

PROCUR

Cyproterone Acetate 50 mg and 100 mg Tablets

Name of the Medicine

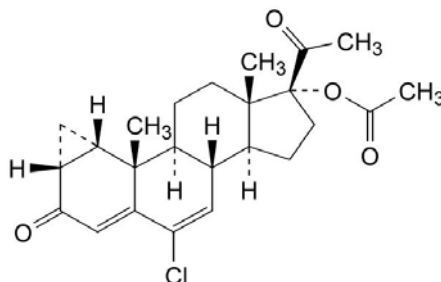
PROCUR

Cyproterone Acetate 50 mg and 100 mg tablets.

Description

PROCUR (Cyproterone acetate) is an antiandrogenic hormone preparation. Cyproterone acetate is chemically identified as 6-chloro-3,20-dioxo-1 β ,2 β -dihydro-3H-cyclopropa[1,2]pregna-1,4,6-trien-17-yl acetate. It is a white or almost white crystalline powder, practically insoluble in water, very soluble in methylene chloride, freely soluble in acetone, soluble in methanol, sparingly soluble in ethanol. CAS number 427-51-0, molecular weight is 416.9. The molecular formula is C₂₄H₂₉ClO₄.

The structural formula is:



All the tablets contain as excipients: lactose monohydrate, microcrystalline cellulose, croscarmellose sodium, povidone and magnesium stearate.

Pharmacology

Mechanism of Action

PROCUR is an antiandrogenic hormone preparation. It inhibits the influence of androgens which are also produced - to a slight extent- in the female organism, and also exerts a progestational and antigonadotrophic effect.

Cyproterone acetate inhibits competitively the effect of androgens at androgen-dependent target organs, e.g. it shields the prostate from the effect of androgens originating from the gonads and/or the adrenal cortex.

In the man, under treatment with **PROCUR**, sexual drive and potency are reduced and gonadal function is inhibited. These changes are reversible following discontinuation of the therapy.

In the woman, hirsutism is reduced, but also androgen-dependent alopecia and elevated sebaceous gland function are reduced. During treatment, ovarian function is reduced.

Pharmacokinetics

Following oral administration, cyproterone acetate is completely absorbed over a wide dose range. The ingestion of 50 mg of cyproterone acetate gives maximum serum levels of about 140 ng/ml at about 3 hours. Thereafter drug serum levels decline during a time interval of typically 24 to 120 h, with a terminal half-life of 43.9 ± 12.8 h. The total clearance of cyproterone acetate from serum was determined to be 3.5 ± 1.5 ml/min/kg. Cyproterone acetate is metabolised by various pathways, including hydroxylation and conjugation. The main metabolite in human plasma is 15 β -hydroxy derivative.

Some dose parts are excreted unchanged with bile fluid. Most of the dose is excreted in the form of metabolites at a urinary to biliary ratio of 3:7. The renal and biliary excretion was determined to proceed with a half-life of 1.9 days. Metabolites from plasma were eliminated at a similar rate (half-life of 1.7 days).

Cyproterone acetate is almost exclusively bound to plasma albumin. About 3.5 – 4 % of total drug levels are unbound. Because protein binding is non-specific, changes in SHBG (sex hormone binding globulin) levels do not affect the pharmacokinetics of cyproterone acetate.

According to the long half-life of the terminal disposition phase from plasma (serum) and the daily intake, an accumulation of cyproterone acetate by a factor of about 3 can be expected in the serum during repeated daily administration.

The absolute bioavailability of cyproterone acetate is almost complete (88 % of dose).

Indications

Men

- Antiandrogen treatment in inoperable carcinoma of the prostate
- Reduction of drive in sexual deviations

Women

- Severe signs of androgenization, e.g. very severe hirsutism in the female, severe androgenetic alopecia, often attended by severe forms of acne and/or seborrhoea.

Contraindications

- Hypersensitivity to any of the ingredients of Procur
- Pregnancy,

- A history of jaundice or persistent itching during a previous pregnancy,
- A history of herpes of pregnancy,
- Lactation,
- Liver diseases,
- Previous or existing liver tumours (in carcinoma of the prostate only if these are not due to metastases),
- Meningioma or a history of meningioma
- Wasting diseases (with the exception of carcinoma of the prostate),
- Dubin-Johnson syndrome,
- Rotor syndrome,
- Severe chronic depression,
- Previous or existing thromboembolic processes,
- Severe diabetes with vascular changes,
- Sickle-cell anaemia.

In patients with inoperable prostatic carcinoma presenting with a history of thromboembolic processes or suffering from sickle-cell anaemia or from severe diabetes with vascular changes, the risk:benefit ratio must be considered carefully in each individual case before **PROCUR** is prescribed.

