# Top Tips From Family Practice

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## DENTAL X-RAYS ASSOCIATED WITH MENINGIOMA IN CASE-CONTROL STUDY

For years I have been refusing routine dental x-rays when I go to my dentist. I just didn't think they were indicated, and obviously they do add to the cost of a visit. I have also not been in favor of adding extra radiation to my body.

The April 2012 issue of Cancer reports a case-control study that includes 1,433 patients with intracranial meningiomas and 1,350 control patients matched for sex, age, and state of residence. Patients who were found to have meningiomas were more than twice as likely as controls to recall having received bitewing dental x-rays. The risk increased with the number of bitewings with statistics showing that those with dental x-rays each year had an increased risk of meningiomas at all ages. Panoramic (panorex) x-rays before age 20 were also associated with meningioma. Those exposed to panorex x-rays had, on average, twice the radiation exposure compared with 4 bitewings. Those with panorex x-rays under age 10 had a five times greater chance of developing a meningioma. Keep in mind that it takes 20-30 years after radiation exposure for meningiomas to develop. Also note that there is an increase in thyroid cancer with dental x-rays. One percent of all cancers have been linked to medical radiation and obviously that percentage is increasing now with the more liberal use of x-rays such as CT scans.

The American Dental Association has recommended dental x-rays every 2-3 years for adults not at risk for cavities and 1-2 years for children without cavities.

The authors of this article point out those patients may have not accurately reported or recalled their dental x-rays, thereby limiting the conclusions. They do cite, however, a recent American Dental Association statement, which "highlights the need for dentists to examine the risk/benefit ratio associated with the use of dental x-rays and confirms that there is little evidence to support the use of dental x-rays to search for occult disease in asymptomatic patients."

## WHICH TESTOSTERONE TEST SHOULD WE BE ORDERING—TOTAL OR FREE?

Whether to order total or free testosterone is a quandary I have been dealing with when I evaluate men for hypogonadism, so I appreciated the recent article in The Journal of Urology, April, 2012;187:1369. It contains the comment that in evaluating men with suspected hypogonadism, some physicians start by ordering total testosterone levels, while others order free or bioavailable testosterone levels. Notably, total testosterone levels can be affected by many factors, including drugs, obesity, assay variability, comorbidities, and time of day.

This Veterans Administration study analyzed 3700 men mean age 60 years; nearly half were obese. Measurements included both total testosterone and calculated free testosterone levels. About 15 percent of this population had free testosterone levels under 34 pg/mL, which were considered "low" and evidence of hypogonadism.

The investigators also looked at the sensitivity and specificity of total testosterone to help determine when a free testosterone level was also necessary. The laboratory's lower limit of normal for total testosterone was 280 ng/dL, which had a sensitivity of 91% and a specificity of 74%. In other words, 26% of the men (100% - 74%) without biochemical hypogonadism also had total testosterone levels under 280 ng/dL and therefore had false-positive results. The study also showed that reducing the low value cutoff from 280 to 150ng/dL for total testosterone would lower the sensitivity to 59%, thus missing many cases of hypogonadism, but would improve the specificity to 99%, thus negating almost all of the false positives. Conversely, increasing the total testosterone low value cut off from 280 to 350 ng/dL would improve the sensitivity to 97% but lower the specificity from 74% to 53%.

The authors concluded that levels of total testosterone below 150 ng/dL correctly identify hypogonadism, and above 350 ng/dL rather accurately exclude biochemical hypogonadism. However, when the levels fall between these cutoffs, physicians should consider measuring free testosterone.

## UPDATED GUIDELINES FOR CERVICAL CANCER SCREENING

Many of you have been hearing about "Choosing Wisely," an initiative of the Board of Internal Medicine Foundation. These five items from nine Academies suggest issues about health care that physicians and patients should be questioning. I will be commenting on several of these 45 items in this and subsequent articles. In this discussion I will focus on screening for cervical cancer.

The annual Pap smear to detect cervical cancer is something that has been inculcated into our medical culture since I was a resident, and its impact has certainly been exceptional. But since that time, we have learned that the human papillomavirus is the primary cause of cervical cancer. Co-testing, which requires cytologic examination (a Pap smear) together with testing for oncogenic HPV types, has been found to be superior to Pap smears alone in identifying pre-invasive lesions. This is especially true in women over 30 years of age. Those with negative Pap smears and HPV results can be safely screened less often. The American Society for Clinical Pathology, The American Society for Colposcopy and Cervical Pathology, and The American Cancer Society have published new evidence-based guidelines.[1]

Notably, the latest recommendations from The U.S. Preventative Services Task Force are now similar to the updated guidance described here.

- Screening should start at age 21 years, regardless of the age when sexual activity commences. Between the ages of 21 and 29 years, a Pap smear alone is recommended every 3 years.
- Those 30-65 years of age should have HPV testing and Pap testing every 5 years. If HPV testing is not available, Pap smears alone should be continued every 3 years.
- Cytologic findings of atypical squamous cells of undetermined significance (ASCUS), accompanied by HPV-negative results, should be managed the same as a normal screening result.
- If the Pap smear is normal but the HPV is positive, there are a couple of options.

