OXYMETHOLONE®

Oxymetholone, BP2005, USP29 grade

Molecular Formula: $C_{21}H_{32}O_3$
Molecular Weight: 332.5 gm/mol
Active life: less than 16 hours
Detection Time: up to 8 weeks
Anabolic/Androgenic Ratio: 320:45

DESCRIPTION:
Oxymetholone®, brand of Oxymetholone tablets, is an anabolic steroid, a synthetic derivative of testosterone. Each tablet contains 50 mg of Oxymetholone BP2005, USP29 grade. It is designated chemically as 17β -hydroxy-2-hydroxymethylene -17α-methyl-5α–androstan-3-one. It occurs as white to creamy-white, odourless or almost odourless crystalline powder. It exhibits polymorphism. Practically insoluble in water; soluble in alcohol; freely soluble in chloroform; soluble in ether.

Each tablet also contains lactose monohydrate, sodium starch glycolate, polyvidone 25,000, microcrystalline cellulose and magnesium stearate as excipients. No colouring agent.

Oxymetholone® is a potent 17-alpha alkylated derivative of dihydrotestosterone. This is a potent anabolic and androgenic drug despite being weakly bound to the androgen receptor. Oxymetholone® promotes protein anabolism and rapid weight gain but has the potential for substantial adverse reactions. Oxymetholone® promotes increased strength, muscle mass, and growth of new red blood cells.

CLINICAL PHARMACOLOGY:
Anabolic steroids are synthetic derivatives of testosterone. Nitrogen balance is improved with anabolic agents but only when there is sufficient intake of calories and protein. Whether this positive nitrogen balance is of primary benefit in the utilization of protein-building dietary substances has not been established. Oxymetholone enhances the production and urinary excretion of erythropoietin in patients with anemias due to bone marrow failure and often stimulates erythropoiesis in anemias due to deficient red cell production. Certain clinical effects and adverse reactions demonstrate the androgenic properties of this class of drugs. Complete dissociation of anabolic and androgenic effects has not been achieved. The actions of anabolic steroids are therefore similar to those of male sex hormones. They suppress the gonadotropic functions of the pituitary and may exert a direct effect upon the testes.
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INDICATIONS:
Anemia: indicated in the treatment of anemias caused by deficient red cell production. Acquired aplastic anemia, congenital aplastic anemia, myelofibrosis and hypoplastic anemias often respond.
Muscular Atrophy: indicated as an alternate or adjunctive therapy for weight gain and muscle growth following muscular atrophy associated with extensive surgery, chronic infections, long term hospitalization, severe trauma, osteoporosis, long-term corticosteroid therapy, and wasting syndromes.

CONTRAINDICATIONS:
The use of Oxymetholone® is contraindicated in the following:
1. Carcinoma of the breast in females with hypercalcemia; androgenic anabolic steroids may stimulate osteolytic resorption of bones.
2. Known or suspected carcinomas of the breast, testis, or prostate in male patients.
3. Patients with heart disease, liver disease, or kidney disease or with a history of epilepsy.
4. Products containing androgens should not be used in women as they may cause virilization and fetal harm. Oxymetholone® is contraindicated in women who are or may become pregnant. If the patient becomes pregnant while taking the drug, she should be apprised of the potential hazard to the fetus.
5. Known case of Nephrosis or the nephrotic phase of nephritis.
6. Known case of severe hepatic dysfunction.
7. Known case of Hypertension.
8. Known hypersensitivity to any ingredients in Oxymetholone®.

PRECAUTIONS:
Oxymetholone is extremely hepatotoxic. Liver function tests should be conducted before and during treatment given the association of 17-alpha-alkylated androgens with hepatotoxicity. 17-alpha-alkylated androgens may cause cholestatic hepatitis and jaundice, particularly with larger dosages or prolonged treatment. Monitor for signs of jaundicing.
Anabolic steroid hormones may increase low-density lipoproteins (LDL) and decrease high density lipoproteins (HDL) increasing the risk of atherosclerosis and heart disease. Lipids levels generally return to normal upon discontinuation of treatment.
Anabolic steroids may reduce clotting factors II, V, VII, and X, and may increase pro-thrombin time (PT). Patients should be instructed to report any use of warfarin and any irregular bleeding.
Diabetics: androgens may alter the metabolism of oral hypoglycemic agents or may change insulin sensitivity in patients with diabetes mellitus which may require adjustment of dosage of insulin and other hypoglycemic drugs.
Elevated oestrogen levels may occur producing estrogen mediated side-effects such as increased water retention and gynecomastia. Physicians are advised to consider concurrent anti-estrogen therapy.
Edema may be increased in patients on concurrent adrenal cortical steroid or ACTH therapy.