With regard to the cyclical combination therapy of severe signs of androgenization, attention is also drawn to the data on contraindications contained in the product information for ethinylestradiol 0.035 mg/cyproterone acetate 2 mg tablets, the preparation is used in addition to **PROCUR**.

Precautions

General

The drive-reducing effect of **PROCUR** can be diminished under the disinhibitory influence of alcohol.

PROCUR should not be given before the conclusion of puberty since an unfavourable influence on longitudinal growth and the still unstabilized axes of endocrine function cannot be ruled out.

During treatment, liver function, adrenocortical function and the red blood-cell count should be checked regularly.

Direct hepatic toxicity, including jaundice, hepatitis and hepatic failure, which has been fatal in some cases, has been reported in patients treated with 200 – 300 mg cyproterone acetate. Most reported cases are in men with prostatic cancer. Toxicity is dose-related and develops, usually, several months after treatment has begun. Liver function tests should be performed pre-treatment and whenever any symptoms or signs suggestive of hepatotoxicity occur. If hepatotoxicity is confirmed, cyproterone acetate should normally be withdrawn, unless the hepatotoxicity can be explained by another cause, e.g. metastatic disease, in which case cyproterone acetate should be continued only if the perceived benefit outweighs the risk.

As with other sex steroids, benign and malignant liver changes have been reported in isolated cases. In very rare cases, liver tumours may lead to life-threatening intra-abdominal haemorrhage. If severe upper abdominal complaints, liver enlargement or signs of intra-abdominal haemorrhage occur, a liver tumour should be included in the differential-diagnostic considerations.

Meningiomas: The occurrence of (multiple) meningiomas has been reported in association with longer term use (years) of cyproterone acetate at doses of 25 mg/day and above. If a patient treated with Procur is diagnosed with meningioma treatment with Procur must be stopped.

Strict medical supervision is necessary if the patient suffers from diabetes.

A sensation of shortness of breath may occur in individual cases under high-dosed treatment with **PROCUR**. The differential diagnosis in such cases must include the stimulating effect on breathing known for progesterone and synthetic progestogens which is accompanied by hypocapnia and compensated respiratory alkalosis and which is not considered to require treatment.

In extremely rare cases, the occurrence of thromboembolic events has been reported in temporal association with the use of **PROCUR** although a causal relationship seems to be questionable. Rarely cases of osteoporosis have also been reported.

The therapy of sexual deviations with **PROCUR** is usually ineffective in chronic alcoholism.

Before the start of therapy, a thorough general medical and gynaecological examination (including the breasts and a cytological smear of the cervix) should be carried out in women. Pregnancy must be excluded in women of childbearing age.

If, during the combined treatment, persistent or recurrent bleeding occurs at irregular intervals, a gynaecological examination must be carried out to exclude organic disease.

With regard to the necessary additional use of ethinylestradiol 0.035 mg/cyproterone acetate 2 mg tablets, attention is drawn to all the data contained in the product information for this preparation.

Preclinical safety data

Investigations into the toxicity following repeated administration of cyproterone acetate gave no indication of specific risks from the use of cyproterone acetate.

Experimental investigations produced corticoid-like effects on the adrenal glands in rats and dogs following higher dosages, which could indicate similar effects in humans at the highest given dose (300 mg/day).

Experimental investigations into possible sensitising effects of cyproterone acetate have not been carried out.

The temporary inhibition of fertility in male and female rats brought about by daily oral treatment did not in any way indicate that treatment with cyproterone acetate leads to spermatozoa or ovocyte damage which could lead to malformations or impairment of fertility in the offspring.

Investigations into embryotoxic or teratogenic effects were not carried out with cyproterone acetate but only in combination with ethinylestradiol. Such investigations produced no effects after treatment during the foetal organogenesis before development of the external genital organs which would indicate a general teratogenic potential in humans. Administration of high doses of cyproterone acetate during the hormone-sensitive differentiation phase of the genital organs (starting roughly on day 45 of gravidity) could cause feminization effects in male foetuses. Observation of male newborn children who had been exposed in the uterus to cyproterone acetate revealed no indications of feminization. However, pregnancy is a contraindication for use of **PROCUR**. Women of child-bearing age should only be treated if reliable contraceptive measures are taken at the same time.

Recognised first-line tests of genotoxicity gave negative results when conducted with cyproterone acetate. However, further tests showed that cyproterone acetate was capable of producing adducts with DNA (and an increase in DNA repair activity) in liver cells from rats and monkeys and also in freshly isolated human hepatocytes. This DNA-adduct formation occurred at exposures that might be expected to occur in the recommended dose regimens for cyproterone acetate. One in vivo consequence of cyproterone acetate treatment was the increased incidence of focal, possibly pre-neoplastic liver lesions in which cellular enzymes were altered in female rats.

