A CME Webcast/TELECONFERENCE

Case by Case: CRITICAL ISSUES IN SUPERFICIAL BLADDER CANCER MANAGEMENT

An Interactive Case Format with Instant Audience Polling

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CME Program Slide Book

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Dr Lamm is president of BCG Oncology in Phoenix, Arizona. He is former professor of urology at the Mayo Clinic, Scottsdale, and professor and chief of urology at West Virginia University and the University of Texas, San Antonio. Dr Lamm completed his residencies at University of California at Los Angeles Wadsworth Veterans Administration Medical Center in general surgery and the University of California at San Diego in urology.

Dr Lamm has had a lifelong interest in urologic oncology and clinical trials and has a particular interest in immunotherapy and chemoprevention. He was awarded the initial NIH-funded contract to evaluate BCG immunotherapy of superficial bladder cancer in a randomized clinical trial (1978). This work, accruing an eventual 231 patients, resulted in the first controlled trial demonstrating the efficacy of intravesical BCG immunotherapy. Subsequent NIH-funded research demonstrated the superiority of intravesical BCG over oral administration and the efficacy of intravesical without percutaneous BCG immunotherapy. Subsequent SWOG studies under his direction demonstrated the superiority of BCG immunotherapy over doxorubicin and mitomycin chemotherapy. The former SWOG study resulted in the FDA approval of BCG for the treatment of CIS and the latter resulted in the approval of TICE BCG for the prophylaxis of recurrent papillary transitional cell carcinoma. Most recently, the SWOG study directed by Dr Lamm demonstrated that three-week maintenance BCG immunotherapy reduces tumor long-term recurrence by 27% and significantly reduces disease worsening compared with standard induction therapy.

Dr Lamm has authored numerous articles in such peer-reviewed journals as *Journal of Urology*, *The New England Journal of Medicine*, *Investigative Urology*, *Urologic Research*, and *Cancer*.

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Dr Malkowicz has authored more than 200 abstracts, papers, and book chapters and is a journal referee for multiple medical journals. He is a section editor for the *British Journal of Urology International* and *Urologic Oncology*. He has been named to the lists of the "Best Doctors in America" and "Best Doctors in Philadelphia" numerous times.

Case by Case: Critical Issues in Superficial Bladder Cancer Management

SLIDE 1

Case Study 1

- A 22-year-old man with a history of gross total painless hematuria: two times in two months, both after jogging
- No history of UTI, STD, or stones
- He smokes pot and his family history is positive for lung and breast cancer

How would you manage this patient?

UTI, urinary tract infection; STD, sexually transmitted disease.

SLIDE 2

Case Study 1: Multiple Choice

- UA (negative); C&S, cytology
- Ultrasound: bladder and kidneys
- IVP or CT urogram and cystoscopy
- Urinary markers
- Combinations of above, eg, UA, CT, cytology, and cystoscopy

UA, urinalysis; C&S, culture and sensitivity; IVP, intravenous pyelogram; CT, computed tomography.

SLIDE 3

Notes

Case Study 2

- A 42-year-old asymptomatic woman has a routine UA with 5-10 RBC/hpf
- She smokes 1 pack of cigarettes daily
- Repeat UA x2 yields same results

What would be your next steps for this patient?

hpf, high-powered field.

SLIDE 4

Case Study 2: Multiple Choice

- Urine markers
- Cytology (negative)
- Ultrasound
- Cystoscopy
- Other

SLIDE 5

Case Study 2: Rationale

- The mortality of bladder cancer in women, relative to the incidence, is higher than it is in men (26% vs. 19%), so we need to be extra vigilant in our evaluation and treatment
- Even with a negative cytology, an upper tract imaging study and cystoscopy are indicated. Cytology is commonly negative in patients with low-grade tumors

Ref: CA Stats, 2005. Men: incidence (#4): 47,010/mortality: 8,970 (19%); women: incidence: 16,200/mortality: 4,210 (26%).

SLIDE 6

Notes

Case Study 2, Part 2

- Our 42-year-old female patient is found on local cystoscopy to have a solitary 1-cm papillary tumor lateral to the right ureteral orifice
- Renal ultrasound is negative

What is next in the management of this patient?

US, ulatrasound.

