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Self Assessment Module on Prostate Cancer

Submitted by:

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Lectures included:

Primary Treatment of Early Stage Prostate Cancer

Post-prostatectomy: Indications

Advanced Prostate Cancer: How I DO It and New Horizons

Question 1:

Which of the following statements is true regarding PSA nadir after radiation therapy for prostate cancer

- a. Post-radiation therapy PSA nadir correlated with death from prostate cancer
- b. Post-radiation therapy PSA nadir does not correlate with death from prostate cancer
- c. Post-radiation therapy PSA nadir <1 is a guarantee for cure from prostate cancer
- d. Post-radiation therapy PSA nadir <0.5 is a guarantee cure from prostate cancer
- e. Post-radiation therapy PSA nadir is not an important factor to consider in following prostate cancer patients.

The answer is A.

Rationale:

Answer B is incorrect because post-radiation therapy PSA nadir does correlate with death from prostate cancer.

Answer C and D are incorrect because there is no value for PSA nadir that will guarantee cure from prostate cancer.

Answer E is incorrect because post-radiation therapy PSA nadir is an important factor in following patients after radiation therapy for prostate cancer.

Reference:

DeWitt, K D et al. (2003) What does postradiotherapy PSA nadir tell us about freedom from PSA failure and progression-free survival in patients with low and intermediate-risk localized prostate cancer? Urology 62:492-6

Question 2:

Treatment failure after radical prostatectomy has been defined at which level?

- a. PSA >0.6 ng/ml
- b. PSA >0.4 ng/ml
- c. PSA >0.2 ng/ml
- d. PSA > or = 0.1 ng/ml
- e. All of the above

The correct answer is e.

Rationale:

The point of the question is to ensure that there is an understanding of the wide range of values used in reports of different series of patients. All of the above have been used to define treatment failure post-prostatectomy

References:

Reference:

1) Post-prostatectomy lecture, Defining Surgery Failure:

PSA > 0.6 ng/ml (Wash U 1994)

>0.4 ng/ml (UCLA 1992)

>0.2 ng/ml (Hopkins 1993)

= 0.1 ng/ml (UCSF 1995)

"Ultra-sensitive" < 0.1 (Stanford 1995)

2) Horwitz, EM et al; The Phoenix Definition of Biochemical Failure Correlates With Clinical Failure for Men Treated With Adjuvant and Salvage Post-Prostatectomy Radiation: Results of the Multi-institutional Pooled Analysis. The Post-Prostatectomy Radiation Therapy Consortium. Int J Radiat Oncol Biol Phys 2007 69(3 supplement):S173.

Question 3:

What can be concluded regarding IMRT compared to four-field whole pelvis radiation therapy (WPRT) for patients with prostate cancer?

- a. IMRT significantly worsens the dosimetry to the pelvic lymph nodes compared to standard four-field WPRT.
- b. The greatest dosimetric advantage to critical structure is decreased dose to the femoral head.
- c. IMRT also significantly reduces doses to rectum and penile bulb compared to four-field WPRT.
- d. Answers A and C are the only correct statements.
- e. Answers A, B and C are all correct statements.

Answer is C.

Rationale:

Answer A is not correct because IMRT significantly improves the dosimetry to the pelvic lymph nodes compared to standard four-field WPRT.

Answer A can be refuted by reference 2.

Answer B is not correct because the greatest dosimetry advantage to critical structures is decreased dose to the bladder, not to the femoral head.

References:

Chung, HT, Xia, P, Chan, LW, Park-Somers, E and Roach, M, 3rd; Does image-guided radiotherapy improve toxicity profile in whole pelvic-treated high-risk prostate cancer? Comparison between IG-IMRT and IMRT. Int J Radiat Oncol Biol Phys 2009 73(1):53-60. Epub 2008 May 22.

2) Wang-Chesebro A, Xia P, Coleman J, Akazawa C, Roach M 3rd; Intensity-modulated radiotherapy improves lymph node coverage and dose to critical structures compared with three-dimensional conformal radiation therapy in clinically localized prostate cancer. Int J Radiat Oncol Biol Phys 2006 66(3):654-62.

