

PDT Photodynamic therapy for refractory non-muscle invasive bladder cancer (Ta, T1) TCC and CI

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Photodynamic therapy for refractory superficial bladder cancer: long-term clinical outcomes of single treatment using intravesical diffusion medium. Manyak MJ, Ogan K. Department of Urology, The George Washington University Medical Center, Washington, D.C. 20037, USA. PubMed Abstract

CONCLUSION: This is the first report of long-term results following whole-bladder PDT using diffusion medium for isotropic light distribution. More than half of the patients with TCC refractory to traditional intravesical therapy received benefit from a single PDT session. Patients with extensive flat papillary lesions do not appear to respond well. Patients who achieve a CR have less likelihood of and longer time interval before needing cystectomy for progressive disease than NR patients. Our PDT protocol is associated with minimal morbidity in these high-risk patients.

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For a look at abstracts from the National Library of Medicine on the topic of PDT for bladder cancer you can click [here](#)

Photodynamic therapy is a form of light-activated chemotherapy. The patient is administered a photosensitizing drug, which accumulates selectively in cancerous tissues. The drug has no action unless activated by light. Light is delivered endoscopically via an optical fiber to activate the photosensitizer only where treatment is needed. Hence, the light activation controls the region of treatment. This form of chemotherapy is more surgical in nature (directed against a known site) than oncologic in nature (directed systemically against unknown sites). 1

PDT has been under investigation for many years around the world, and is currently approved in the US and Europe for esophageal and lung cancer. Its use in other cancers, including breast and ovarian is now undergoing trials. Studies from Asia as well as the western world are in agreement that the results obtained using PDT for bladder cancer have been encouraging, and suggest that patients who have diffuse superficial bladder carcinoma or carcinoma in situ refractory (non responsive or recurrent) to standard treatment methods should be given the benefit of whole bladder PDT before commitment to radical surgery. PDT trial candidates cannot have had previous pelvic radiation treatments.

One drawback to PDT is light sensitivity, which can result in serious sunburn for up to a month after treatment. Direct sunlight as well as bright indoor lighting must be avoided until the drug leaves the system completely. Some patients experience other complications such as bladder shrinkage which may necessitate surgery. In spite of these drawbacks, PDT can be an very effective tool in the effort to avoid radical surgery for those who refuse it, or are not good surgical candidates.2

When researchers with the BLADDER PHOTOFRIN STUDY GROUP, led by Dr. Nyseo (now at Medical College of Virginia in Richmond) reviewed their 12-year experience from three centers (Buffalo, Martinez, and Morgantown/Clarksburg) in order to assess the long term role of PDT in the management of superficial TCC, it was concluded that PDT is an effective alternative therapy for patients with recurrent Ta, T1, TCC and refractory CIS. The overall response rate to PDT was 84% in 15/18 patients with papillary (Ta, T1) TCC. Fourteen of these 18 patients including 6 partial responders were converted to complete responders by TUR and were followed for up to 110 months. Median times to recurrence and progression were 48 months, and 5-year disease specific survival estimate was 45%.3

In 1997 the same researchers assessed the results of a study done in which 36 people with refractory CIS participated. Each patient received a single treatment. At initial clinical evaluation at 3 months 58% of the patients had a complete response as indicated by negative cystoscopy, bladder biopsy and urine cytology but in 42% treatment failed. At a mean followup of 12 months (range 9 to 48), 10 of the 21 complete responders had recurrence for an overall durable response rate of 31%. Fourteen patients subsequently underwent cystectomy for persistent carcinoma in situ (12) and carcinoma in situ recurrence (2). Of the 36 patients 7 experienced bladder contracture. While followup is short, it was again concluded that photodynamic therapy appears promising as an alternative to cystectomy in patients with refractory carcinoma in situ. 4

Dr. U. Nseyo's trials on the use of pdt for TCC and CIS have been widely published. Formerly Professor and Chief of Urology at the West Virginia University Medical School, now at the urology department of Virginia Commonwealth Univeristy, Medical College of Virginia in Richmond, division of 'surgery; urology':
<http://www.vcuhealth.org/physicians.asp?physicianID=455>

Dr. Michael J. Manyak of the Department of Urology, George Washington University Medical Center, Washington D.C. is also doing research with pdt for bladder cancer. <http://www.gwumc.edu/research.htm> (Click on research, go to departments; Urology)

PDT is already approved for bladder cancer in Canada; One name is Dr.Guy Drouin in Montreal. He says some US insurance plans have reimbursed the cost.

For a list of Canadian hospitals and institutes using pdt for bladder cancer you can call:

Ligand Pharmaceuticals

Dr. George Gill

1-619-550-7562

A place in Munich, Germany that's studying using PDT for TCC: Klinikum Grosshadern, Klinik fur Urologie, Universitat Munchen <http://www.klinikum-grosshadern.de/> PubMed Abstract

A good place to make noise about seeing more trials for TCC: QLT Phototherapeutics manufactures Photofrin (Porfimer sodium) which is the drug used in PDT for bladder cancer.

PDT has been FDA approved for lung, and esophagal cancers, and is already approved in Europe for head and neck cancers.

For more info about 'what and how', these websites are interesting;

Oregon Medical Laser Center

Emory University School of Medicine

PDT is being trialed for head and neck cancers and studied at MD Anderson in Texas:
<http://www.mdanderson.org/~resrep/9/ThomsS.html>

and the UPenn for disseminated intraperitoneal malignancies: http://oncolink.upenn.edu/clinical_trials/pdt_phase2.html

References

1. <http://omlc.ogi.edu/pdt/>: Scott Prahl , Oregon Medical Laser Center

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JOURNAL OF UROLOGY 1998 Jul;160(1):39-44 PubMed Abstract

3. Long term experience with photodynamic therapy (PDT) in the management of superficial vesical transitional cell carcinoma (SVTCC) (Meeting abstract). - Nseyo U; Lamm D; Riggs D; DeHaven J; Dougherty T; Porter W; Lundahl S; Merrill D WVU Medical School, Morgantown/Clarksburg, WV Proc Annu Meet Am Assoc Cancer Res 1997;38:A2524 UI - 98639524

4. PHOTODYNAMIC THERAPY USING PORFIMER SODIUM AS AN ALTERNATIVE TO CYSTECTOMY IN PATIENTS WITH REFRACTORY TRANSITIONAL CELL CARCINOMA IN SITU OF THE BLADDER. BLADDER PHOTOFRIN STUDY GROUP Nseyo UO; Shumaker B; Klein EA; Sutherland K

JOURNAL OF UROLOGY 1998 Jul;160(1):39-44 PMID: 9628601, UI: 98290565

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