke;
- Liver disease;
- Breast cancer.

If you have had any of the following conditions or if any of the following apply to you, tell your health care provider before beginning norethindrone acetate co-treatment :

- High levels of cholesterol;
- Migraine headaches;
- Epilepsy;
- Depression;
- Smoking.

After beginning co-treatment, notify your health care provider IMMEDIATELY if sudden loss of vision, double vision, or migraine headaches occur. In addition, you should notify your health care provider if any of the following conditions occur:

- Fluid retention;
- Epilepsy;
- Asthma or worsening asthmatic symptoms;
- Heart or kidney problems.



If your symptoms return after treatment is finished and repeat treatment is desired, you will need co-treatment with LUPRON DEPOT 3.75 mg and norethindrone acetate. Your health care provider should assess your bone density at this time. Be sure to discuss this with your health care provider.

Co-treatment with LUPRON DEPOT 3.75mg and norethindrone acetate has not been studied for treatment of fibroids.

### **COULD I GET PREGNANT?**

LUPRON DEPOT 3.75 mg is not a method of birth control. Even though you may not have periods, unprotected intercourse could result in pregnancy . Therefore, you should use non-hormonal birth control such as condoms or a diaphragm with contraceptive gel/cream or an IUD. If you think that you may be pregnant while receiving LUPRON DEPOT 3.75 mg, contact your health care provider immediately.

### **CONDITION DESCRIPTIONS**

Endometriosis is a condition in which the endometrium, the tissue that lines the uterus (womb) is found outside of the uterus. Common sites for such “endometrial implants” can be the ovaries, the tubes, the outer surface of the uterus, and the bowel. Such implants can bleed just like the normal endometrium does during your menstrual cycle, but the blood is trapped so the implants can cause pain and irritation to surrounding tissues. As a reaction to this irritation, the body sometimes forms scar tissue around and near the implants. Scar tissues that bind organs together are called adhesions.

Fibroids are not cancer. They are non-cancerous growths of the body of the uterus and they are very common in women. (They occur in about 20% to 25% of all women and are most common in women aged 30 to 40.) A woman may have only one fibroid or many. They may occur on the outer surface of the uterus, totally within the walls of the uterus, or on the inside surface. Many women who have fibroids are not aware of them because they do not cause problems.

Fibroids can cause problems due to their size, number and location, but a major problem is excessive menstrual bleeding. LUPRON DEPOT 3.75 mg is used with iron for the improvement of anemia (some people call this a “low blood count”) due to heavy menstrual bleeding because of fibroids. Like any growth, fibroids should be checked by a health care provider. Fibroids are also called myomas or leiomyomas.

## SIGNS AND SYMPTOMS

Endometriosis can be the cause of severe menstrual cramps just before or during your menstrual cycle as well as pelvic pain or pressure and/or pain during intercourse.

Fibroids may cause you to have unusually heavy menstrual periods, bleeding between periods, sudden or long-lasting pain or a feeling of pressure in the lower abdomen. Excessive bleeding may lead to anemia from a shortage of iron in the blood and can make you feel tired or sick.

## HOW DOES LUPRON DEPOT 3.75 mg WORK?

LUPRON DEPOT 3.75 mg interrupts the normal menstrual cycle and the production of estrogen and this may slow the growth of endometrial implants. As a result, pain and other symptoms resulting from endometriosis can be eased during treatment. In about 50% to 60% of the women treated during clinical studies, LUPRON DEPOT 3.75 mg afforded relief from symptoms. Some of the symptoms were more responsive to treatment. The list below shows what percentage of patients who have the specific symptoms found relief at the end of treatment.

Menstrual pain/cramping	96%
Pelvic pain	53%
Pain with intercourse	56%
Pelvic tenderness	66%
Thickening of pelvic tissue	71%

Many of the original patients were followed up to 1 year after treatment with LUPRON DEPOT 3.75 mg was stopped to determine when symptoms of endometriosis recurred. In these patients, some of the symptoms reappeared faster than others.

Fibroids that do not cause symptoms or occur in women nearing menopause often will not require treatment. However, if you have heavy bleeding as a result of your fibroids, you may also be anemic. LUPRON DEPOT 3.75 mg together with iron may stop the bleeding and allow your blood count to build up to a normal level. The uterine and fibroid volume will decrease and you may also experience relief from abdominal bloating, pelvic pain and pressure if you have suffered from these symptoms because of your fibroids.

Your health care provider may consider a one month trial of iron alone as some patient's anemia will improve with iron alone.

### **WHAT HAPPENS AFTER THERAPY IS FINISHED?**

Once you have finished your course of treatment with LUPRON DEPOT 3.75 mg, your periods will return and the menopausal symptoms you experienced will usually disappear within ten weeks from the day of your last injection. In some patients, thinning of the bone structure may not be completely reversible.

### **CAN I GET PREGNANT AFTER THERAPY IS FINISHED?**

Once you have finished your course of treatment with LUPRON DEPOT 3.75 mg for fibroids, your health care provider may schedule you for surgery. You may be able to get pregnant after your surgery if only your fibroids are removed. You will not be able to get pregnant if your uterus is removed during surgery. Fibroids may develop again even after removal. If they do, 20% to 40% of patients may require more surgery. Your health care provider will help you to make decisions about any need for more surgery.

This patient education brochure is not intended to be a substitute for information provided to you by your health care provider or provided to your health care provider by TAP Pharmaceuticals Inc.

You should discuss with your health care provider any questions you have about the diagnosis and treatment of your condition.

This information is provided as a service of TAP Pharmaceuticals Inc.

## GLOSSARY

**Adhesions** – scar tissue.

**Anemia** – low blood count.

**Aygestin®**– brand name of norethindrone acetate.

**Diaphragm** – barrier type birth control device that covers the cervical opening between the vagina and the uterus.

**Estrogen** – female hormone produced by the ovaries.

**Fibroids** – non-cancerous growths of the body of the uterus.

**Hysterectomy** – surgical procedure to remove the uterus.

**Implants** – endometrial tissue that fixes itself outside the uterine cavity.

**IUD** – birth control device temporarily implanted in the uterus.

**Menopause** – the end of a woman's reproductive years.

**Myomectomy** – surgical procedure to remove fibroid growths.

**Norethindrone acetate** – a drug related to the hormone progesterone.

**Osteoporosis** – a thinning of the bone structure that is most often found in women after menopause.

**Progesterone** – female hormone produced by the ovaries.

**Uterus** – the womb; muscular organ in which a fertilized egg embeds and is nourished.



**TAP Pharmaceuticals Inc.**  
Lake Forest, IL 60045

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