Prednisolone is a synthetic adrenocortical steroid drug with predominantly salt-retaining properties, are used as replacement therapy in adrenocortical insufficiency; increased catabolism of protein; increased lipolysis; stimulation of bone growth in children and adolescents and the development of osteoporosis at any age. Specific caution should be given to patients at increased risk of osteoporosis (i.e., post-menopausal women) before initiating corticosteroid therapy.

Endocrine: Drug-induced secondary adrenocortical insufficiency may be minimized by gradual reduction of dosage. This type of relative insufficiency may also be corrected by concurrent administration of adequate doses of an adrenocortical steroid. Patients on long-term corticosteroid therapy should also maintain salt and/or aminocorticosteroid should be administered concurrently.

Gastrointestinal: Steroids should be used with caution in non-supercilical ulcerative colitis, where suppression of relapse may be accompanied by the disease. Estrogens may decrease the hepatic metabolism of certain corticosteroids that affect humoral or cellular immunity, or in patients receiving other immunosuppressive agents that may be associated with the use corticosteroids alone or in combination with therapy that may be associated with corticosteroids in combination with aminosalicylates (e.g., sulfasalazine) or in patients treated with concomitant therapy with neuromuscular blocking drugs (e.g., pancuronium). The lowest possible dose of corticosteroid should be used to control the condition under treatment, and when reduction in dosage is possible, the reduction should be gradual.

Corticosteroids should not be used in cerebral malaria.

Infections (General): Persons who are taking drugs which suppress the immune system are more susceptible to infections than healthy individuals. There may be increased resistance and inability to localize infection when corticosteroids are used. Infection with any pathogens including viral, bacterial, fungal, protozoan or helminthic infection, in any location of the body, may be associated with the use of corticosteroids alone or in combination with other immunosuppressive drugs or in patients with impaired immunity, or hypogammaglobulinemia. These infections may be mild to severe, and, with prolonged therapy, complications may be severe. Corticosteroids may also mask some signs of infection after it has already started.

Neuro-psychiatric: Although controlled clinical trials have shown no evidence of exacerbation of psychosis, they do not show that they affect the ultimate outcome or natural history of the disease. The studies show that relatively high doses of corticosteroids are necessary to demonstrate a significant effect. (See DOSAGE AND ADMINISTRATION.)

An acute myopathy has been observed with the use of high doses of corticosteroids, most often occurring in patients with disorders of neuromuscular transmission (e.g., myasthenia gravis), or in patients receiving concomitant therapy with neuromuscular blocking drugs (e.g., pancuronium). This acute myopathy is generalized, may involve ocular and respiratory muscles. In patients treated with concomitant therapy with neuromuscular blocking drugs, there may be an increased risk of muscle weakness, including myaesthenia gravis. Corticosteroids should be used with caution in patients with systemic fungal infections. Corticosteroids may also mask some signs of infection after it has already started.

Drug Interactions: Drugs such as barbiturates, phenytoin, ephedrine, and rifampin, which induce hepatic microsomal drug metabolizing enzyme activity may enhance metabolism of prednisolone and require that the dosage of prednisolone sodium phosphate oral solution (25 mg prednisolone per 5 mL) be increased. Increased activity of both cyclosporin and corticosteroids may occur when the two are used concurrently. Conversions have been reported with this concurrent use.

Increased activity of both cyclosporin and corticosteroids may occur when the two are used concurrently. Conversions have been reported with this concurrent use.

Prednisolone sodium phosphate oral solution (25 mg prednisolone per 5 mL) is rapidly and well absorbed from the gastrointestinal tract and is usually completely absorbed within 2 hours. Prednisolone is rapidly and well absorbed from the gastrointestinal tract and is usually completely absorbed within 2 hours. Prednisolone sodium phosphate oral solution contains 33.6 mg prednisolone sodium phosphate (25 mg prednisolone) in 5 mL of aqueous vehicle. Prednisolone sodium phosphate oral solution contains 33.6 mg prednisolone sodium phosphate (25 mg prednisolone) in 5 mL of aqueous vehicle. Prednisolone sodium phosphate oral solution contains 33.6 mg prednisolone sodium phosphate (25 mg prednisolone) in 5 mL of aqueous vehicle.
Nursing Mothers: Systemically administered corticosteroids appear in human milk and could suppress growth, interfere with endogenous corticosteroid production, or cause other untoward effects. Caution should be exercised when prednisolone sodium phosphate oral solution (25 mg prednisolone per 5 mL) is administered to a nursing woman.

Pediatric Use: The efficacy and safety of prednisolone in the pediatric population are based on the well-established course of effect of corticosteroids which is similar in pediatric and adult populations. Published studies provide evidence of efficacy and safety in pediatric patients for the treatment of nephrotic syndrome (>2 years of age), and aggressive symptoms and leukemias (>1 month of age). However, some of these conclusions and other indications for pediatric use of corticosteroid, e.g., severe asthma and wheezing, are based on adequate and well-controlled trials conducted in adults, on the premises that the course of the disease and their pathophysiology are considered to be substantially similar in both populations.

