Distinctas caras de la Testosterona

Homenaje a Picasso
Juan Gris (1912)
Loss of Testosterone: Is Andropause Inevitable?

Clinical Interventions in Aging

The many faces of testosterone

Review  Maturitas May, 2010

Testosterone and the aging male: To treat or not to treat?
The Dark Side of Testosterone Deficiency: I. Metabolic Syndrome and Erectile Dysfunction

The Dark Side of Testosterone Deficiency: II. Type 2 Diabetes and Insulin Resistance

The Dark Side of Testosterone Deficiency: III. Cardiovascular Disease

ABDULMAGED M. TRAISH*, FARID SAAD, ROBERT J. FEELEY* AND ANDRE GUAY

From the *Department of Biochemistry and Urology, Boston University School of Medicine, Boston, Massachusetts; Bayer-Schering Pharma, Men’s Healthcare, Berlin, Germany; Gulf Medical College School of Medicine, Ajman, UAE; and the Department of Endocrinology, Center for Sexual Function, Lahey Clinic, Peabody, Massachusetts.
Late-onset male hypogonadism and testosterone replacement therapy in primary care.

Authors: Brunton, Stephen A. Sadovsky, Richard
Department of Family Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
The Journal of family practice Vol:59 Issue:7 Sup:Jul2010
Sesiones de Maitines CAULE

Testículo y tejidos periféricos

Colesterol
CYP11A1 (enzima de separación de la cadena lateral del colesterol)

Pregnenolona
3β-HSD2 (deshidrogenasa de 3β-hidroxiestrostoide/izomerasa)

Progesterona
CYP17 (17α-hidroxiasa)

17-OH-progesterona
CYP1 (17,20-llasa)

Androstenediona
17β-HSD3 (deshidrogenasa 3 de 17β-hidroxiestrostoide)

Testículo y suprarrenales

5α-reductasa

Testosterona

CYP19 (aromatasa)

Dihidrotestosterona

Estradiol
Biodisponible

Libre (0.5-3.0%)

Albúmina (50-70%)
SHBG (30-45%)

Testosterona (5 mg/día)

Excreción (90%)

$5\alpha$-reductasa (6-8%)

Dihidrotestosterona (DHT)

- Genitales externos
- Crecimiento de la próstata
- Acné
- Vello facial o corporal
- Pérdida de pelo del cuero cabelludo

Testosterona

- Conducto de Wolff
- Formación de hueso
- Masa muscular
- Espermatogenia

Aromatasa (0.3%)

Estradiol

- Realimentación hipotalámica/hipofisaria
- Resorción ósea
- Cierre epifisario
- Ginecomastia
- Algunos efectos vasculares y sobre la conducta
CONCENTRACIONES SÉRICAS DE:

- LH
- FSH
- Testosterona Total = varón 2.6 - 16 ng/ml
  mujer 0.2 - 0.9 ng/ml
  niños indetect-0.3 ng/ml
- Testosterona libre = 5.6 - 27 pg/ml
- SHBG

PRUEBA DE ESTIMULACIÓN CON GnRH
PRUEBA DE ESTIMULACIÓN CON HCG
# The many faces of testosterone

1. Intrauterine life in a 46XY fetus  
2. Puberty  
3. Classical hypogonadism  
4. *Post-menopausal* women  
5. Bones  
6. Muscles/frailty  
7. Libido  
8. Erectile function  
9. Cognition  
10. Mood  
11. Erythropoiesis and anemia  
12. Coronary artery disease  
13. Obesity  
14. Diabetes mellitus  
15. HIV AIDS  
16. Autoimmune Disease  
17. Narcotic dependence  
18. Age-related hypogonadism
1. Intrauterine life in a 46XY fetus

2. Puberty
Selected causes of classical hypogonadism

A. Primary Hypogonadism (Testic. Caus. – High LH and FSH)
   Castration
   Testicular trauma
   Klinefelter’s Syndrome
   Orchitis
   Chemotherapy
   Radiation therapy to the testes

B. Secondary Hypogonadism (Hypot-Pituit. Caus.-Low LH and FSH)
   GnRH insufficiency (idiopathic or Kallmann’s syndrome)
   Pituitary or hypothalamic tumour
   Hyperprolactinemia
   Pituitary surgery
Symptoms or findings of low testosterone

- Weakness
- Fatigue
- Lethargy
- Mood changes
  - dysthymia
  - depression
  - irritability
- Decreased libido
- Decreased erectile function
- Decreased quality of orgasm
- Decreased muscle mass
- Decreased motivation
- Loss of self-confidence
- Decreased energy
- Anemia
- Osteopenia/osteoporosis
- Decreased facial, axillary, pubic hair
- Insomnia
- Flushes
4. Post-menopausal women

**INTRINSA** (parches) No financiado
300 mcg/24 h 8.4 mg
(env con 8 parches) = 49.83 €
1 parche/ 2 veces semana
Uso exclusivo en mujeres