SLIDE 7

Case Study 2, Part 2: Multiple Choice

A. Tumor biopsy/fulguration in the office under local anesthesia

B. Resection and bimanual exam under anesthesia

C. A or B plus immediate (within 6 hours) intravesical chemotherapy

D. Resection and retrograde pyelogram

E. Resection followed by BCG

BCG, bacillus Calmette-Guérin.

SLIDE 8

Case Study 2, Part 2: Rationale

- Safety and efficacy of resection under local anesthesia; an acceptable option (III/C)
- My preference: resection under anesthesia; tumor is completely resected and biopsy adequate for staging (III/C)
- Initial chemotherapy significantly reduces tumor recurrence, even in solitary low-grade tumors (I/A)
- In my opinion, resection followed by BCG should be standard practice. Prefer CT or IVP at a later date rather than a retrograde pyelogram at the time of resection (I/A)

Donat SM et al. *J Urol.* 2004;171 (pt 1):636-639; Soloway MS. *Cancer.* 1987;60 (suppl):502-513; Sylvester RJ et al. *J Urol.* 2004;171(pt1):2186-2190; Sylvester RJ et al. *J Urol.* 2002;168:1964-1970; Lamm DL et al. *N Engl J Med.* 1991;325:1205-1209.

SLIDE 9

Notes

*Postoperative Instillation of Chemotherapy**

- A meta-analysis of 7 randomized trials with recurrence information on 1,476 patients
- Decrease of 39% in the odds of recurrence with chemotherapy (OR 0.61, *P*<.0001)
- Patients with a single tumor (OR 0.61) and those with multiple tumors (OR 0.44) benefited
- However, after 1 instillation 65.2% of patients with multiple tumors had recurrence compared with 35.8% of patients with single tumors, showing that 1 instillation alone is insufficient treatment for patients with multiple tumors

*This is an off-label use of chemotherapy prophylaxis. Please see the full Prescribing Information before using any product mentioned.
OR, odds ratio.
Sylvester RJ et al. *J Urol*. 2004;171:2186-2190.

SLIDE 10

Case Study 2, Part 3

- Biopsy of the tumor in the 42-year-old patient shows low-grade, stage T0 urothelial carcinoma (G1,Ta TCC).
- There is stroma in the specimen that shows no invasion, but muscle is absent. There was nothing palpable on bimanual exam

What can you tell from this?

TCC, transitional cell carcinoma.

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Case Study 2, Part 3: Multiple Choice

- The biopsy is inadequate because no muscle was present and patient should go back to surgery
- Random biopsies should have been done and were not—another reason to repeat the procedure
- A 6-week course of mitomycin is indicated
- Cystoscopy in 3 months is all that is required

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Notes

Case Study 2, Part 3: Rationale

- The rule is to obtain muscle for adequate staging, but we have higher priority rules—such as "do no harm" and don't perform a procedure when the risk exceeds the benefit. It can be difficult to safely obtain a good muscle biopsy, especially when the tumor is on the dome or the bladder is thin. With low-grade tumor and lamina propria that is free of disease, I would not put her through another anesthesia to prove what we already know
- In patients with multiple tumors or a "field of grass," a 4-to-6 week course of chemotherapy may be useful, but randomized controlled trials have shown extended courses to not be significantly better than a single postoperative instillation

Lamm DL et al. *Semin Urol.* 1992;10:39-44.

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Case Study 2, Part 4

- At 3 months, the same patient has 3 new tumors
- Resection shows intermediate grade, stage Ta papillary urothelial carcinoma (Grade 2, Ta TCC), and random biopsies show severe atypia

Which of the following statements are true?

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*Case Study 2, Part 4: True or False?**

- Immediate postoperative chemotherapy is again indicated. Doxorubicin (50mg/25cc), an intercalating agent, can be used
- If perforation occurs during resection, thiotepa, but not doxorubicin or mitomycin, can be used
- Recurrence at 3 months significantly increases risk for further recurrence as well as progression. Mitomycin is now indicated
- Due to the risk of progression, BCG using a maintenance schedule is now an appropriate choice

*This is an off-label use of doxorubicin and mitomycin. Please see the full Prescribing Information before using any product mentioned.

