Journal of ANDROLOGY

Search Medline for FREE

HOME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH TABLE OF CONTENTS

Journal of Andrology, Vol. 24, No. 3, May/June 2003
Copyright © American Society of Andrology

This Article
- Full Text
- Full Text (PDF)
- Alert me when this article is cited
- Alert me if a correction is posted

Services
- Similar articles in this journal
- Similar articles in PubMed
- Alert me to new issues of the journal
- Download to citation manager

Citing Articles
- Citing Articles via HighWire
- Citing Articles via Google Scholar

Google Scholar
- Articles by Traish, A. M.
- Articles by Goldstein, I.
- Search for Related Content

PubMed
- PubMed Citation
- Articles by Traish, A. M.
- Articles by Goldstein, I.

Effects of Medical or Surgical Castration on Erectile Function in an Animal Model

ABDULMAGED M. TRAISH[*,†], RICARDO MUNARRIZ[*], LUKE O'CONNELL[*], SEONG CHOI[*], SOO WOONG KIM[*], NOEL N. KIM[*], YUE-HUA HUANG[*] AND IRWIN GOLDSTEIN[*]

From the Departments of [*] Urology and [†] Biochemistry, Boston University School of Medicine, Boston, Massachusetts.

Correspondence to: Dr Abdulmaged M. Traish, Department of Urology, Boston University School of Medicine, 700 Albany Street, Room W607, Boston, MA 02118 (e-mail: atraish{at}bu.edu).

The goal of this study was to investigate the effects of medical castration (luteinizing hormone-receptor hormone [LH-RH] agonist treatment) or surgical castration on erectile function in an animal model. New Zealand White male rabbits were either kept intact (control); surgically orchiectomized; or treated for 2, 4, or 8 weeks with the LH-RH agonist leuprolide acetate (107 µg/kg/mo). At 2 weeks, plasma testosterone levels of orchiectomized and leuprolide acetate–treated animals were 12.8% and 57.4% of intact control animals, respectively. Erectile function was assessed by continuously recording systemic arterial pressure (SAP) and intracavernosal blood pressure (ICP) and determining the ICP:SAP ratios in response to electrical stimulation of the pelvic nerve at varying frequencies (2.5–32 Hz). Androgen deprivation by surgical (orchiectomy) or medical (leuprolide acetate) castration reduced ICP at all frequencies tested but did not alter SAP. Administration of the phosphodiesterase type 5 inhibitor vardenafil (10 µg/kg) did not enhance ICP in surgically orchiectomized or leuprolide acetate–treated animals. Nitric oxide synthase and arginase activities in the corpus cavernosum were not significantly altered by surgical or medical castration. Further, Masson trichrome staining of erectile tissue from androgen-ablated animals showed a reduction in smooth muscle content. These data demonstrate that androgen deprivation achieved by surgical or medical castration adversely affects penile hemodynamics and erectile function without producing significant changes in the activities of nitric oxide synthase or arginase. We conclude that androgen deprivation produces structural alterations in the corpus cavernosum leading to corporal veno-occlusive dysfunction.

Key words: Androgens, trabecular smooth muscle, corpus cavernosum, veno-occlusion, vardenafil, leuprolide acetate

This article has been cited by other articles:

Journal of ANDROLOGY HOME

A. A. Yassin and F. Saad
Testosterone and Erectile Dysfunction
J Androl, November 1, 2008; 29(6): 593 - 604.
[Abstract] [Full Text] [PDF]

Journal of ANDROLOGY HOME

O. Canguven and A. L. Burnett
The Effect of 5 {alpha}-Reductase Inhibitors on Erectile Function
J Androl, September 1, 2008; 29(5): 514 - 523.
[Abstract] [Full Text] [PDF]

Journal of ANDROLOGY HOME

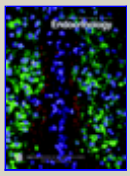
W.-Y. Lin, A. Mannikarottu, P. Chichester, A. Guven, A. Johnson, P. Neuman, Y.-S. Juan, C. Schuler, B. Kogan, and R. M. Levin
Changes in the Smooth Muscle of the Corpora Cavernosum Related to Reversal of Partial Bladder Outlet Obstruction in Rabbits
J Androl, March 1, 2008; 29(2): 164 - 171.
[Abstract] [Full Text] [PDF]

Journal of ANDROLOGY HOME

A. L. Burnett
Molecular Pharmacotherapeutic Targeting of PDE5 for Preservation of Penile Health
J Androl, January 1, 2008; 29(1): 3 - 14.
[Abstract] [Full Text] [PDF]

Journal of ANDROLOGY HOME

A. M. Traish, P. Toselli, S.-J. Jeong, and N. N. Kim
Adipocyte Accumulation in Penile Corpus Cavernosum of the Orchiectomized Rabbit: A Potential Mechanism for Veno-occlusive Dysfunction in Androgen Deficiency
J Androl, March 1, 2005; 26(2): 242 - 248.
[Abstract] [Full Text] [PDF]



Endocrinology HOME

A. Morelli, S. Filippi, R. Mancina, M. Luconi, L. Vignozzi, M. Marini, C. Orlando, G. B. Vannelli, A. Aversa, A. Natali, *et al.*
Androgens Regulate Phosphodiesterase Type 5 Expression and Functional Activity in Corpora Cavernosa
Endocrinology, May 1, 2004; 145(5): 2253 - 2263.
[Abstract] [Full Text] [PDF]

Copyright © 2003 by The American Society of Andrology.