Conference: AUA (American Urology Association) 2016, San Diego

Date & Time: May 8, 2016 10:30 AM-12:30 PM

Session Title: Prostate Cancer: Detection & Screening VI

Abstract: PD26-08

Improved tissue yield and prostate cancer detection of a novel biopsy preservation system

Authors: Michael Cohen*, Boris Yudkevich, Helena Yodko, Irit Elmalah, Afula, Israel

Introduction and Objectives

Current handling of prostate biopsy cores has many flaws. Fragmentation, loss of orientation and length reduction are just few factors that may reduce cancer detection or obscure the tumor location. The SmartBx^{TM} (SBx)(UC-care medical system) offers a semi-automated download of cores, while preserving its configuration and orientation as on the needle, onto a designated cassette which then goes a routine pathology lab processing. Our objectives were to assess this system against a routine download in maintaining tissue length and integrity, and examine its effect on cancer detection.

Methods

Patients having a routine prostate biopsy (12-20 core, Bard® Magnum Biopsy gun, 18G needle) were consented for a random comparison between standard (Std.) download (i.e. into formalin vial) and the SBx download. Differences in core length and integrity were documented by camera. The core initial length was measured on the open needle, then, after processing, paraffin embedding and H&E staining,- on the glass slide. Cancer detection per biopsy core was checked for both methods.

Results

A total of 3412 cores were taken from 376 Patients (Std.- 1768, SBx- 1653). The final core length was 10±5.8 mm using the Std. method vs. 12.4±3.7 mm using the SBx. The relative reduction in core length (i.e. vs. the initial, on the needle, 100%) was 62±17 % Vs.78±19 % respectively. Corresponding with this 24% relative increase ($P < 0.01$) in core length, a 25% increase in cancer detection rate (10.7% vs. 13.3% per core, $P<0.05$) was observed for 216 patients with PSA<10, who had a 12 cores procedure. The SBx. kept core configuration and orientation, including fragments [Pic. A1-2].

Conclusions

The use of the semi-automated SBx. download system led to an increased final cores length and cancer detection rate per core,- a linkage previously suggested, in tissues handled manually. Keeping cores orientation and configuration as seen on the biopsy needle allows a within-core cancer localization and, if integrated with new image guided- TRUS biopsy systems [Pic. A3], may offer a precise within-prostate cancer localization. This may have an important role in managing repeated biopsies, active surveillance and improve accurate planning of focal treatment of prostate cancer [Pic. A4].

Sources of Funding: none