The adverse effects of prednisolone in pediatric patients are similar to those in adults (see ADVERSE REACTIONS). Like adults, pediatric patients should be carefully observed with frequent measurements of blood pressure, weight, height, intracranial pressure, and clinical evaluation for the presence of infection, psychosocial disturbances, thrombocytopenia, peptic ulcers, cataracts, and osteoporosis. Children who are treated with corticosteroids by any route, including systemically administered corticosteroids, may experience a decrease in their growth velocity. This negative impact of corticosteroids on growth has been observed at low systemic doses and in the absence of laboratory evidence of HPA axis suppression (i.e., cosyntropin stimulation and basal cortisol plasma levels). Growth velocity may therefore be a more sensitive indicator of systemic corticosteroid exposure in children than some commonly used tests of HPA axis function. The linear growth of children treated with corticosteroids by any route should be monitored, and the potential growth effects of prolonged treatment should be weighed against clinical benefits obtained and the availability of other treatment alternatives. In order to minimize the potential growth effects of corticosteroids, children should be titrated to the lowest effective dose.

Geriatric Use: Clinical studies of prednisolone sodium phosphate oral solution did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience with prednisolone sodium phosphate has not identified differences in responses between the elderly and younger patients. However, the incidence of corticosteroid-induced side effects may be increased in geriatric patients and appear to be dose-related. Osteoporosis is the most frequently encountered complication, which occurs at a higher incidence rate in corticosteroid-treated geriatric patients as compared to younger populations and in age-matched controls. Losses of bone mineral density appear to be greatest early on in the course of treatment and may recover over time after steroid withdrawal or use of lower doses (i.e., <5 mg/day). Prednisolone doses of 7.5 mg/day or higher have been associated with an increased relative risk of both vertebral and nonvertebral fractures, even in the presence of higher bone density compared to patients with involutional osteoporosis. Routine screening of geriatric patients, including regular assessments of bone mineral density and fracture prevention strategies along with regular review of prednisolone sodium phosphate indication should be undertaken to minimize complications and keep the dose at the lowest acceptable level. Co-administration of bisphosphonates has been shown to retard the rate of bone loss in corticosteroid-treated males and postmenopausal females, and these agents are recommended in the prevention and treatment of corticosteroid-induced osteoporosis.

It has been reported that equivalent weight-based doses yield higher total and unbound prednisolone plasma concentrations and reduced renal and non-renal clearance in elderly patients compared to younger populations. It is not clear whether dosing reductions would be necessary in elderly patients, since these pharmacokinetic alterations may be offset by age-related differences in responsiveness of target organs and/or less pronounced suppression of adrenal release of cortisol. Dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of communicant disease or other drug therapy. This drug is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function (see CLINICAL PHARMACOLOGY).

ADVERSE REACTIONS (listed alphabetically under each subsection)

Cardiovascular: Hypertrophic cardiomyopathy in premature infants. Dermatologic: Facial erythema; increased sweating; impaired wound healing; headache, weakness, menstrual disorders, accentuated menstrual irregularities; secondary adrenocortical and pituitary insufficiency; manifestations of latent diabetes mellitus; suppression of growth in children. Endocrine: Cataracts, and osteoporosis; pathologic fracture of long bones; steroid myopathy; tendon rupture; vertebral compression fractures. Fluid and Electrolyte Disturbances: Congestive heart failure in susceptible patients; fluid retention; hypertension; hypokalemic alkalosis; potassium loss; sodium retention. Gastrointestinal: Abdominal distention; elevation in serum liver enzyme levels (usually reversible upon discontinuation); pancreatitis; peptic ulcer with possible perforation and hemorrhage; ulcerative esophagitis. Metabolic: Negative nitrogen balance due to protein catabolism. Musculoskeletal: Aseptic necrosis of femoral and humeral heads; loss of muscle mass; muscle weakness; osteoporosis; pathologic fracture of long bones; steroid myopathy; tendon rupture; vertebral compression fractures. Neurological: Convulsions; headache; increased intracranial pressure with papilledema (pseudotumor cerebri); usually following discontinuation of treatment; psychiatric disorders; vertigo. Ophthalmic: Exophthalmos; glaucoma; increased intraocular pressure; posterior subcapsular cataracts. Other: Increased appetite; malaise; nausea; weight gain.

OVERDOSAGE

The effects of accidental ingestion of large quantities of prednisolone over a very short period of time have not been reported, but prolonged use of the drug can produce mental symptoms, moon face, abnormal fat deposits, fluid retention, excessive appetite, weight gain, hypertrichosis, acne, striae, ecchymosis, increased sweating, pigmentation, dry scalp skin, thinning scalp hair, increased blood pressure, tachycardia, thrombophlebitis, decreased resistance to infection, negative nitrogen balance with delayed bone and wound healing, headache, weakness, menstrual disorders, accentuated menstrual symptoms, neuropsychopathology, fractures, osteoporosis, peptic ulcer, decreased glucose tolerance, hyperkalemia, and adrenal insufficiency. Hepatomegaly and abdominal distention have been observed in children.