---

<table>
<thead>
<tr>
<th></th>
<th>Testosterone group (n = 24)</th>
<th>Placebo group (n = 27)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Related adverse events</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin reaction to patch</td>
<td>16</td>
<td>17</td>
<td>NS</td>
</tr>
<tr>
<td>Oily skin</td>
<td>3</td>
<td>1</td>
<td>NS</td>
</tr>
<tr>
<td>Acne</td>
<td>8</td>
<td>1</td>
<td>0.004</td>
</tr>
<tr>
<td>Hirsutism</td>
<td>7</td>
<td>3</td>
<td>NS</td>
</tr>
<tr>
<td>Alopecia</td>
<td>0</td>
<td>2</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Reasons for discontinuation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin reaction to patch</td>
<td>2</td>
<td>1</td>
<td>NS</td>
</tr>
<tr>
<td>Unrelated illness</td>
<td>2</td>
<td>2</td>
<td>NS</td>
</tr>
<tr>
<td>Started taking DHEA</td>
<td>0</td>
<td>1</td>
<td>NS</td>
</tr>
<tr>
<td>Study subject preference</td>
<td>2</td>
<td>2</td>
<td>NS</td>
</tr>
</tbody>
</table>
Sesiones de Mañanas

CAULE

102 EXCUSES
FDA Review Perspective on Intrinsa™

• Panel voted 14 to 3 that Intrinsa™ provides “a clinically meaningful benefit”
• However, Panel voted unanimously against approval due to unresolved long term safety
• Several Panel members expressed support if able to show positive results in two additional Phase III studies:
  — First study (in nonhysterectomized women) has been completed
  — Second study (3-year safety) near completion
• P&G took off line with FDA – awaiting resolution
• LibiGel™ efficacy data so far appears superior to Intrinsa™
• Delays suggested as months, not years; may be beneficial for LibiGel™ (Rich Watson, analyst for William Blair)
• P&G developing EMEA submission for Europe
Descubierta una conexión entre una hormona de los huesos y la fertilidad del hombre
6. Muscles/frailty
7. Libido
8. Erectile function

Desnudo masculino sentado al borde del mar, 1855, París, Museo del Louvre.
Jean Hippolyte Flandrin
9. Cognition

10. Mood
11. Erythropoiesis and anemia
12. Coronary artery disease
13. Obesity
14. Diabetes mellitus
16. Autoimmune Disease

Review


Gender-Specific Asthma Treatment
Inseon S Choi*

Department of Allergy, Chonnam National University Medical School, Gwangju, Korea
15. HIV AIDS

17. Narcotic dependence
18. Age-related hypogonadism
DERIVADOS ORALES DE TESTOSTERONA

: MESTEROLONA

25 MG/6-8 HRS

PROVIRON 4€

www.anabolics-online.com
Propionato de testosterona: Testex
25 mg/2-3 días
Caja 4 ampollas 2.15 €
Enantato de testosterona
(no comercializado en España)
250 mg /3-6 semanas
Cipionato de testosterona: Testex

100-250 mg/2-4 semanas

Prolong 1 ampolla 100 mg/2 ml = 2.39 €
Prolong 1 ampolla 250 mg/2 ml = 3.39 €
Undecanoato de testosterona:
Reandrón 1gr/ 10-14 semanas
1gr/4 ml = 144.03€
Testosterone undecanoate in the treatment of male hypogonadism

August 2010, Vol. 11, No. 12, Pages 2095-2106

Daniel Edelstein †1 BS & Shehzad Basaria 2 MD 1 Johns Hopkins School of Medicine, Division of Endocrinology and Metabolism, 550 N. Broadway Suite 108, Baltimore, MD, USA edelstein@jhu.edu

2 Boston University School of Medicine, Boston Medical Center, Division of Endocrinology and Metabolism, Androgen Clinical Research Unit, 670 Albany Street, 2nd Floor, USA
Parches: Testopatch: 2 parches / 48 hrs
30 parches transd. 1.2 mg/24 hrs = 58.15 €
30 parches transd. 1.8 mg/24 hrs = 58.15 €
30 parches transd. 2.4 mg/24 hrs = 58.15 €
Gel de testosterona
1 sobre o tubo o 3 gr de gel al 2% /24 h. Ajuste según respuesta. Máximo 100 mg (10 g) / día
Testogel sobres 50 mg/5g (env 30) = 52.92 €
Testim Tubo 50 mg/5g (env 30) = 54.00 €
Itnogen gel 2% (tub 60 g) = 47.14 €
Guidelines for Testosterone Therapy for Men: How to Avoid a Mad (T)ea Party by Getting Personal

Anawalt

*J Clin Endocrinol Metab.* 2010; 95: 2614-2617

Bradley D. Anawalt, M.D.
Professor and Vice Chair, Medicine, UW School of Medicine
Chief of Medicine, University of Washington Medical Center
Professor Robert McLachlan is Director of Clinical Research at Prince Henry's Institute and Consultant Endocrinologist at the Monash Medical Centre in Melbourne, Australia.

He has served as President of the Fertility Society of Australia and as Secretary of the International Society of Andrology, and is currently a consultant to the WHO on male fertility regulation.
Low Testosterone Must Explain Diminished Physical Performance in the Elderly—Right?

Snyder

*J Clin Endocrinol Metab.* 2010; 95: 2634-2635

Professor of Endocrinology

University of Pennsylvania, Philadelphia

Medical Director, Penn Pituitary Center