WARNINGS:

LIVER CELL TUMORS ARE REPORTED. MOST OFTEN THESE TUMORS ARE BENIGN AND ANDROGEN DEPENDENT, BUT FATAL MALIGNANT TUMORS HAVE BEEN REPORTED. WITH DRAWAL OF DRUG OFTEN RESULTS IN REGRESSION OR CESSATION OF PROGRESSION OF THE TUMOR. HOWEVER, HEPATIC TUMORS ASSOCIATED WITH ANDROGENS OR ANABOLIC STEROIDS ARE MUCH MORE VASCULAR THAN OTHER HEPATIC TUMORS AND MAY BE SILENT UNTIL LIFE-THREATENING INTRA-ABDOMINAL HEMORRHAGE DEVELOPS.
PELIOSIS HEPATIS, A CONDITION ARE ALSO REPORTED IN WHICH LIVER AND SOMETIMES SPLENIC TISSUE IS REPLACED WITH BLOOD-FILLED CYSTS, HAS BEEN REPORTED IN PATIENTS RECEVING ANDROGENIC ANABOLIC STEROID THERAPY. THESE CYSTS ARE SOMETIMES PRESENT WITH MINIMAL HEPATIC DYSFUNCTION, BUT AT OTHER TIMES THEY HAVE BEEN ASSOCIATED WITH LIVER FAILURE. THEY ARE OFTEN NOT RECOGNIZED UNTIL LIFE-THREATENING LIVER FAILURE OR INTRA-ABDOMINAL HEMORRHAGE DEVELOPS. WITHDRAWAL OF DRUG USUALLY RESULTS IN COMPLETE DISAPPERRANCE OF LESIONS.
BLOOD LIPID CHANGES THAT ARE KNOWN TO BE ASSOCIATED WITH INCREASED RISK OF ATHEROSCLEROSIS ARE SEEN IN PATIENTS TREATED WITH ANDROGENS AND ANABOLIC STEROIDS. THESE CHANGES INCLUDE DECREASED HIGH-DENSITY LIPOPROTEIN AND SOMETIMES INCREASED LOW-DENSITY LIPOPROTEIN. THE CHANGES MAY BE VERY MARKED AND COULD HAVE A SERIOUS IMPACT ON THE RISK OF ATHEROSCLEROSIS AND CORONARY ARTERY DISEASE.

Cholestatic hepatitis and jaundice occur with 17-alpha-alkylated androgens at relatively low doses. Clinical jaundice may be painless, with or without pruritus. It may also be associated with acute hepatic enlargement and right upper-quadrant pain, which has been mistaken for acute (surgical) obstruction of the bile duct. Drug-induced jaundice is usually reversible when the medication is discontinued. Continued therapy has been associated with hepatic coma and death. Because of the hepatoxicity associated with Oxymethalone® administration, periodic liver function tests are recommended.
In patients with breast cancer, anabolic steroid therapy may cause hypercalcemia by stimulating osteolysis. In this case, the drug should be discontinued.
Edema with or without congestive heart failure may be a serious complication in patients with pre-existing cardiac, renal or hepatic disease. Concomitant administration with adrenal steroids or ACTH may add to edema. This is generally controllable with appropriate diuretic and/or digitalis therapy.

DRUG INTERACTION:
Oral hypoglycemic agents: may inhibit the metabolism of oral hypoglycemic agents which may require adjustment of dosage.
Corticosteroids: may exacerbate edema in patients on concurrent adrenal-cortical steroids or ACTH therapy.
Anticoagulants: Patients on anticoagulants such as warfarin should be carefully monitored during anabolic steroid therapy as anabolic steroids may increase sensitivity to oral anticoagulants which may require a concomitant reduction in anticoagulant dosage to achieve a desirable prothrombin time (PT). Anticoagulant patients should be monitored regularly during anabolic steroid therapy, particularly during initiation and termination of therapy. Warfarin patients should have INR and PT monitored throughout androgen therapy and warfarin dosages titrated to achieve the desired INR and PT. Such patients should be monitored for occult bleeding.