Lamm DL. *Eur Urol.* 2000;37(suppl 1):9-15.

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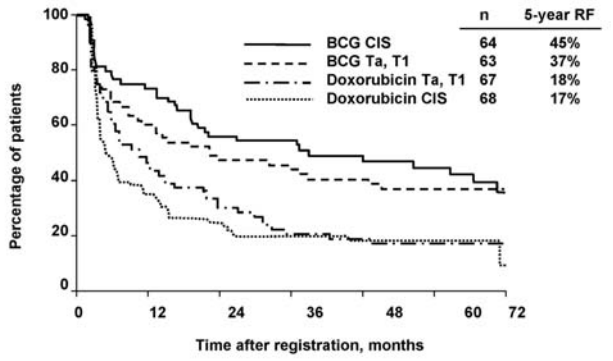
Notes

Case Study 2, Part 4: Responses

- Immediate postoperative chemotherapy is again indicated. Doxorubicin (50mg/25cc), an intercalating agent, can be used (True)
- If perforation occurs during resection, thiotepa, but not doxorubicin or mitomycin, can be used (True)
- Recurrence at 3 months significantly increases risk for further recurrence as well as progression. Mitomycin is now indicated (False)
- Due to the risk of progression, BCG using a maintenance schedule is now an appropriate choice (True)

SLIDE 16

SWOG BCG Versus Doxorubicin: Time to Treatment Failure



Lamm DL. *N Engl J Med.* 1991;325:1205-1209.

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Intravesical BCG vs. Mitomycin C

- In 9 eligible clinical trials, 1,277 patients were treated with BCG and 1,133 with mitomycin C
- Within the overall median follow-up of 26 months, 7.67% of BCG group and 9.44% of mitomycin C group had tumor progression (combined OR = 0.77; 95% CI 0.57 to 1.03; *P*=.081)
- In BCG maintenance subgroup, the combined results of 5 individual studies showed a statistically significant superiority of BCG over mitomycin C (OR = 0.66; 95% CI 0.47 to 0.94; *P*=.02) (I/A)
- The results demonstrated statistically significant superiority for BCG compared with mitomycin C for the prevention of tumor progression only if BCG maintenance therapy was provided (I/A)

CI, confidence interval.
Bohle A et al. *Urology*. 2004;63:682-686.

SLIDE 18

Notes

Case Study 2, Part 5

- **What else might be done to reduce this woman's risk for tumor recurrence—and possibly progression?**

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Case Study 2, Part 5: Multiple Choice

A. Smoking cessation is most important

B. Eliminate environmental carcinogens

C. A diet high in fruits and vegetables

D. Soy, garlic, and green tea

E. High-dose vitamins A, B_6, C, and E

SLIDE 20

Case Study 2, Part 5: Rationale

- **True, evidence shows reduction not only in recurrence, but progression as well (II/B)**
- **Absolutely (III/C)**
- **Yes. Did you know that diets high in fruits and vegetables can reduce DNA adducts in urine associated with smoking? (III/C)**
- **While in vitro and animal data have suggested benefits, epidemiologic studies are contradictory—even suggesting that soy, garlic, and tea may increase the risk of bladder cancer, therefore we cannot recommend soy, garlic, or tea at this time (III/C)**
- **While natural healthful foods with their micronutrients and vitamins are thought to be optimal, diets are hard to change. A randomized controlled trial found a high-dose vitamin combination reduced recurrence by 40%. (I/A)**

Sun CL et al. *Cancer Epidemiol Biomarkers Prev.* 2002;11:1674-1677; Greenlee H et al. *J Altern Complement Med.* 2004;10:660-666; Su SJ et al. *Clin Cancer Res.* 2000;6:230-236; Lu CM et al. *Urology.* 1999;54:823-828; Kamat AM et al. *Urol Clin North Am.* 2002;29:157-168.