1) One can repeat co-testing (Pap smear and HPV) in 1 year. Those who test HPV-positive or who have low-grade squamous intraepithelial lesions on the Pap smear should undergo colposcopy. Women with normal or ASCUS cytology and who are HPV-negative at 1 year should resume routine screening.

2) Another option is immediate testing for HPV types 16 and 18. Women who test positive for either of these viral types should undergo colposcopy as they have a greater chance for carcinoma. Women who test negative for both of these viral types should be co-tested in one year, with management of results as outlined in the first option.

- Women with all other abnormalities should be managed as per the existing guidance from The American Society for Clinical Pathology.[2]
- Most women can discontinue screening after age 65 years or after a hysterectomy. Screening should not resume even if a women reports having a new sexual partner. Women with a history of cervical intraepithelial neoplasia grade 2 (CIN2) or a more severe lesion should continue screening for at least 20 years, even if this extends beyond age 65.

There are many physicians and patients who will question the significant changes that these recommendations will bring to our practices. Patients may feel uneasy with the length of time between their "routine" Pap smears and (over age 30) HPV testing. We must try to explain to them that the evidence is overwhelming that they do not need them as frequently as they have had them done in the past. Many physicians might also feel that the previous recommendations have protected their patients well.

I believe, however, that in this era of decreasing medical funds we must adhere to evidence-based medicine. Those who fear that the patients will be lost to follow-up should consider in-office reminders of when patients should follow up. Perhaps we should borrow the type of reminder wallet cards that we have been giving to parents for years concerning immunizations for their children. Thus, if in five years the patient is living in another area or has transferred care, they will know when to get their next cervical cancer screening.

## BONE DENSITY TESTS EVERY 15 YEARS IN OLDER LOW-RISK WOMEN

Another of these "Choosing Wisely" issues in The American Academy of Family Practice edition addresses the fact that DEXA scans are not cost effective in young, low-risk patients, but are cost effective beginning at age 65 in women, and at age 70 in men without risk factors. Still, there are other issues one should be aware of. Many women do not get screening DEXA scans beginning at age 65. We should see that

they do, as osteoporosis is currently under-diagnosed and under-treated in that age group and older.

*The New England Journal of Medicine*[3] reported a study of screening for osteoporosis in 4,957 women aged at least 67 years. T scores were rated as indicative of a normal BMD or osteopenia that was graded as mild, moderate, or advanced. (Normal was defined as a T score as low as -1; mild osteopenia was a T score of -1.01 to -1.49; moderate osteopenia was -1.5 to -1.99; and significant or advanced osteopenia was defined as -2 to -2.49. Osteoporosis was defined as a T score of less than -2.5.)

Follow up revealed that women whose first screening indicates normal bone mineral density (BMD) or only mild osteopenia could wait 15 years for their next screening. Beyond 15 years of follow-up, only 0.8% of those with normal BMD and 4.6% of those with mild osteopenia developed true osteoporosis with a T score of -2.5 or worse.

Those with moderate or advanced osteopenia had a much greater risk of developing osteoporosis: 20.9% and 63.2% respectively developed osteoporosis during follow-up. The authors calculated that it would take about 17 years for 10% of women with normal BMD or mild osteopenia to actually develop osteoporosis and be at risk of having a hip or vertebral fracture. In contrast, it would only take 4.7 years for those with moderate osteopenia and 1.1 years for those with advanced osteopenia to become osteoporotic.

This study has certainly changed the frequency of my ordering DEXA scans. It's estimated that the annual cost of DEXA scans in the U.S. for patients under the age of 64 years is more than $520,000,000! While it is certainly true that some of these patients are at high risk or have other reasons for needing DEXA scans, many of the studies are not indicated.

In the past I have found that when ordering tests every two years in those over 65, discussion with patients has often revealed that many do not take their calcium and vitamin D at the recommended levels. The DEXA report that I review with the patients usually brings this to light and thus improves compliance. However, I think that we need to find a less expensive way to bring compliance issues to the patient's attention, and it needs to be done without expending more medical dollars for unnecessary tests. Once again we, as well as the patients, need to keep track of the individual frequency that these tests might need to be done. A wallet card or a reminder sent from the office seems appropriate.

Followup letters in the *NEJM*[4] included some key additional items. One correspondent (Dr. Cheung) suggests "changing the algorithm to one based on overall fracture risk or transition of fracture risk categories . . . and examine the cost effectiveness for clinical screening and BMD testing for preventing fractures." Another commenter (Dr. Lewiecki) stated: "The analysis did not consider the complexities of treating individual patients or the use of fracture risk algorithms (e.g., the FRAX online tool) to identify patients with osteopenia who are at high risk for fracture and who may benefit from treatments."

In subsequent issues of the *Journal* I will address some other issues related to updated guidelines. Stay tuned!

## REFERENCES


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