The clinical relevance of these findings is presently uncertain. Clinical experience to date would not support an increased incidence of hepatic tumours in man. Nor did investigations into the tumorigenicity of cyproterone acetate in rodents reveal any indication of a specific tumorigenic potential. However, it must be borne in mind that sexual steroids can promote the growth of certain hormone-dependent tissues and tumours.

On the whole the available toxicological findings do not raise any objection to the use of cyproterone acetate in humans if used in accordance with the directions for the given indications and at the recommended dosages.

Use in Pregnancy

The administration of **PROCUR** during pregnancy is contraindicated.

Use in Lactation

The administration of **PROCUR** during lactation is contraindicated. About 0.2 % of the dose is excreted with the breast milk.

Effects on Ability to Drive or Operate Machinery

It should be pointed out to patients whose occupation demands great concentration (e.g. road users, machine operators) that **PROCUR** can lead to tiredness and diminished vitality and can impair the ability to concentrate.

Drug Interactions

The requirement for oral antidiabetics or insulin can change with **PROCUR** treatment.

Adverse Reactions

The most frequently observed adverse drug reactions (ADRs) in patients receiving cyproterone acetate are decreased libido, erectile dysfunction and reversible inhibition of spermatogenesis.

The most serious ADRs in patients receiving cyproterone acetate are hepatic toxicity, benign and malignant liver tumours which may lead to intra-abdominal haemorrhage and thromboembolic events.

The following approximate incidences were estimated from published reports of a number of small clinical trials and spontaneous ADR reports:

- very common: incidence $\geq 1:10$
- common: incidence $< 1:10$ but $\geq 1:100$
- uncommon: incidence $< 1:100$ but $\geq 1:1000$
- rare: incidence $< 1:1000$ but $\geq 1:10,000$
- very rare: incidence $< 1:10,000$
- not known (cannot be estimated from available data)

Neoplasms benign, malignant and unspecified (incl cysts and polyps)

Very rare: Benign and malignant liver tumours which may lead to life-threatening intra-abdominal haemorrhage.

Not known: The occurrence of (multiple) meningiomas has been reported in association with longer term use (years) of cyproterone acetate at doses of 25 mg/day and above.

Blood and the lymphatic system disorders

Not known: Anaemia during long term treatment

Immune system disorders

Rare: Hypersensitivity reactions may occur

Endocrine disorders

Not known: Suppression of adrenocortical function

Metabolism and nutrition disorders

Common: Changes in bodyweight during long term treatment (chiefly weight gains in association with fluid retention)

Psychiatric disorders

Common: depressive moods and restlessness

Not known: Diminished vitality

Vascular disorders

Not known: Thromboembolic events, although a causal relationship has not been established

Respiratory, thoracic and mediastinal disorders

Common: dyspnoea

Hepato-biliary disorders

Common: Direct hepatic toxicity, including jaundice, hepatitis and hepatic failure, which has been fatal in some cases, has been reported in patients treated with 200-300 mg cyproterone acetate

Skin and subcutaneous tissue disorders

Uncommon: Rash

Not known: Reduction of sebum production leading to dryness of the skin and improvement of existing acne vulgaris has been reported as well as; transient patchy loss and reduced growth of body hair, increased growth of scalp hair, lightening of hair colour and female type of pubic hair growth.

Musculoskeletal and connective tissue disorders

Not known: Osteoporosis (due to long-term androgen deprivation).

Reproductive system disorders

Inhibition of spermatogenesis

Very common: Sperm count and volume of ejaculate reduced. Infertility is usual, and there may be azoospermia after 8 weeks. There is usually slight atrophy of the seminiferous tubules. Follow-up examinations have shown these changes to be reversible, spermatogenesis usually reverting to its previous state about 3-5 months after stopping cyproterone acetate, or in some users, up to 20 months. That spermatogenesis can recover even after very long treatment is not yet known. There is evidence that abnormal sperms which might give rise to malformed embryos are produced during treatment with cyproterone acetate.

Not known: In women, ovulation is inhibited when combined with estrogen/progestogen tablets, so that a state of infertility exists. In addition a feeling of tension in the breasts may occur.

Gynaecomastia

Common: Gynaecomastia (sometimes combined with tenderness to touch of the mamillae) which usually regresses after withdrawal of the preparation.

Rare: Galactorrhoea and tender benign nodules have been reported. Symptoms mostly subside after discontinuation of treatment or reduction of dosage.

General disorders and administration site conditions

Common: Hot flushes, sweating, fatigue and lassitude.

Dosage and Administration

Dosage in men

Antiandrogen treatment in inoperable carcinoma of the prostate

To eliminate the effect of adrenocortical androgens after orchiectomy: 2 tablets once or twice daily (= 100-200 mg). Without orchiectomy: 2 tablets twice to three times daily (= 200-300 mg).