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Notes

Prevention: Smoking Cessation, Carcinogen Avoidance, Nutrition

- **Two-fold risk for bladder cancer associated with increased DNA adducts in smokers (Benhamou S et al. *Mutagenesis*. 2003;18:445-448.)**
- **Intake of fruits and vegetables in smokers decreased DNA adducts in smokers (Airoldi L et al. *Carcinogenesis*. 2002;23:861-866.)**
- **286 Ta, T1 patients: Quitting increases recurrence-free (*P*<.003) and progression-free (*P*<.001) survival (*J Urol*. 1999;161:172.)**

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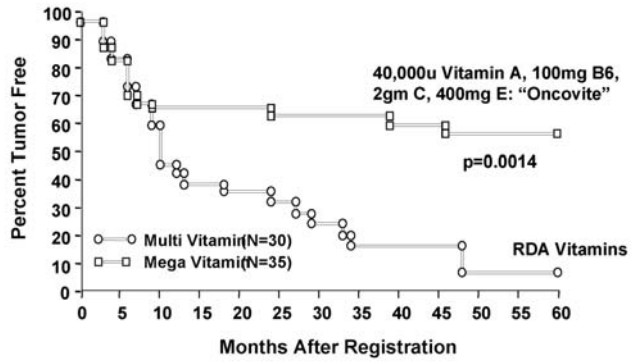
Kaplan-Meier Estimate of 5-Year Tumor-Free Rate



Lamm DL. *J Urol*. 1994;151:21-26.

SLIDE 23

Case Study 2, Part 6

- **True or false? Maintenance mitomycin at monthly intervals followed by quarterly intervals should be used because:**

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Notes

Case Study 2, Part 6: True or False?

- Maintenance chemotherapy is shown to reduce recurrence over induction chemotherapy
- Only maintenance chemotherapy can reduce disease progression
- Repeated chemotherapy in animal models can actually induce bladder cancer
- Maintenance chemotherapy reduces the formation of resistant cancer cell lines

SLIDE 25

Case Study 2, Part 6: Responses

- Maintenance chemotherapy is shown to reduce recurrence over induction chemotherapy (False)
- Only maintenance chemotherapy can reduce disease progression (False)
- Repeated chemotherapy in animal models can actually induce bladder cancer (True)
- Maintenance chemotherapy reduces the formation of resistant cancer cell lines (False)

Lamm DL et al. *Semin Urol.* 1992;10:39-44.

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Case Study 2, Part 7

- With a 6-week course of BCG, our 42-year-old woman with G2,Ta TCC and severe atypia remains tumor free for 2 years
- Cystoscopy remains negative, but voided cytology is suspicious
- Fluorescent in situ hybridization (FISH) is positive
- Repeat bladder biopsies are negative, bladder wash cytology is negative
- Ureteral cytologies are suspicious and FISH is positive from the right ureter. Retrograde pyelograms show no lesions

What's the next appropriate step?

FISH, fluorescent in situ hybridization.

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Notes

Case Study 2, Part 7: Multiple Choice

A. Continue close observation; re-evaluate in 3 months

B. Perform right ureteroscopy with biopsy of any suspicious areas

C. Resect/biopsy distal right ureter and then give maintenance BCG

D. Perform right nephroureterectomy with bladder cuff, open or laparoscopic

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Case Study 2, Part 7: Rationale

A. With a negative cytology and retrograde pyelogram, this is reasonable

B. An appropriate next step in the workup

C. While this can be an effective treatment for distal ureteral TCC, in my opinion it should be reserved for confirmed disease, not just positive cytology or FISH

D. Too aggressive. What will you do when the pathologist cannot find any cancer? When the opposite side develops tumor? (Cystectomy series show up to 17% CIS in distal ureters)

Malkowicz SB et al. *Urology*. 1990;36:20-22.

SLIDE 29

Case Study 2, Part 8

- A papillary lesion is seen in the distal right ureter. Biopsy shows low-grade noninvasive TCC. Cytology remains suspicious, FISH positive.

What are your treatment options?

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Notes

Case Study 2, Part 8: Multiple Choice

A. Right distal ureterectomy with reimplant

B. Right nephroureterectomy with bladder cuff

C. Endoscopic resection

D. Endoscopic resection followed by BCG maintenance

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Case Study 2, Part 8: Rationale

A. This is an acceptable option (III/C)

B. While once standard treatment, improved intravesical therapy and endoscopy can lead to similar results with less invasive surgery (III/C)

C. Appropriate, but does not address the risk of recurrence (III/C)

D. Appropriate, if BCG is made to come in contact with the ureter (III/C)*

*This is an off-label use of BCG. Please see the full Prescribing Information before using any product mentioned.

