BLUE LIGHT CYSTOSCOPY FOR DIAGNOSIS OF UROTHELIAL BLADDER CANCER: RESULTS FROM A PROSPECTIVE MULTICENTER REGISTRY

Soroush Bazargani MD[1], Hooman Djaladat MD, MS[1], Anne K. Schuckman MD[1], Badri Konety MD, MBA[2], Trinity Bivalaqua MD[3], Jeff Holzbeierlein MD4, Brian Willard MD5, Jennifer Taylor MD, MPH6, Joseph Liao MD7, Kamal Pohar MD8, James Tierney MD? and Siamak Daneshmand MD[1]
[1]USC Institute of Urology, Los Angeles, CA; [2]University of Minnesota, Minneapolis, Minnesota; [3]Johns Hopkins, Baltimore, MD; 4Kansas University, KS; 5Carolina Urology Partners, Lexington SC; 6Michael E. DeBakey VAMC, Houston TX; 7Palo Alto VA, CA; 8Ohio State University, Columbus, OH; ?Charleston Area Medical Center, Wv

Presented by: Soroush Bazargani

Introduction and Objectives: Blue Light Cystoscopy (BLC) using hexaminolevulinate (Cysview) improves the detection of non-muscle invasive bladder cancer (NMIBC). We report on our experience from the prospective BLC Registry and its utility.
Methods: Under IRB approval, we prospectively enrolled consecutive patients undergoing transurethral resection of bladder lesions into the registry at 9 different centers. Patients who refused catheter insertion (8), had pure upper tract or prostatic urethral lesions (7) or were lost to follow up (10) were excluded from the study.
Results: A total of 1060 separate lesions were identified from 415 BLC procedures on 338 patients between April 2014 and July 2016. Mean age was 72 years with 82% being male. 62 patients underwent repeat use (2-4). Using final pathology as the reference standard, the sensitivity of WL, BL and the combination for any malignant lesion was 73%, 89% and 98% respectively. The addition of BL to standard WLC increased the detection rate by 12% for any papillary lesions and 45% for CIS (Table 1). BL resulted in upgrading or upstaging in 52 (15%) patients, resulting in a change in management. Overall false-positive (FP) rate was 22% for WL and 26% for BL. 122 (36%) patients received BCG at least 6 weeks prior to BLC, with a positive predictive value (PPV) of 59% for malignancy (FP=30%). 75 biopsies were taken from margins of a previous resection site (with more than 6 weeks' interval), wherein the PPV of BLC was 52% for malignancy (FP=30%). Among the positive/suspicious cytology patients who had no lesions on WL (113 total), BL was able to detect an extra 50 malignant lesions in 32 patients (sensitivity 91%). There were no hypersensitivity reactions noted. 40 (12%) patients eventually underwent cystectomy, 4 (10%) of whom exclusively because of lesions detected by BLC.
Conclusions: BLC significantly increases detection rates of CIS and papillary lesions over WL cystoscopy alone and can result in a change in management in 15% of patients. Recent BCG therapy appears to have no effect on BLC accuracy. Repeat use of Cysview for BLC appears to be safe.

Table 1- Detection rate of different bladder lesions using white and blue light cystoscopy.

Detection rate (sensitivity)	Any malignancy	Any papillary	Low Grade papillary	High Grade papillary	CIS
White light only	73%	87%	82%	87%	52%
Blue light only	89%	89%	87%	91%	91%
Either white or blue light	98%	99%	98%	99%	97%

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