Question 4:

What conclusions can be made regarding permanent prostate implant (PPI) vs external beam radiation (EBSRT) in low risk patients?

- a. Metabolic and biochemical responses of the prostate after PPI (144 Gy) is significantly more pronounced than after 72-87 Gy delivered by EBRT.
- b. There is definitive proof that PPI is more effective at curing prostate cancer than EBRT.
- c. The median PSA value at 42 months follow-up was lower for patients who were treated with PPI compared to patients who were treated with EBRT.
- d. Only A and C are correct.
- e. Answers A, B, and C are correct.

Answer is D.

Rationale:

There are no references to support that PPI is more effective in curing prostate cancer than EBRT. Therefore B is not a correct answer.

Since B is not a correct answer, then E is not a correct answer.

Reference:

Picket et al. Three-dimensional conformal external beam radiotherapy compared with permanent prostate implantation in low-risk prostate cancer based on endorectal magnetic resonance spectroscopy imaging and prostate-specific antigen level, *Int J Radiat Oncol Biol Phys* 65:65-72, 2006.

Question 5:

At which location would an ultrasound-guided prostatic fossa biopsy be most likely to be positive in a patient with a rise in PSA after a prostatectomy?

- a. At the bladder neck
- b. At the anastomotic site
- c. Posterior to the trigone
- d. At the anterior rectum

The correct answer is b.

Rationale:

Of the positive biopsies-proved local recurrences on TRUS-guided biopsy 66% were at the anastomotic site, 16% at the bladder neck, and 13% posterior to the trigone.

Reference:

Conolly JA, Shinohara K, Presti JC Jr, et al.; Local recurrence after radical prostatectomy: characteristics in size, location, and relationship to prostate-specific antigen and surgical margins. *1996 Urology* 47:225-31

Question 6:

Which of the following statements is true regarding lymph node size and correlation with presence of prostate cancer in those lymph nodes?

- a. There is a direct correlation between lymph node size and the presence of cancer in those lymph nodes.
- b. There is poor correlation between lymph node size and the presence of cancer in those lymph nodes
- c. A lymph node that is greater than 1 cm will correspond to prostate cancer metastasis.
- d. A and C are only correct.
- e. A, B and C are all correct.

Answer is B.

Rationale:

Answer A is not correct because there is no direct correlation between lymph node size and the presence of cancer in those lymph nodes as evidenced by the reference Tiguert.

Answer C is not correct because there is no direct correlation between lymph node size and the presence of cancer in those lymph nodes as evidenced by the reference Tiguert.

Since A and C are not correct, then Answers D and E are not correct answers.

Reference:

Tiguert et al. Lymph node size does not correlate with the presence of prostate cancer metastasis. Urology 53:367-371,1999.

Question 7:

The EORTC 22911 study randomizing patients post-prostatectomy who had pN0M0 disease and extra-capsular extension, positive margins or seminal vesicle invasion to observation or post-operative irradiation. Which of the following statements is was not reported as significantly improved in the group that received irradiation:

- a. Biochemical progression-free survival
- b. Clinical progression-free survival
- c. Local progression-free survival
- d. Overall Survival

The correct answer is d.

Rationale:

While the EORTC study had shown a significant improvement in progression-free survival, a significant improvement in overall survival was not demonstrated

References:

Bolla M, Van Poppel H, Collette L; Preliminary results for EORTC trial 22911: radical prostatectomy followed by postoperative radiotherapy in prostate cancers with a high risk of progression. 2005 Lancet 366:572-78.

Question 8:

The SWOG 8794 study randomizing patients post-prostatectomy who had pN0M0 disease and extra-capsular extension, positive margins or seminal vesicle invasion to observation or post-operative irradiation. Which of the following were not reported for the patients who received post-operative irradiation?

- a. A significant improvement in biochemical progression-free survival
- b. A significant improvement clinical progression-free survival
- c. A significant improvement local progression-free survival
- d. A significant improvement metastasis-free survival
- e. No significant improvement in overall survival.

The correct answer is e.

Rationale:

This prospectively randomized trial has shown a decrease in several measures of progression-free survival, distant-metastasis-free survival and in the most recent report, overall survival as well.