Lee BR et al. *J Endourol*. 1999;13:289-294.

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Case Study 3

- A 63-year-old man presents with high-grade, stage T1 bladder tumor with associated CIS
- He received perioperative mitomycin treatment

Because of the high risk of cancer progression, your next step is:

CIS, carcinoma in situ.

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Notes

Case Study 3: Multiple Choice

A. Mitomycin 40mg/20cc with overnight dehydration, bicarbonate alkylinization of the urine, and careful, complete bladder emptying before instillation to be done weekly for 6 weeks

B. Repeat TUR. There is more than a 30% risk of residual carcinoma and a significant risk of understaging

C. BCG, to be given weekly for six weeks, beginning two weeks after resection

D. Six-week BCG followed by three-week maintenance at 3, 6, 12, 18, 24, 30, and 36 months

TUR, transurethral resection.

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Case Study 3: Rationale

A. If mitomycin is given, this protocol improves the response. BCG is the treatment of choice for CIS and high-grade TCC (I/A)

B. A common practice in Europe, not in the US. Not adequately studied in the context of immediate chemotherapy instillation, and not demonstrated to improve the response in BCG-treated patients (III/C)

C. Does not address the significant risk of disease progression. BCG is found to reduce progression, but only when maintenance schedules are employed (I/A)

D. Maintenance BCG is the current treatment of choice. Optimal maintenance schedule not defined, but only three-week induction has been confirmed to significantly reduce recurrence and progression compared with six-week induction (I/A)*

* This is an off-label use of 3-week maintenance BCG. Please see the full Prescribing Information before using any product mentioned.

Lamm DL. *J Urol.* 2000;163:1124-1129.

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Case Study 4

- A 76-year-old man has a history of grade 2-3, stage Ta TCC 2 years ago. He was treated with a 6-week course of BCG
- He now presents with 3 small recurrent high-grade, stage Ta urothelial carcinomas

The best treatment for this patient is:

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Notes

Case Study 4: Multiple Choice

A. Resection followed by immediate intravesical chemotherapy

B. "A" followed by a repeat 6-week course of BCG

C. "A" plus 3 weekly BCG instillations at 2 weeks and at 3, 6, 12, 18, 24, 30, and 36 months as tolerated

D. BCG plus interferon for 6 weeks

SLIDE 37

Case Study 4: Rationale

A. Yes, appropriate to prevent early recurrence and minimize tumor burden (I/A)

B. Not supported by clinical data. Second exposure results in accelerated immune response; continued administration results in immunosuppression (III/C)

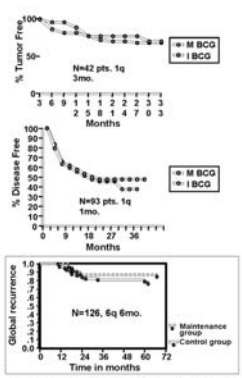
C. The schedule is arbitrary, but 3-week maintenance is currently the best available treatment (I/A)

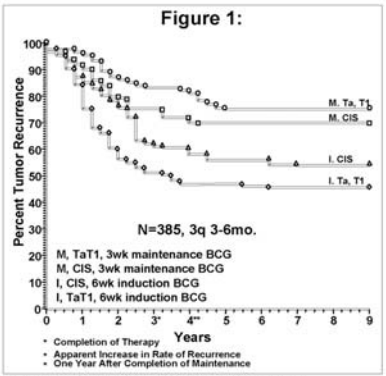
D. 60% of patients who fail BCG will respond to combination BCG plus interferon, and when interferon is added, the immunosuppression that occurs with a second 6-week course does not occur. Not shown to be superior to 3-week maintenance alone. (III/C)

O'Donnell MA et al. *J Urol.* 2001;166:1300-1305.

SLIDE 38

BCG Maintenance: Not Created Equal





Badalament RA, et al. *J Clin Oncol.* 1987;5:441; Lamm DL et al. *J Urol.* 1992;4:147; Palou J. *J Urol.* 2001165:1488-1491; Hudson MA et al. *J Urol.* 1987;138:295-298.

