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'Tis the Season

ABSTRACT & COMMENTARY

By **Barbara A. Phillips, MD, MSPH**

Professor of Medicine, University of Kentucky; Director, Sleep Disorders Center, Samaritan Hospital, Lexington

Dr. Phillips reports no financial relationship to this field of study.

Synopsis: Neither antibiotics nor nasal steroids nor the combination of the two reduces the duration of acute sinusitis symptoms compared with placebo.

Source: Williamson IG, et al. Antibiotics and Topical Nasal Steroid for Treatment of Acute Maxillary Sinusitis. A Randomized Controlled Trial. *JAMA*. 2007;298(21):2487-2496.

THIS WAS A RANDOMIZED, CONTROLLED STUDY OF 240 patients over a 4 year period. The patients were recruited from 58 family practices in England. Entry criteria included symptoms of less than 28 days duration, and were based on the Berg and Carenfelt criteria,¹ which include: purulent nasal discharge with unilateral predominance, local pain with unilateral predominance, purulent nasal discharge bilaterally, and pus on inspection inside the nose. To be included, patients had to have at least 2 of these criteria. Exclusion criteria included significant comorbidities (eg, heart failure), allergy to penicillins or steroids, recent treatment with antibiotics or steroids, and chronic sinusitis (> 2 bouts of acute sinusitis in the previous year). The primary outcome was the proportion cured (eg, asymptomatic) vs still symptomatic at 10 days. Information about symptoms was collected in diaries. Symptoms were ranked on a Likert scale, and included nasal blockage and discharge, unpleasant smell or taste, pain in the face, either when still or when bending, restriction of daily activity, feeling of illness, and headache. At the end of 2 weeks or when all symptoms were rated 0 by the patient, symptoms diaries were collected for analysis. Those who were lost to follow-up were assumed to still be symptomatic at day 14. The investigators noted that many (54) patients refused to be randomized because they demanded antibiotics

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immediately. Others were not randomized (n=38) because the physician did not have time to recruit them. Still others (n= 24) reported allergies to penicillins. The final study sample was 75% female with a median age of 44 years. About 10% had asthma and 82% had had sinusitis before. The mean duration of symptoms prior to seeking treatment was 7 days. Patients were randomized to one of four possible treatment groups: active antibiotic (amoxicillin) and active nasal steroid (budesonide), inactive antibiotic, active nasal steroid, active antibiotic, inactive nasal steroid, or inactive antibiotic and inactive nasal steroid. Male patients and those with pus on examination were more likely to be lost to follow-up; 13.7% did not return diaries. There were 193 validated diaries used for the final analysis. The proportion of patients with symptoms lasting 10 or more days was about 30% for the entire group, and did not vary statistically for any of the four treatment groups. In looking at time to “cure” (resolution of symptoms), the authors did not find differences in time to resolution of symptoms; about 40% of patients in each group were cured at 1 week. The investigators did separate analyses for the “pain” and “unwell” symptoms, and found that nasal steroids may be beneficial for those patients with milder symptoms, but detrimental for those with more severe symptoms.

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■ COMMENTARY

It's the season for upper respiratory tract infections, including sinusitis. Acute sinusitis (or something like it) is an extremely common problem in primary care; it is estimated that 1-2 % of all patient visits to physicians in Europe relate to sinus problems.² In the editorial that accompanies this paper,³ Dr Morten Lindack points out that the vast majority of patients who present with a chief complaint of sinusitis in the US receive antibiotics, despite lack of convincing evidence that antibiotics help. Indeed, international guidelines⁴ do not support the use of antibiotics for sinusitis that is clinically diagnosed. On the other hand, a recent Cochrane review⁵ suggested moderate effect sizes of penicillins in the treatment of sinusitis, based largely on studies of patients in secondary care settings in which x-ray confirmation of sinusitis was done. Since sinus films are rarely used to make the diagnosis of sinusitis in primary care, one of the aims of this study was to find out if antibiotics help patients with clinically-diagnosed sinusitis. The answer: apparently not.

The data about topical steroids (in this case, budesonide) are even more confusing. In the current study, nasal steroids may have helped symptoms in those with milder symptoms to begin with, but worsened them in those with more severe symptoms. Previous studies^{6,7} of steroids plus antibiotics for sinusitis have suggested that they may help to relieve symptoms, but these studies may have included patients with allergic rhinitis.

So, what to do? Many patients with sinus symptoms are convinced that they need antibiotics and will demand them (indeed, patients' demands for immediate antibiotics were a major reason for refusal to be enrolled in this study, where they might be randomized to placebo). On the other hand, our free hand with antibiotics has undoubtedly led to some of our current dilemmas with drug-resistant bacteria.⁸ Just saying no to patients with sinusitis symptoms, while offering reassurance and supportive care is difficult, but is the only approach that is well-supported by the evidence. Dr Lindbaek's editorial notes that some patients with sinusitis will still need antibiotic treatment, including those with “malaise, fever, and deteriorated general condition.” Sorting out those patients who are likely to benefit from antibiotics from those who are not is part of the art of medicine. ■

References

1. Berg O, Carenfelt C. Analysis of symptoms and clinical signs in the maxillary sinus empyema. *Acta Otolaryngol.* 1988;105(3-4):343-349.
2. Lindbaek M. Acute sinusitis: a guide to selection of antibacterial therapy. *Drugs.* 2004;64:805-819.
3. Lindbaek M. Acute sinusitis—to treat or not to treat? *JAMA.* 2007;298:2543-2544.

