RISING DETECTION RATES OF PROSTATE CANCER

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It is not hard to believe that prostate cancer is being detected in many more men today than ever before. There are multiple reasons for this.

The most important rationale for early cancer detection is that the earlier cancer is found, the better the outcome. That assures effective therapy exists.

Using this as an incentive and applying new technology such as blood testing for Prostatic Specific Antigen (PSA) and as well, ease of transrectal biopsy, the early detection of prostate cancer has never been so widespread.

In the past, prostate cancer was most commonly found when it had spread to the bones causing severe pain, fractures and neurologic consequences. Furthermore once spread to the bones it is incurable. Essentially, only patients with localized disease - although occasionally some with lymph node involvement - are considered potential long-term disease-free survivors.

A recent evaluation by Potosky et al from the Cancer Statistics Branch of the National Cancer Institute was published in JAMA and evaluated the increasingly frequent diagnosis of prostate cancer. The authors noted that in 1994, prostate cancer surpassed lung cancer as the most common non-skin malignancy in American men. They estimated that 200,000 men would be newly diagnosed with the disease and nearly 40,000 would die of it.

In the 1970's and 1980's, the transurethral resection of the prostate - or the so-called "roto rooter" operation was responsible for finding prostate cancer in many. Often this operation was done as treatment for symptomatic men having difficulty urinating. Only microscopic evaluation of the tissue confirmed the presence of cancer.

These authors used Medicare claims in selected geographic areas including Connecticut, Atlanta Georgia, Detroit, Michigan and Peugeot Sound - areas containing 6% of the American population - to evaluate the method of prostate cancer diagnosis between 1986 and 1991.

In 1986, the incidence of prostate cancer diagnosis was 713 per 100,000 white males aged 65 and older. By 1991, it had nearly doubled to 1,310. Black men had considerably more cancer of the prostate diagnosed at all time points. In 1986, there were 1,052 cases per 100,000 and by 1991; it had jumped to 1,848 cases.

The incidence of prostate cancer in all men by age was evaluated as well. In men aged 65 to 74, the incidence of prostate cancer was 586 per 100,000 in 1986. This number doubled to 1,175 by 1991. Men aged 75 or older had a much higher incidence of prostate cancer. In 1986, it was 985 cases per 100,000 which increased to 1,615 cases by 1991.

How do the numbers compare to those having PSA blood tests or transrectal ultrasound in those same years?

In 1986, only 51 men per 100,000 had either the blood test or the transrectal ultrasound of the prostate while 713 cases per 100,000 were diagnosed with cancer. There was a flip-flop on these numbers so that by 1991 the number of white men 65 years of age or older who had blood test or the ultrasound was 19,733, with less than one-tenth of them having prostate cancer diagnosed.

The number of screening tests in black men was similar in 1986 but by 1991 actually lagged behind white men reaching 14,585 screening tests per 100,000 - despite black men having a higher incidence of prostate cancer.

Men aged 65 to 74 years had only 21 screening tests per 100,000 in 1986. This dramatically rose to become 20,007 per 100,000 by 1991. The authors as well observed the difference in localized tumors becoming more commonly diagnosed in later years. After 1986, they noted, "The stage-specific incident rate began to increase exponentially for all stages, with the exception of distant stage disease."

They observed that between 1986 and 1991 "The incidence of localized disease increased 75%" while the incidence of distant disease was stable. Furthermore, it was noted that while prostate cancer became increasingly commonly diagnosed, the method of diagnosis has dramatically changed. There was a shift away from the transurethral resection of the prostate (TURP) towards needle biopsy. The TURP declined in frequency by 15% between 1986 and 1991, although the rate of prostate needle biopsy tripled from 685 to 2,600 per 100,000 men."

Different geographic areas had different rates of evaluation of men. For example, the authors reported, "Rates of PSA in Seattle in 1988 were fourfold greater than in Detroit and forty fold greater than in Connecticut, but the gap had narrowed by 1991. Nevertheless, the rate of PSA testing in Seattle was still twice the rate in Connecticut and about 20% higher than in Detroit."

Authors noted that "The serum PSA test has been approved by the Food & Drug Administration for post treatment monitoring of known cases and as an aid in the detection of prostate cancer in men older than 50 years in conjunction with digital rectal examination, but not for purposes of screening." This is not unexpected since about 20% of patients with prostate cancer have normal PSA's. Thus, PSA by itself is not an adequate screen.

Furthermore, there is a controversy over the role of treatment for men with localized prostate cancer. As noted above, tens of thousands men die annually in America from this disease. It is noted "the 23% increase in prostate cancer mortality rates during the last two decades could reflect the changing prevalence of as yet unidentified risk factors."

Potosky notes, "A gradual decline in long-term mortality rates resulting from increased PSA screening, if it should occur, will be difficult to detect for many years." Until then, men will need to make the best treatment decision based upon the current data.

Addendum:

What was phenomenal about the early years of PSA screening was a great increase in the incidence of prostate cancer. Certain companies made prediction on the rising nearly limitless number of men who would be diagnosed with prostate cancer. In fact, what took place was what should have been expected – that is, many men were diagnosed with prostate cancer earlier and earlier, therefore, they could more easily be treated and likely cured. The number of cases did not continue to grow. After several years of peak incidents, the number of prostate cancers started to fall not because there were fewer cases per year but rather, the disease was detected earlier.

This system energized the field of urologic oncology. Men were advised to have regular, routine PSA testing usually starting at 50. Men with a family history of prostate cancer were advised to begin testing at 40. New developments took place in the treatment of prostate cancer including innovative radiation procedures as well as new surgical and other procedures.

Our program of prostate brachytherapy and body radiosurgery took place in the years of PSA testing. PSA testing is used routinely to determine response to therapy. What is beautiful about our program is essentially every man from the first man treated is followed and reported on regularly. The technology that we have employed has greatly evolved – now using Palladium seed implantation, fluoroscopy in the operating room, sophisticated ultrasound devices in the operating room as well as real-time computer technology in the operating room to see that men received the best possible brachytherapy. Body radiosurgery was a huge advance – giving more sophisticated and direct care to the prostate minimizing radiation of healthy tissues. IMRT further enhanced the shape and contour of the radiation beam's placement in the body. Daily ultrasound allowed more direct focusing of the beam. All together in these years, the incidence of toxicities has diminished while treatment has never been more successful.

Unfortunately, years ago many men were diagnosed to have prostate cancer once it was causing painful metastases to the bones and was incurable. Today, that is seldom the case. How a few years and a revolution in technology have changed the course of a disease.