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Notes

Case Study 4, Part 2

- Our 76-year-old patient reports that he had a sensation of chills, temperature of 101° F, and severe dysuria and frequency lasting 5 days following his second of a planned 3 weekly BCG instillations
- He is now OK and his urine shows many WBC, 5-10 RBC/hpf, no bacteria, and negative nitrite

What does this indicate in this patient?

SLIDE 40

Case Study 4, Part 2: Multiple Choice

A. He is developing a reaction to BCG and should not receive any more BCG

B. He has hematuria and BCG is contraindicated at this time

C. The third weekly instillation of BCG can now be given

D. The dose of BCG should be reduced to one third to 1/10th and he should be given a prescription for antibiotics to take in the event of a recurrence of his fever or severe irritative symptoms

SLIDE 41

Case Study 4, Part 2: Rationale

A. At increased risk of having a severe reaction, but symptoms do not preclude further BCG treatment. Patients with febrile response to BCG have a lower risk of recurrence than those who have no fever (II/B)

B. Gross hematuria is a relative contraindication to BCG, and BCG should not be given if catheterization is traumatic and causes urethral bleeding. Microscopic hematuria is not a contraindication (II/B)

C. Patient is highly sensitized to intravesical BCG. It would be better to hold the third treatment as done in the SWOG protocol (III/C)

D. O'Donnell's dose-reduction schedule has not been studied prospectively. Hold BCG and start the next scheduled BCG at one third dose, or reduce to 1/10th or less in this patient. I would also give him a prescription for antibiotics (III/C)*

* This is an off-label use of dose reduction of BCG. Please see the full Prescribing Information before using any product mentioned.

Lamm DL et al. *Curr Treat Options Oncol*. 2002;3:403-411.

SLIDE 42

Notes

Case Study 5

- A 64-year-old man is receiving BCG for CIS. Biopsy showed 4 of 6 biopsies positive, and he has dysuria
- Symptoms are slightly improved following a 6-week induction of BCG, but at 3 months his cytology remains positive
- Repeat biopsy shows 1 of 6 biopsies positive for CIS

The best treatment for this patient is:

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Case Study 5: Multiple Choice

A. He has failed BCG and should undergo cystectomy

B. He should get a second 6-week course of BCG

C. He should get 3 additional weekly BCG instillations

D. He should get a second 6-week course of BCG plus interferon alfa 2b

SLIDE 44

Case Study 5: Rationale

A. This treats CIS of the bladder, prostatic urethra, and distal ureters, but will be overtreatment for most patients (III/C)

B. This is the most frequent error in BCG therapy in my opinion. Repeated 6-week courses suppress the immune response and controlled trials have *failed* to show superiority of induction alone (III/C)

C. Yes; 64% patients so treated will have complete response (I/A)

D. Adding interferon prevents the suppression that would otherwise occur, and this is a satisfactory response. It has not been evaluated in prospective randomized trials like "C" above, and is expensive, so "C" is the preferred treatment (III/C)*

* This is an off-label use of BCG/interferon and BCG 3-week dosage. Please see the full Prescribing Information before using any product mentioned.

Lamm DL et al. *Curr Treat Options Oncol*. 2002;3:403-411.

SLIDE 45

Notes

Case Study 5, Part 2

- During the fifth BCG instillation, catheterization is difficult in this 64-year-old man. Treatment is given, but that night you are called because the patient has a fever of 102.5º F. He is otherwise well.

What are your treatment options?

SLIDE 46

Case Study 5, Part 2: Multiple Choice

A. Fever with BCG is a good sign, associated with a reduced incidence of tumor recurrence. There is no cause for concern

B. Isoniazid 300 mg and a fluoroquinolone should be started immediately

C. Isoniazid 300 mg and rifampin 600 mg should be given immediately

D. Hospitalization is recommended, with IV fluid hydration and antibiotics to cover gram-negative organisms and mycobacteria

SLIDE 47

Case Study 5, Part 2: Rationale

A. This is a bit cavalier because a septic reaction may be brewing

B. Yes, these prescriptions can be given ahead of time to expedite delivery

C. These are effective mycobacterial antibiotics, but unlike fluoroquinolones, take up to a week to kill the organism

D. This is a good, safe, and conservative approach and should be done if the patient is not otherwise well, does not have home support, or does not respond promptly to treatment

Lamm DL et al. *Contemporary Urology*. In press.

