Journal of ANDROLOGY

Search Medline for FREE

HOME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH TABLE OF CONTENTS

Journal of Andrology, Vol. 26, No. 5, September/October 2005
Copyright © American Society of Andrology
DOI: 10.2164/jandrol.04164

Changes in Testosterone and Dihydrotestosterone Levels in Male Rat Accessory Sex Organs, Serum, and Seminal Fluid After Castration: Establishment of a New Highly Sensitive Simultaneous Androgen Measurement Method

BUNZO KASHIWAGI*, YASUHIRO SHIBATA*, YOSHIHIRO ONO*, RYOTA SUZUKI†, SEIJIRO HONMA† AND KAZUHIRO SUZUKI*

*From the * Department of Urology, Gunma University Graduated School of Medicine, Maebashi, Japan; and the † Department of Pharmacological Research, Teikoku Hormone Manufacturing, Kawasaki, Japan.*

Correspondence to: Dr Bunzo Kashiwagi, Department of Urology, Gunma University Graduated School of Medicine, Showa machi, Maebashi, Gunma 371-8511, Japan (e-mail: bkashiwa{at}med.gunma-u.ac.jp).

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 Kashiwagi, B.
- Articles by Suzuki, K.
- Search for Related Content

PubMed

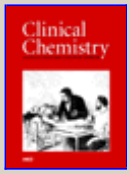
- PubMed Citation
- Articles by Kashiwagi, B.
- Articles by Suzuki, K.

It is known that abnormal androgen dynamics in the tissues is a cause of androgen-dependent disorders. Investigation of tissue androgen levels could provide a clue to the elucidation of disorders. However, it is difficult to measure a trace amount of androgen in the tissues. We established a highly sensitive simultaneous quantification method of testosterone and dihydrotestosterone (DHT), which play the most important roles in the body among androgenic steroids in trace amounts, and investigated time course changes in testosterone and DHT levels in male accessory sex organs, serum, and seminal fluid after castration in rat models. In addition, changes in the testosterone/DHT ratio of male accessory sex organs and seminal fluid were observed. The simultaneous testosterone and DHT measurement method established by us was validated. Intra-assay variation and interassay precision and accuracy were all within ± 20%, and the quantification limits of testosterone and DHT were both 15.6 pg/g. With the use of this method, the testosterone and DHT levels in the prostate, seminal vesicles, and serum immediately after castration were similar to those previously reported. The testosterone and DHT levels were 350 pg/g and 605 pg/g, respectively; which showed dominance of DHT in seminal fluid, although it was not as marked as that in the male accessory sex organs. Androgens decreased with time after castration in the accessory sex organs, serum, and seminal fluid. In the prostate and seminal vesicles, testosterone and DHT decreased to about 50% and about 2% of the normal levels, respectively, 72 hours after castration. The serum levels were under the quantification limits 6 hours after castration and thereafter. In seminal fluid, the testosterone and DHT levels decreased to 49% and 35% of normal levels, respectively, 72 hours after castration. The testosterone/DHT ratio in the male accessory sex organs was lower in the prostate (0.06) than in the seminal vesicles (0.13) immediately after castration. In the seminal fluid, changes in the ratio were small compared with those in the accessory sex organs and serum. These results showed that our method

was capable of measuring testosterone and DHT in very small amounts of samples such as prostate biopsy specimens, and it might provide a clue to the elucidation of the pathology of androgen-dependent disorders.

Key words: LC-MS/MS, hormone, prostate, seminal vesicles

This article has been cited by other articles:



Clinical Chemistry HOME

S. Shiraishi, P. W. N. Lee, A. Leung, V. H. H. Goh, R. S. Swerdloff, and C. Wang
Simultaneous Measurement of Serum Testosterone and Dihydrotestosterone by Liquid Chromatography-Tandem Mass Spectrometry
Clin. Chem., November 1, 2008; 54(11): 1855 - 1863.
[Abstract] [Full Text] [PDF]

Proceedings of the National Academy of Sciences HOME

A. Honda, M. Hirose, K. Hara, S. Matoba, K. Inoue, H. Miki, H. Hiura, M. Kanatsu-Shinohara, Y. Kanai, T. Kono, *et al.*
Isolation, characterization, and in vitro and in vivo differentiation of putative thecal stem cells
PNAS, July 24, 2007; 104(30): 12389 - 12394.
[Abstract] [Full Text] [PDF]

Copyright © 2005 by The American Society of Andrology.