NEW DRUG UPDATE

Drug Name:	**testosterone**
Trade Name (Manufacturer):	**Fortesta™** (Endo Pharmaceuticals)
Form:	Topical gel
Strength:	10 mg per 5 gram pump actuation
FDA Approval:	December 29, 2010
Market Availability:	Anticipated early 2011
FDA Approval Classification:	Standard review
Classification:	Specific Therapeutic Class (HIC3): Androgenic Agents (F1A)

***Indication*:**[1] Testosterone **(**Fortesta) is a topical androgenic preparation indicated for replacement therapy in males with deficiency or absence of endogenous testosterone, as a result of congenital or acquired primary hypogonadism or hypogonadotropic hypogonadism.

***Contraindications/Warnings*:** Fortesta should not be used in men with carcinoma of the breast or prostate. Testosterone may cause fetal harm and should not be used by pregnant of breastfeeding women.

Patients with benign prostate hyperplasia should be monitored for worsening of their conditions. Fortesta may cause azoospermia. Patients with cardiac, renal, or hepatic disease may develop edema with our without congestive heart failure. Fortesta may cause sleep apnea in patients with risk factors. Care should be taken to avoid exposure of the product to women or children. Secondary exposure may result in signs of virilization.

Serum testosterone, prostate specific antigen (PSA), liver function, lipids, hematocrit, and hemoglobin should be monitored in patients using Fortesta.

***Drug Interactions*:** Fortesta may decrease blood glucose levels, reducing the insulin requirement for patients with diabetes. Changes in anticoagulant activity may also be observed, and more frequent monitoring of prothrombin time (PT) and International Normalized Ratio (INR) are recommended. The concurrent use of Fortesta with adrenocorticotropic hormone or corticosteroids may result in fluid retention, particularly in patients with cardiac, renal, or hepatic disease.

***Common Adverse Effects*:** Adverse events occurring in one or more percent of patients include: skin site reaction (16.1 percent), increase in PSA (1.3 percent), and abnormal dreams (1.3 percent).

***Special Populations*:**

Pediatrics: The safety and efficacy of Fortesta have not been evaluated in patients less than 18 years of age. The use of testosterone products in children may results in acceleration of bone growth and premature epiphysis closure.

Pregnancy: Pregnancy Category X.

Geriatrics: Fortesta has not been evaluated in a sufficient number of older adults to determine if efficacy and safety in those over age 65 is different from younger patients.

Renal Impairment: Fortesta has not been studied in patients with renal impairment.

Hepatic Impairment: Fortesta has not been studied in patients with hepatic impairment.

Gender: Fortesta is only indicated for use in male patients.

***Dosages*:** Therapy should be initiated at 40 mg (4 pump actuations) applied to clean, dry, intact skin of the thighs once every morning. The dose can be adjusted from a dose of 10 mg to 70 mg based on serum testosterone concentration two hours after application. Dose adjustment should occur at days 14 and 35 after initiation or dose change. Serum testosterone levels should be monitored periodically throughout therapy.

Patients should be advised to wash their hands with soap and water immediately following application. Patients should cover the application site with clothing after the gel has dried. The application site should be washed thoroughly with soap and water prior to any contact between the application site and another person.

***Clinical Trials*:** *A literature search was performed using "testosterone solution".*

The method of administration and monitoring parameters associated with topical testosterone therapy make it difficult to perform blinded studies on these agents. Consequently, many of the studies involving topical testosterone preparations are open-label, increasing the possibility for bias in study findings. Due to lack of alternative evidence, the open-label trial outlined in Fortesta's packing insert is described below.

Fortesta was evaluated in an open-label, non-comparative trial of 149 hypogonadal male subjects.[2] A dose of 40 mg was applied daily, with adjustments made on days 14, 35, and 60 based on serum testosterone levels. The primary endpoint was the percentage of subjects with a normal testosterone concentration, defined as 300 to 1,140 ng/dL, at day 90. At day 90, 77.5 percent of patients had achieved a normal testosterone concentration.

***Other Drugs Used for Condition*:**[3] Other topical and transdermal testosterone products include: Androderm®, Androgel®, Axiron®, and Testim®.

***Place in Therapy*:** The 2002 American Association of Clinical Endocrinologists Medical Guidelines for Clinical Practice for the Evaluation and Treatment of Hypogonadism in Adult Male patients do not endorse the use of a specific agent or dosage form for testosterone delivery.[4] No data exists to suggest that Fortesta is superior to other topical formulations of testosterone. Attention should be given to identifying the product that reduces the risk of abuse and accidental exposure to other individuals with whom the patient may have physical contact.

References

[1] Fortesta [package insert]. Chadds Ford, PA; Endo Pharmaceuticals; December 2010.
[2] Fortesta [package insert]. Chadds Ford, PA; Endo Pharmaceuticals; December 2010.
[3] Available at: www.clinicalpharmacology.com. Accessed January 31, 2011.
[4] American Association of Clinical Endocrinologists. American Association of Clinical Endocrinologists Medical Guidelines for clinical practice for the evaluation and treatment of hypogonadism in adult male patients-2002 update. Endocr Pract. 2002; 8(6):440-456.