Treatment of acute overdosage is by immediate gastric lavage or emesis followed by supportive and symptomatic therapy. For chronic overdosage in the face of severe disease requiring continuous steroid therapy, the dosage of prednisolone may be reduced only temporarily, or alternate day treatment may be introduced.

DOSAGE AND ADMINISTRATION

The initial dosage of prednisolone sodium phosphate oral solution (25 mg prednisolone per 5 mL) may vary from 1 mL to 12 mL (5 to 60 mg prednisolone base) per day depending on the specific disease entity being treated. In situations of less severity, lower doses will generally suffice while in selected patients higher initial doses may be required. The initial dosage should be maintained or adjusted until a satisfactory response is noted. If after a reasonable period of time, there is a lack of satisfactory clinical response, prednisolone sodium phosphate oral solution (25 mg prednisolone per 5 mL) should be discontinued and the patient placed on other appropriate therapy. It should be emphasized that dosage requirements are variable and must be individualized on the basis of the disease under treatment and the response of the patient. After a favorable response is noted, the proper maintenance dosage should be determined by decreasing the initial drug dosage in small decrements at appropriate time intervals until the lowest dosage which will maintain an adequate clinical response is reached. It should be kept in mind that constant monitoring is needed in regard to drug dosage. Included in the situations which may make dosage adjustments necessary are changes in clinical status secondary to remissions or exacerbations in the disease process, the patient’s individual drug responsiveness, and the effect of patient exposure to stressful situations not directly related to the disease entity under treatment; in this latter situation it may be necessary to increase the dosage of prednisolone sodium phosphate oral solution (25 mg prednisolone per 5 mL) for a period of time consistent with the patient’s condition. If after long term therapy the drug is to be stopped, it is recommended that it be withdrawn gradually rather than abruptly.

In the treatment of acute exacerbations of multiple sclerosis, daily doses of 200 mg of prednisolone for a week followed by 80 mg every other day or 4 to 8 mg of dexamethasone every other day for one month have been shown to be effective.

In pediatric patients, the initial dose of prednisolone sodium phosphate oral solution (25 mg prednisolone per 5 mL) may vary depending on the specific disease entity being treated. The range of initial doses is 0.14 to 2 mg/kg/day in three or four divided doses (4 to 60 mg/m²/bsa/day).

The standard regimen used to treat nephrotic syndrome in pediatric patients is 60 mg/m²/day given in three divided doses for 4 weeks, followed by 4 weeks of single dose alternate-day therapy at 40 mg/m²/day.

The National Heart, Lung, and Blood Institute (NHLBI) recommended dosing for systemic prednisolone, or methylprednisolone or in children whose asthma is controlled by inhaled corticosteroids and long-acting bronchodilators or 1-3 mg/kg/day in single or divided doses. It is further recommended that short course, or “burst” therapy, be continued until a child achieves a peak expiratory flow rate of 80% of his or her personal best or symptoms resolve. This usually requires 3 to 10 days of treatment, although it can take longer. There is no evidence that tapering the dose after improvement will prevent a relapse.

For the purpose of comparison, 5 mL of prednisolone sodium phosphate oral solution (33.6 mg prednisolone sodium phosphate) is equivalent to the following milligram dosage of the various glucocorticoids:

<table>
<thead>
<tr>
<th>Cortisone</th>
<th>135</th>
<th>Triamcinolone</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocortisone</td>
<td>100</td>
<td>Paramethasone</td>
<td>10</td>
</tr>
<tr>
<td>Prednisolone</td>
<td>25</td>
<td>Betamethasone</td>
<td>3.75</td>
</tr>
<tr>
<td>Prednisone</td>
<td>25</td>
<td>Dexamethasone</td>
<td>3.75</td>
</tr>
<tr>
<td>Methylprednisolone</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These dose relationships apply only to oral or intravenous administration of these compounds. When these substances or their derivatives are injected intramuscularly or into joint spaces, their relative properties may be greatly altered.

HOW SUPPLIED

Each 5 mL (neatspoonful) of Prednisolone Sodium Phosphate Oral Solution contains 33.6 mg prednisolone sodium phosphate (25 mg prednisolone base) in a pale yellow, grape flavored solution.

NDC 0178-0582-08 8 oz (237 mL) bottle Dispense in tight, light-resistant glass or PET plastic containers as defined in the USP.

Store refrigerated, 2° to 8°C (36° to 46°F). Professional sample: NDC 0178-0582-01 1 fl oz (30 mL) sample bottle Dispense in tight, light-resistant glass or PET plastic containers as defined in the USP.

Store at 20° to 25°C (68° to 77°F). Keep tightly closed and out of the reach of children.

Manufactured for:
MISSION PHARMACAL COMPANY
San Antonio, TX 78233 1335