SLIDE 48

Notes

Case Study 6

- An 80-year-old man with previous external beam radiation therapy for prostate cancer presents with a solitary 1.5-cm, high-grade, stage T2 urothelial carcinoma on the trigone
- He has COPD and is considered to be a poor candidate for cystectomy
- Re-resection of the lesion and random biopsies show residual high-grade, stage T1 disease but no CIS

What are your treatment options?

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Case Study 6: Multiple Choice

A. Cystectomy is required if the patient is to survive

B. Radiation therapy

C. Intravesical chemotherapy

D. Systemic chemotherapy

E. Intravesical BCG, using a 3-week maintenance program

SLIDE 50

Case Study 6: Rationale

A. True for some patients. Few are too sick for an operation when the alternative is death (III/C)

B. History of previous radiation would make this a poor choice (III/C)

C. Intravesical chemotherapy does not reduce progression (III/C)

D. Systemic chemotherapy alone is relatively ineffective for primary bladder cancer (III/C)

E. Of 151 patients with T0 or T1 TCC following muscle invasion, 99 were treated with TUR and/or intravesical therapy and salvage cystectomy if needed. Survival was 65% for 52 patients undergoing immediate cystectomy and 82% for 99 patients treated conservatively. (III/C)

Herr et al. *J Urol*. 2001;19:89-93.

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Notes

Case Study 7

- A 63-year-old man with T2 TCC 6 years after BCG treatment of high-grade, T1 TCC and CIS requests a nerve-sparing cystectomy and orthotopic neobladder
- He has tumor at the bladder neck but no CIS

Which surgery is the best option?

SLIDE 52

Case Study 7: Multiple Choice

A. Kock pouch has the lowest reoperation rate

B. Indiana pouch should be considered

C. Studer pouch can be done if the urethral margin is clear

D. Regardless of diversion, a thorough node dissection is suggested

SLIDE 53

Case Study 7: Rationale

A. Reoperation rates for Kock pouches are high, not low (III/C)

B. The Indiana pouch should be discussed (III/C)

C. Incidence of urethral recurrence is much lower with the Studer pouch and this is an appropriate option. It also has the advantage that, should urethrectomy or neobladder cystectomy be required, the tubularized ilium can be brought to the skin as a standard loop (III/C)

D. Survival is increased with a thorough node dissection (II/B)

Girgin C et al. *ScientificWorldJournal.* 2004;4(suppl 1):135-141; Gaitonde K et al. *BJU Intl.* 2002;89(suppl 1). 57-61.

SLIDE 54

Notes

Conclusions

- Low-risk (solitary Ta, G1) patients are best treated with a single instillation of chemotherapy post TUR (I/A)
- Continue chemotherapy for 4-6 weeks for multiple tumors (III/C)
- Intermediate risk patients can be treated with chemotherapy (immediate, plus weekly) or BCG (III/C)
- High-risk (G3, T1, or CIS) patients are best treated with BCG (I/A)
- BCG provides superior protection from tumor recurrence and unlike chemotherapy, with maintenance, BCG reduces the risk of progression (I/A)

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Conclusions (cont'd)

- Optimal induction? "6+3" increased CR in CIS from 69% to 84%, $P<.01$ (II/B)
- Optimal maintenance? 3 weekly Q6-12 months appears best to date (II/B)
- Dose reduction reduces toxicity; excess BCG is immunosuppressive; double/triple antibiotics and even steroids may be required (III/C)
- Beware of occult invasive, prostatic, or upper tract TCC and consider cystectomy for BCG failure patients (III/C)

SLIDE 56

Notes

Reference List

Airoldi L, Orsi F. Magagnotti C, et al. Determinants of 4–aminobiphenyl-DNA adducts in bladder cancer biopsies. *Carcinogenesis*. 2002;23:861-866.

Badalament RA, Herr HW, Wong GY, et al. A prospective randomized trial of maintenance versus nonmaintenance intravesical bacillus Calmette-Guerin therapy of superficial bladder cancer. *J Clin Oncol.* 1987;5:441-449.

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