Using “Pearls” to Ensure That Learners Learn Key Information

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Introduction

Office-based teaching of students and residents is challenging due to the limited time available for teaching and learning between patient encounters. Use of easily remembered, succinct “pearls” allows the preceptor to conduct teaching discussions efficiently and help learners remember key clinical information needed to diagnose and manage common conditions. As time allows, further discussion enables learners to understand the scientific rationale behind the pearls and gain knowledge on current guidelines and applicable literature.

To demonstrate the usefulness of this teaching method, this article describes pearls on prostate cancer that help learners understand important information about prostate cancer screening, diagnosis, and management.

Background

Prostate cancer is the most common malignancy and the second leading cause of cancer death among men in the United States. A 50-year-old man has a 42% lifetime risk of microscopic disease, a 9.5% risk of clinical disease, and a 2.9% risk of death from prostate cancer. Patients with localized prostate cancer may remain asymptomatic for several years.

Learners have opportunity to discuss prostate cancer screening and diagnosis with middle-aged or older men, who are either asymptomatic or present with conditions such as a urinary tract infection, prostatitis, or benign prostatic hypertrophy. In addition, learners must be familiar with the treatment of prostate cancer for their patients who have been diagnosed with this disease.

The key insight in understanding the pathophysiology of this disease is that most prostate cancers are dependent on androgens for their growth, analogous to the way that most breast cancers are dependent on estrogen. However, molecular genetics has demonstrated that the course of this disease can be unpredictable. Due to a number of possible mechanisms, prostate cancer cells can change from an androgen dependent to an androgen independent phenotype. This change can have implications for screening and diagnosis as well as for treatment.

Pearls to Deliver During Office Precepting

Pearl #1: Most prostate cancers start in the peripheral zone of the prostate.

The peripheral zone comprises 70%–75% of the gland but may be displaced laterally in a patient who also has benign prostatic hypertrophy (BPH). Prostate cancers originating in the peripheral zone often do not initially produce obstructive symptoms. Since most prostate can-
cancers originate from this zone,\textsuperscript{2} (p. 1824) it is important for learners to carefully examine this area when examining the prostate.

Pearl #2: The consistency of the prostate gland is similar to that of the thenar eminence when the thumb and little finger of that hand are opposed. Cancer that is palpable usually presents as an indurated (hardened) area or a nodule.

Pearl #3: Prostate cancer patients can present with a urinary tract infection. Patients with either cancer or prostatitis may present with induration of their prostate glands and an elevated prostate specific antigen (PSA) value. Physicians should reexamine patients with an acute urinary tract infection and induration of their prostate gland 6 weeks after they have finished their antibiotic therapy to ensure that the induration is no longer present.\textsuperscript{2,4,1834}

Pearl #4: The PSA level can be elevated in benign disease and normal in malignant disease. Some patients with prostate cancer can have an unexpectedly low PSA value. The PSA value can be increased in prostatitis, benign prostatic hypertrophy, with prostatic manipulation, after sexual activity, or with increasing age.\textsuperscript{2,1835,4} Conversely, the PSA value can be normal in patients with prostate cancer. In a recent study of 2,950 men whose PSA value was ≤4.0 ng/mL, 15.2% were found to have prostate cancer on biopsy, with 14.9% of those cancers classified as high grade (Gleason score of 7 or greater). In the subgroup of patients whose PSA value was between 3.1 to 4.0 ng/mL, 26.9% were diagnosed with prostate cancer and 25.0% of these were high grade. Even 6.6% of the subgroup whose PSA value was less than 0.5 ng/mL were found to have prostate cancer.\textsuperscript{5}