ADVERSE REACTIONS:
Male: Gynecomastia, excessive frequency and duration of penile erections, oligospermia.
Skin and Appendages: Hirsutism, male pattern baldness and acne, gynecomastia.
Fluid/electrolyte Disturbances: Retention of sodium, chloride, water, potassium, calcium, and inorganic phosphates.
Gastrointestinal: Nausea, cholestatic jaundice, alterations in liver function tests; rarely, hepatocellular neoplasms, peliosis hepatitis, hepatic adenomas, and cholestatic hepatitis.
Hematologic: Suppression of clotting factors II, V, VII, & X; bleeding in patients on anti-coagulant therapy.
Nervous System: Changes in libido, headache, anxiety, aggression, depression, and generalized paresthesia.
Other: Serum lipid changes, hypercalcaemia, hypertension, edema, priapism, and potentiation of sleep apnea.

OVERDOSE:
Signs and symptoms of over dosage are those associated with the known effects of the drug. See Adverse Reactions section. Treatment is symptomatic and supportive. Evacuate stomach contents by emesis and, if indicated, lavage, taking care to prevent aspiration. Monitoring of liver function is advised.

PATIENT MONITORING:
The physician should instruct patients to report any of the following side effects of androgens.
Adult or Adolescent Males: Too frequent or persistent erections of the penis, appearance or aggravation of acne.
Women: Hoarseness, acne, changes in menstrual periods or more hair on the face.
All Patients: Any nausea, vomiting, changes in skin color or ankle swelling.
Laboratory Tests:
Women with disseminated breast carcinoma should have frequent determination of urine and serum calcium levels during the course of androgenic anabolic steroid therapy (see WARNINGS).
Because of the hepatoxicity associated with the use of 17-alpha-alkylated androgens, liver function tests should be obtained periodically.
Periodic (every 6 months) x-ray examinations of bone age should be made during treatment of prepubertal patients to determine the rate of bone maturation and the effects of androgenic anabolic steroid therapy on the epiphyseal centers.
Anabolic steroids have been reported to lower the level of high-density lipoproteins and raise the level of low-density lipoproteins. These changes usually revert to normal on discontinuation of treatment. Increased low-density lipoproteins and decreased high-density lipoproteins are considered cardiovascular risk factors. Serum lipids and high-density lipoprotein cholesterol should be determined periodically.
Hemoglobin and hematocrit should be checked periodically for polycythemia in patients who are receiving high doses of anabolics.

Because iron deficiency anemia has been observed in some patients treated with Oxymetholone®, periodic determination of the serum iron and iron binding capacity is recommended. If iron deficiency is detected, it should be appropriately treated with supplementary iron.
So the monitoring should be include the following:
Lipid profile: Serum Cholesterol, HDL, LDL, TG.
Hemoglobin and Hematocrit,
Liver function test: Total protein, Albumin, Globulin, Total and direct bilirubin, AST, ALT and alkaline phosphatase, tumor marker for liver: AFP and CA19-9
Prostatic specific antigen: PSA, Testosterone: total, free, and bioavailable.
Dihydrotestosterone & Estradiol.
Male patients over 40 should undergo a digital rectal examination and evaluate PSA prior to androgen use. Periodic evaluations of the prostate should continue while on androgen therapy, especially in patients with difficulty in urination or with changes in voiding habits.

DOSAGE AND ADMINISTRATION:
The recommended daily dose in children and adults is 1-5 mg/kg body weight per day. The usual effective dose is 1-2 mg/kg/day but higher doses may be required, and the dose should be individualized. Response is not often immediate, and a minimum trial of three to six months should be given. Following remission, some patients may be maintained without the drug; others may be maintained on an established lower daily dosage. A continued maintenance dose is usually necessary in patients with congenital aplastic anemia.

Treatment should be under supervision of a qualified physician with laboratory monitoring.

Body building: Adult males: optimally 100 mg taken oral per day.

HOW SUPPLIED:
Oxymetholone® is supplied in bottles of 100 white tablets.

For shelf-life please refer to the imprint on the pack.

Keep out of reach of children.

Should be at controlled room temperatures 15-30°C (59-86°F)

Protect from sun light

This drug has not been shown to be safe and effective for the enhancement of athletic performance!

Manufactured and Distributed by: LA Pharma S.r.l.

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