References:

1) Swanson GP, Hussey MA, Tangen CM: Predominant treatment failure in post-prostatectomy patients is local: analysis of patterns of treatment failure in SWOG 8794. J Clin Oncol 2007 25(16):2225-9

2) Thompson IM, Tangen CM, Paradelo J, et al. Adjuvant radiotherapy for pathological T3N0M0 prostate cancer significantly reduces risk of metastases and improves survival: long-term follow-up of a randomized clinical trial .J Urology 2009 181: 956-62.

Question 9:

Which of the following statements regarding whole-pelvis versus limited volume irradiation for patients considered being at high risk for lymph node involvement is false?

- a. Whole pelvic radiation has not been shown to be associated with improved biochemical relapse-free survival compared with prostate bed only.
- b. Whole pelvic irradiation has associated with superior biochemical relapse-free survival compared with prostate bed RT alone in the study by Spiotto et al.
- c. Movement of the prostate bed in relation to the bony pelvis has been observed to occur in post-prostatectomy patients
- d. RTOG 94-13 showed an advantage in progression-free survival from whole pelvis treatment compared with treatment to the prostate alone for patients with intact prostate treated with neoadjuvant hormonal therapy.

The correct answer is a.

Rationale:

Whole pelvic radiation has been shown to be associated with improved biochemical relapse-free survival compared with prostate bed only. Movement of the prostate bed in relation to the bony pelvis has been studied by Dr. Roach and his colleagues and is discussed in the postoperative prostate talk, and a reference was made to the benefits of whole pelvic irradiation in the discussion of treatment volumes in the locally advanced prostate talk.

References:

- 1) Spiotto MT, Hancock SL, King CR. Radiotherapy after prostatectomy: improved biochemical relapse-free survival with whole pelvic compared with prostate bed only for high-risk patients. *Int J Radiat Oncol Biol Phys.* 2007 Sep 1;69(1):54-61.
- 2) Roach M 3rd, DeSilvio M, Lawton C, et al. Phase III trial comparing whole-pelvic versus prostate-only radiotherapy and neoadjuvant versus adjuvant combined androgen suppression: Radiation Therapy Oncology Group 9413. *Journal of Clinical Oncology* 2003 21(10):1904-11.

Question 10:

Which if the following is not expected to be a predictor for progression for patients with localized prostate cancer who have relapses post-prostatectomy?

- a. Positive surgical margins
- b. PSA doubling time < or = 10 months
- c. PSA >2 ng/ml pre-radiotherapy
- d. Gleason score of 8-10
- e. Seminal vesicle invasion

The correct answer is a.

Rationale:

By multivariable analysis, predictors of progression were Gleason score of 8 to 10 (hazard ratio [HR], 2.6; 95% CI, 1.7-4.1; P<.001), preradiotherapy PSA level greater than 2.0 ng/mL (HR, 2.3; 95% CI, 1.7-3.2; P<.001), PSA doubling time (PSADT) of 10 months or less (HR, 1.7; 95% CI, 1.2-2.2; P =.001), and seminal vesicle invasion (HR, 1.4; 95% CI, 1.1-1.9; P =.02). Seemingly paradoxically, negative surgical margins were associated with a higher rate of progression (HR, 1.9; 95% CI, 1.4-2.5; P<.001)

Reference:

J, Shariat SF, Zelefsky MJ et al; Salvage radiotherapy for recurrent prostate cancer after radical prostatectomy. *Journal of the American Medical Association* 2004 291: 1325-1332.

Question 11:

Which of the following were found to be associated with androgen deprivation therapy?

- a. Decreased incidence of diabetes
- b. Increased fragility of bones and fracture
- c. Increased risk of myocardial infarction
- d. Increased risk of sudden death
- e. Increased risk of stroke

Answer is B

Rationale:

Answer A is not correct because androgen deprivation caused increase in diabetes.

Answer C is not correct because androgen deprivation caused no increase risk of acute MI.

Answer D is not correct because androgen deprivation caused no increase in sudden death

Answer E is not correct because androgen deprivation caused slightly decreased risk of stroke.

Reference:

Alibhai, SMH, et al; Impact of Androgen Deprivation Therapy on Cardiovascular Disease and Diabetes.
Journal of Clinical Oncology 2009 27:2453-58