Pearl #5: It is important for patients to understand the benefits and limitations of prostate cancer screening and their informed consent should be obtained prior to initiating prostate cancer screening. The decision of whether to do prostate cancer screening is complex. The American Urological Association, the American College of Physicians, and the American Cancer Society recommend that physicians offer prostate cancer screening beginning at age 50 to average-risk patients with a 10-year life expectancy or at an earlier age to high-risk patients, who are African American or have a first-degree relative with prostate cancer. However, due to the limitations of digital rectal examinations and prostate-specific antigen testing in detecting prostate cancer, all of these organizations also recommend that physicians initially discuss the benefits and limitations of the prostate cancer screening with the patient, consider the patient’s age and general health, and then allow each patient to individually make an informed decision whether to proceed.\textsuperscript{4,6,7} For similar reasons, both the United States Preventive Services Task Force (USPSTF) and the American Academy of Family Physicians conclude that there is insufficient evidence whether to recommend or not recommend prostate cancer screening using a digital rectal examination and PSA testing.\textsuperscript{8,9} The USPSTF acknowledges that prostate cancer screening may be useful in identifying early prostate cancers but notes that an improved long-term outcome has not been clearly demonstrated.\textsuperscript{8} It is hoped that studies in progress such as the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial and the European Randomized Screening for Prostate Cancer Trial will eventually provide evidence of the long-term benefits of PSA testing in screening for prostate cancer.\textsuperscript{10}

The physician should also discuss the implications of an elevated PSA value as part of the informed consent process. The average-risk man over the age of 50 has a 20%–30% likelihood of having prostate cancer if his serum PSA value is greater than 4.0 ng/mL and a 42%–64% likelihood of cancer if his PSA is greater than 10 ng/mL. More than 80% of men whose preoperative PSA value exceeded 20.0 ng/mL had cancers that were not organ-contained.\textsuperscript{4}

Pearl #6: If a patient is on finasteride (Proscar), the prostate-specific antigen level is decreased by approximately 50%.

Some patients may take finasteride to relieve symptoms of benign prostatic hypertrophy. Learners must understand that the PSA level may be decreased by as much as 50% in these patients and incorporate that information in interpreting the result.\textsuperscript{4}

Pearl #7: Most patients younger than age 70 are able to regain urinary continence and ejaculatory function after radical prostatectomy or radiation therapy.

Patients with localized prostate cancer may be offered a radical prostatectomy or radiation therapy. Many of these patients will be concerned about post-treatment erectile dysfunction or urinary incontinence. For patients with prostate cancer who undergo nerve-sparing radical prostatectomy, up to 69% of men younger than 60 years who had normal erections before the operation recover erectile function (although this may take from 6 months to 3 years). Ninete-five percent of patients should achieve urinary continence by 24 months.\textsuperscript{2,1846-8}

For patients who receive external beam radiation, 73%–82% of patients followed for 1 year to 15 months regained potency although only 50% of patients remained potent 7 years after radiation. Brachytherapy is a newer form of radiation therapy in which radioactive seeds are directly implanted.
into the prostate. Brachytherapy can cause problems with dysuria and incontinence although these generally improve over time.\(^{20,26}\)

**Pearl #8:** Back pain, which is worse when lying down, may be a sign of spinal cord compression in prostate cancer patients.

A common site of metastasis in prostate cancer patients is the lumbar spine. Eventual progression can lead to invasion into the epidural space and the thecal sac. The development of back pain that is worse on lying down or of other signs such as motor weakness, sensory loss, or loss of bowel or bladder function may indicate the development of spinal cord compression. Back pain of this nature in a man of appropriate age needs to be evaluated promptly and aggressively.\(^{11}\)

**Pearl #9:** Men receiving androgen deprivation therapy are at risk for osteoporosis.

Patients with prostate cancer may be offered androgen deprivation through the use of medications such as estrogens, antiandrogens, and luteinizing hormone-releasing hormone agonists and antagonists. It is important for learners to remember that patients receiving long-term androgen deprivation may develop severe osteoporosis and they may benefit from preventive treatment with bisphosphonates. One bisphosphonate, pamidronate, is effective in maintaining bone mineral density in the lumbar spine, greater trochanter, and hip in these patients. A newer bisphosphonate, zoledronic acid, has been shown to improve pain and delay the development of fractures. Current studies are investigating the potential for bisphosphonates to delay or avoid the development of metastases.\(^{12}\)

**Implementation and Conclusion**

Use of the pearls help ensure that learners achieve Accreditation Council for Graduate Medical Education (ACGME) general competencies in patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. The ability to document that learners are achieving these competencies is important both for their individual learning and for maintaining program quality and accreditation.

The pearls help office-based preceptors focus their discussion during limited teaching time and communicate core information on common conditions to learners. Explanation of these pearls should serve as a “spring board” for further study and discussion by learners. Knowing the important information contained in the pearls helps learners be more competent in handling these conditions and provide better care to their patients.

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**REFERENCES**