

QUANTIFICATION OF PROSTATIC ANDROGENS. PART 2. EFFECT OF SAW PALMETTO HERBAL BLEND

Leonard S Marks, Culver City, CA, David L Hess, Beaverton, OR, Frederick J Dorey, Los Angeles, CA, Alan W Partin, Jonathan I. Epstein, Baltimore, MD, Maria L Macairan, Los Angeles, CA, Varro E Tyler, West Lafayette, IN. Presentation by Dr. Marks

Abstract

Objectives

Saw palmetto (SP) is widely used for symptomatic BPH, but its mechanisms are unknown. To evaluate the possibility that SP inhibits 5 alpha-reductase (5AR), we developed an in situ method for determination of prostatic tissue levels of testosterone (T) and dihydrotestosterone (DHT) and applied it to men in a randomized trial, Saw Palmetto Herbal Blend (SPHB) v PBO.

Methods

Men with BPH had sextant biopsy of prostate (P) (18 ga. needle cores) at baseline and after 6 months of treatment with PBO (n = 20) or a standardized SPHB (320 mg/d of SP) (n = 20). PBO and SPHB patients were matched at baseline for age (64 yrs), symptoms (IPSS = 17), uroflow (Qmax = 10.5 cc/sec), P volume (56 cc), and PSA (3.3 ng/ml). For each man, 2 midsagittal P cores were quick frozen upon extraction and batch-analyzed at end of study for T, DHT, and Estradiol (E) (method in companion abstract). Other P cores were used for routine histology and to quantify tissue components morphometrically.

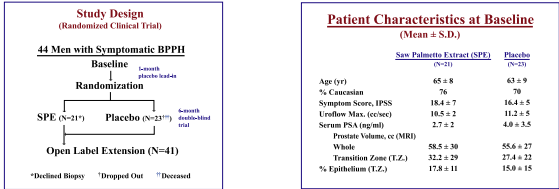
Results

P levels of T (1.4-1.6 ng/g) and DHT (5.4-6.5 ng/g) were similar in the two groups at baseline (p = NS). After treatment, T did not change in either group, but in the SPHB group, median DHT decreased to 4.4 ng/g (p = 0.005, sign rank test), a 32% change from baseline. No significant change in median DHT levels was seen in the PBO group (p = NS). E was not detectable before or after treatment. No change in serum levels of T, DHT, or E was observed. No correlation was seen between tissue DHT changes and clinical changes or the SPHB-induced contraction of P epithelium.

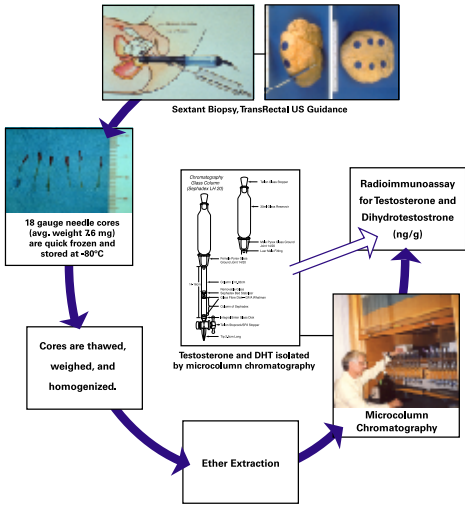
Conclusions

6 months of SPHB treatment results in a 32% decrease in prostate tissue levels of DHT (p = 0.005). Thus, SPHB may function in vivo as an inhibitor of 5AR. Compared to the finasteride effect on 5AR (5-fold increase in tissue T and 80% decline in tissue DHT levels), the SPHB effect appears modest.

Methods

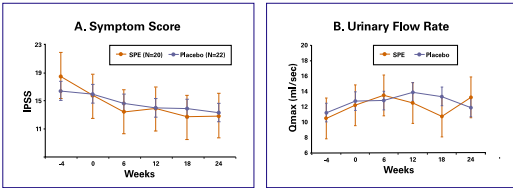


44 men with symptomatic BPH were randomized into a 6-month trial of placebo or Saw Palmetto Herbal Blend (SPHB) containing a daily dose of 320 mg of standardized saw palmetto extract. Clinical characteristics of the two groups were similar at baseline.



Instead of surgically excised tissue, needle biopsy cores were used to quantify prostatic androgen levels. Steroid recovery was 73% for Testosterone, 84% for Dihydrotestosterone.

Results



A treatment-related change in symptoms (A) and uroflow (B) was not discerned, as study not powered for this (N=44).

In Vivo Effects of Finasteride vs. Saw Palmetto Extract*

Serum	Finasteride	Saw palmetto
PSA	50% decrease (5,18,19)	No change (4,10,22)
DHT	70% decrease (5,18)	No change (4,10)
Testosterone	Slight increase (18)	No change (4,10)
Prostate Gland		
Volume	20% decrease (5,18)	No change (3,4,22)
% Epithelium	55% decrease (5)	40% decrease (4)
DHT	80% decrease (5)	32%, 50% decrease (**, 7)
Testosterone	5-10x increase (5)	No change, 125% increase (**, 7)
Apoptosis	Increase (19)	No change (4)
Cell proliferation	No change (21)	No change (4)
Androgen receptors	Unknown	No change (4)

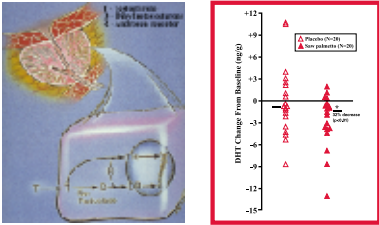
*Data in table = approximate change from baseline during treatment of men with symptomatic BPH. Where % change is given, p < 0.05. Numbers in parentheses = source of data (***=data from present work)

Conclusions

In a 6-month randomized trial of men with symptomatic BPH, treatment with saw palmetto herbal blend (SPHB) resulted in a significant decrease in prostate tissue levels of dihydrotestosterone (DHT).

The decrease in DHT averaged 32% from baseline (p<0.01) in the treated men, whereas no significant change was seen in placebo-treated controls. This change is modest compared to the changes seen after finasteride treatment, and was not accompanied by increases in tissue testosterone, or by any decrease in serum PSA or DHT.

Taken altogether, these data offer an element of support to the hypothesis that saw palmetto functions in vivo as a mild inhibitor of 5-alpha-Reductase.



References

- Marks LS, Partin AW, Epstein JI, et al. *Effects of a saw palmetto herbal blend in men with symptomatic benign prostatic hyperplasia.* J Urol 163: 1451-1456, 2000.
- Di Silverio F, Monti S, Sciarra A, et al. *Effects of long term treatment with Serenoa repens (Permixon®) on the concentrations and regional distribution of androgens and epidermal growth factor in benign prostatic hyperplasia.* Prostate 37: 77-83, 1998.
- McConnell JD, Wilson JD, George FW, et al. *Finasteride, an inhibitor of 5α-reductase, suppresses prostatic dihydrotestosterone in men with benign prostatic hyperplasia.* J Clin Endocrinol Metab 74: 505-507, 1992.

Participating Institutions:



University of California, Los Angeles



NUTRILITE
A DIVISION OF ACCESS BUSINESS GROUP

Nutriline Division of Access Business Group



Johns Hopkins University



Urological Sciences Research Foundation



Purdue University



Oregon Health Sciences University