Stony Brook Bladder Cancer Care New Innovations

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* Stony Brook Medicine

The New Stony Brook University

- Stony Brook was established in 1957 in Oyster Bay as State University College on Long Island. In 1962 the University moved to its location in Stony Brook
- In 1980 the hospital was opened
- In June, 1991 Stony Brook Urology began its residency program.
- Innovations from the department include the pioneering of Cryo-surgery



- Currently the department consists of :
- 12 Providers
- 11 Residents (4 Prelims, 7 Active)
- 4 NPs
- 5 PAs
- Support staff



 With a catchment area of over 1.5 million and growing Stony Brook Medicine is the premier institution on Long Island for multi discipline urologic care



- Stony Brook is growing to meet the challenge
- With over \$423 million dollars in capital investment Stony Brook Medicine remains on the cutting edge of medical innovation
- Includes:
 - Plans for Medical and Research Translational building
 - 245,000 square feet dedicated to translational research and Cancer treatment
- Plans for Children's Hospital



Stony Brook Medicine

Medical and Research Translation Building

NOVEMBER 13, 2013 · GROUNDBREAKING

The Bed Tower housing Stony Brook Children's Hospital

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The Medical and Research Translation Building (MART)



New Equipment

- 2 daVinci Si Robots
- Plans for added capacity of the OR
- Blue Light with Cysview® cystoscopy system

• An emerging center for Bladder Cancer Care

- 115 Bladder Cancer patients from 2012-2013
 - Ranging from T1-T4 disease

Economics of Bladder Cancer

- The direct medical costs of cancer care in the US were estimated at \$125 billion in 2010
- Costs are expected to rise to \$155 billion by 2020
- Bladder cancer is expected to account for >3% of all cancer related medical payments
- <u>Diagnosis</u> alone of muscle invasive bladder cancer is approximately \$150,000



Avritscher et al Urology 2006

Economics of Bladder Cancer

- Non-medical costs of bladder cancer
 - Lost productivity
 - Time spent in recovery

>100 million annually

Cost due to untimely death from bladder cancer (value of life lost):

17 billion annually



Svatek RS et al. Eururo 2014

Conundrum of Bladder Cancer Treatment

- Treatments and testing do not necessarily equate to equivalent benefit
 - More testing/treatment not always associated with better outcomes
- Major problem with all cost analysis is paucity of data on the effectiveness of therapy



Conundrum of Bladder Cancer Treatment

• Bladder cancer is notorious for gaps in knowledge

- what works best--?
- Absence of adequately powered randomized trials



Bladder Cancer

25% <u>are muscle</u> invasive

75% are non-invasive



Herr et al.sciworldjou. 2011

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Herr et al.sciworldjou. 2011

Bladder Cancer

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75% are non-invasive

30% upstaged on re-staging TURBT 30-70% Recur





Herr et al.sciworldjou. 2011

Bladder Cancer Numbers

- 73,500 new cases each year in US
- 4th most common cancer in men
- 9th in women
- Over 520,000 bladder cancer survivors in the US



Screening for Bladder Cancer

 <u>Currently there are no adopted screening programs in</u> <u>the US</u>



Bladder Cancer Detection

- Urologist rely on primary care providers to:
 - identify patients at risk for bladder cancer
 - refer for a hematuria (blood in urine) evaluation
- Identification of risk factors:
 - Hematuria
 - Dysuria
 - Smoking
 - Exposure to chemicals



Detection of Bladder Cancer

- Hematuria
 - 3+ RBC per high powered field (HPF)
 - history, physical examination, and laboratory examination to rule out benign causes
 - Cystoscopy on all patients aged 35 years and older
 - A cystoscopy on all patients who present with risk factors for urinary tract malignancies regardless of age



Hematuria Work Up

- Upper tract evaluation
 - Radiological→Computed tomography (CT) scan to examine the kidneys, bladder, and the tube that runs between them





Hematuria Work Up

- Lower tract Evaluation
 - Cystoscopy procedure





Doing it Right the First Time

- Trans Urethral Resection (TUR) is an effective tool for diagnosis and management of Bladder Cancer
- Initial TUR is essential to decrease morbidity, disease recurrence, progression and decrease cost
- In 1 study, patients who underwent a re-TUR within 4 weeks of initial TUR
 - 70% had visible tumor
 - 30% of those at the original tumor bed
 - 70% of those had tumor at another site



• First attempt at treatment is the best chance to optimize patient outcomes



Stony Brook Is Doing More

 While considered the "gold standard" for diagnosing bladder cancer, the traditional method of white-light cystoscopy has limitations



However, now there is a way to overcome these limitations using a *blue* light



Stony Brook Is Doing More

- Blue-Light Cystoscopy with Cysview® is an innovative technology
- Cysview® is a solution that is placed into the bladder and is absorbed by cancerous tissue
- Cystoscopy is then performed with the PDD system (Storz)
- For patients suspected or known to have a certain kind of bladder cancer (any one receiving hematuria evaluation)
- Essential part of a comprehensive diagnostic and follow up program for bladder cancer



- Blue Light with Cysview® is a way to detect tumors in the bladder using photodynamic means
- Abnormal tissue will illuminate





 Cysview® (50 ml reconstituted solution) is introduced into the bladder 1 hour prior to resection (in pre-op)





- Protoporphyrin accumulates preferentially in neoplastic tissue
- Visualized as a clearly demarcated red fluorescence under BL illumination







Photodynamic Diagnosis

Goal of PDD

- Facilitate the detection of lesions
- Reduce recurrence rates
- Improve completeness of resection

 Cysview was approved by FDA in 2010 for use with the Karl Storz D-Light C PDD system with the blue light setting as an adjunct to the white light setting in the detection of NMIBC





White Light Cystoscopy



Blue Light with Cysview®





White Light Cystoscopy

Blue Light with Cysview®



Better Outcomes

- Stenzl et al conducted a prospective randomized multiinstitutional study
- Study was the basis for FDA approval
 - 814 pts with Bca were randomized to WL vs BL
 - HAL Blue Light with Cysview® performed better than white light alone



Better Tumor Detection



Stenzl et al, J Urol 2010



Better CIS Detection



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Reduced Recurrence Rates



Stenzl et al, J Urol 2010



Time to Recurrence



Time to Recurrance

Stenzl et al, J Urol 2010



Trend Toward Progression



Continued Decreased Recurrance(12 mo)



Recurrance at 12 months

Burger et al, Eur Urol, 2013



Cost-effectiveness of Blue Light Cystoscopy with Cysview®

Initial Cysto/Turbt

Cost for Pt treated with WL / 5 yrsCost for Pt treated with BL/ 5 yrs\$30,581.00\$25,921.00

15% reduction in 5 year costs is substantial on a population base

Patient examined on average spent less time managing disease recurrence during those 5 years (11% less) who had BL vs WL



Future of Cystoscooy

 "Technology is rapidly evolvingit appears that fluorescence cystoscopy in some form is here to stay"
Dr. Harry W Herr





Stony Brook Future

- Stony Brook is growing on Long Island
- Committed to providing the best Urologic Oncology care to its patients
- Investments in Blue Light Cystoscopy with Cysview® are helping to to make Stony Brook Urology the premier bladder care center on Long Island



Dr. John Fitzgerald







Matthew Petersen



Melanie Dale



Dr. Anthony Corcoran

Dr. Wayne Waltzer Chairmen



Deborah Feliciano