The tablets are to be taken with some liquid after meals. Treatment should not be interrupted nor the dosage reduced after improvement or remissions have occurred.

To reduce the initial increase of male sex hormones in treatment with LH-RH agonists: Initially 2 tablets **PROCUR** twice daily (= 200 mg) alone for 5 - 7 days followed by 2 tablets **PROCUR** twice daily (= 200 mg) for 3 - 4 weeks together with an LH-RH agonist in the dosage recommended by the manufacturer.

To eliminate the effect of adrenocortical androgens in treatment with LH-RH agonists: Continuation of the antiandrogen therapy with 2 tablets **PROCUR** once to twice daily (= 100 – 200 mg).

Reduction of drive in pathologically altered or increased sexuality

The tablets are to be taken with some liquid after meals. Generally the treatment is started with 1 tablet twice daily. It may be necessary to increase the dose to 2 tablets twice daily or even 2 tablets 3 times daily for a short period of time. When a satisfactory result is achieved, an attempt should be made to maintain the therapeutic effect with the lowest possible dose. Quite often 1/2 a tablet twice daily is sufficient.

When establishing the maintenance dose or when discontinuing the preparation, one should not reduce the dosage abruptly, but gradually. To this end, the daily dose should be reduced by 1 tablet or, better, 1/2 a tablet, at intervals of several weeks.

To stabilise the therapeutic effect, it is necessary to take **PROCUR** over a protracted period of time, if possible with the simultaneous use of psychotherapeutic measures.

Dosage in Women

Pregnant women must not take **PROCUR**. Therefore pregnancy must be excluded before the start of therapy.

In women of childbearing age, the treatment is commenced on the 1st day of the cycle. Only women with amenorrhoea can start the treatment immediately. In this case, the first day of treatment is to be regarded as the 1st day of the cycle and the following recommendations then observed as normal.

Two tablets of **PROCUR** are to be taken daily with some liquid after a meal from the 1st to the 10th day of the cycle (=for 10 days). In addition, these women receive a progestogen-oestrogen preparation, e.g. from the 1st to the 21st day of the cycle [1 tablet ethinylestradiol 0.035 mg/cyproterone acetate 2 mg daily], to provide the necessary contraceptive protection and to stabilise the cycle.

Women receiving the cyclical combined therapy should keep to a particular time of the day for tablet taking. If more than 12 hours elapse from this time, contraceptive protection in this cycle may be reduced. The use of Procur and ethinylestradiol 0.035 mg/cyproterone acetate 2 mg should nevertheless be continued according to the instructions, ignoring the missed tablet or tablets, in order to avoid premature bleeding in this cycle. However, a non-hormonal method of contraception (with the exception of the rhythm and temperature methods) is to be employed additionally for the rest of the cycle.

A 7-day tablet-free interval is observed after 21 days during which time a withdrawal bleeding occurs. Exactly 4 weeks after the first course was started i.e. on the same day of the week, the next cyclical course of combined treatment is started, regardless of whether bleeding has stopped or not. If no bleeding occurs, the treatment must be interrupted and pregnancy must be excluded before tablet taking is resumed.

Following clinical improvement, the daily dose of **PROCUR** during the first 10 days of the combined treatment with ethinylestradiol 0.035 mg/cyproterone acetate 2 mg can be reduced to 1 or ½ tablet. Perhaps ethinylestradiol 0.035 mg/cyproterone acetate 2 mg alone will be sufficient.

With regard to the cyclical combined therapy, attention is drawn to the special notes contained in the product information for ethinylestradiol 0.035 mg/cyproterone acetate 2 mg tablets, the preparation used in combination with **PROCUR**.

In postmenopausal or hysterectomised patients, **PROCUR** may be administered alone. According to the severity of the complaints, the average dose should be 1 to ½ tablet **PROCUR** once daily for 21 days, followed by a 7-day tablet-free interval.

Overdosage

Acute toxicity studies following single administration showed that cyproterone acetate, the active ingredient of **PROCUR**, can be classified as practically non-toxic. Nor is any risk of acute intoxication to be expected after a single inadvertent intake of a multiple of the dose required for therapy.

Presentation

PROCUR 50 mg Tablets are white to off-white, round, flat, tablets having a score and embossed 50 on one side and plain on the other.

PROCUR 100 mg Tablets are white to off white, capsule shaped tablets having a score on one face and embossed 100 on the other.

Pharmaceutical Precautions

Store below 30°C. Shelf life of **PROCUR** is 3 years.

Medicine Classification

Prescription Medicine.

Package Quantities

Available in blister and bottle packs of 20, 50 and 100 tablets.

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21 January 2011.