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4. Ah-See K. Sinusitis (acute). *Clin Evid.* 2005;13:646-653.
5. Williams JW Jr, et al. Antibiotics for acute maxillary sinusitis. *Cochrane Database Syst Rev.* 2003(2):CD000243.
6. Dolor RJ, et al. Comparison of cefuroxime with or without intranasal fluticasone for the treatment of rhinosinusitis; the CAFFS trial: a randomized controlled trial. *JAMA.* 2001;286:3097-3105.
7. Meltzer EO, et al. Treating acute rhinosinusitis: comparing efficacy and safety of mometasone furoate nasal spray, amoxicillin, and placebo. *J Allergy Clin Immunol.* 2005;116:1289-1295.
8. Goossens H, et al. Outpatient antibiotic use in Europe and association with resistance: a cross-national database study. *Lancet.* 2005;365:579-587.

Use of Proton Pump Inhibitors and Other Acid Suppressive Medications in Newly Admitted Nursing Facility Patients

ABSTRACT & COMMENTARY

By **Malcolm Robison, MD, FACP, FACG**

Emeritus Clinical Professor of Medicine, University of Oklahoma College of Medicine, Oklahoma City

Dr. Robison reports no financial relationship to this field of study.

Synopsis: *Many nursing home patients are admitted with prescriptions for proton pump inhibitors or H2-receptor antagonists without any obvious indication.*

Source: Glew C, Rentler R. *J Am Med Dir Assoc.* 2007;8:607-609.

HOSPITALIZED PATIENTS ARE OFTEN STARTED ON acid suppressive therapy for prophylaxis of stress ulceration and for other even less well defined reasons. The authors of this paper note that inpatient stress ulcer prevention with acid suppression is rarely if ever indicated outside the intensive care setting, and they list several citations that corroborate the lack of evidence-based criteria for use of such therapy in a wide range of hospital settings. Worse yet, according to these authors and their review of pertinent literature, many patients who improperly receive PPIs and H2 receptor antagonists

while hospitalized are also prescribed these drugs at discharge (including transfers to skilled nursing facilities). The present study involved a chart review of 98 admissions to a non-profit nursing home facility in Pennsylvania during the last half of 2006.

All available patient records for these admissions were reviewed including hospital histories, physical examinations, medication lists, operative procedures, laboratory and radiological data along with hospital discharge summaries. Appropriate indications for acid suppression were defined (admittedly arbitrarily) as GERD, UGI bleeding, peptic ulcer disease, and empirical treatment for any other unexplained GI bleeding. Since no patient identifiers were collected, no institutional review board approval was sought. Included in the record review were 63 women and 35 men. Only 9% of patients were younger than 74. Of the 98 patients, 61% were admitted with transfer orders including a PPI, and 3 other patients were on an H2 receptor antagonist (total of 64.3% on acid suppression). Only 50% of patients had an appropriate supporting diagnosis for such therapy (mostly GERD), and 3.1% of patients with the diagnosis of GERD were on no acid suppression. The authors comment that many of the accepted diagnoses could have been entirely inactive or even incorrect, and they suggest that the overall rate of unnecessary acid suppression is probably much higher than 50%. They state that even very “safe” drugs like PPIs sometimes lead to adverse events such as a headache, diarrhea, and abdominal pain in some patients—not to mention potential drug-drug interactions. It was concluded that discontinuation of acid suppression might be the most appropriate management for many if not most of these nursing home admissions.

COMMENTARY

Most physicians never see articles in journals like the *Journal of the American Medical Directors Association*, and they certainly don’t seem to include the same level of peer review we see in most of the journals selected for *Internal Medicine Alert*. The present study seems to exhibit a number of defects. It is quite small, and it could be argued that even this kind of chart review should have been submitted to an institutional review board for consideration. Furthermore, we all could verify that the discharge summaries and similar materials available for review at the time of nursing home admission may be grossly incomplete in terms of potentially meaningful historical detail. Nevertheless, it is the opinion of this reviewer that the conclusions of this brief report are fully justified. As they point out, the over-prescription of acid suppression in hospital settings and the continuation of such therapy post-discharge have been amply documented. It would be surprising if nursing home admissions

did not share in the gross over-prescription of PPIs and H2RAs. These products have been heavily promoted, and they are perceived to be unusually safe. Physicians seem amazingly unconcerned with issues of cost containment, and many of them don't hesitate to prescribe expensive products (like PPIs) even for rather flimsy indications. Insurance companies and other payers would like to eliminate prescription of medications without some evidence-based supporting data. Physicians in general don't like challenges to their decisions, and they are particularly unwilling to provide detailed supportive data for every order written. Nevertheless, our society cannot afford endless increases in medical costs. If we don't regulate ourselves, it is certain that we will ultimately be subject to external regulation. Acid suppression probably is relatively safe, but it should only be prescribed for clear indications that can stand peer review. Unfortunately, once a patient has received a prescription for medication such as the acid suppressing agents, it is often unlikely that the prescription will be discontinued (particularly in the nursing home setting where physicians may have less historical connection with the patients under their care). ■

Intravenous Bisphosphonate and Facial Bones

ABSTRACT & COMMENTARY

By Leon Speroff, MD

This abstract first appeared in the December 2007 issue of OB/GYN Clinical Alert.

Dr. Leon Speroff is the Editor of OB/GYN Clinical Alert. He is a consultant for Warner Chilcott.

Synopsis: IV bisphosphonate treatment is associated with an increased risk of inflammation in the bones of the jaw and face.

Source: Wilkinson GS, et al. *J Natl Cancer Inst.* 2007;99:1016-1024.

WILKINSON AND COLLEAGUES FROM THE University of Texas in Galveston analyzed information from the Surveillance, Epidemiology, and End Results (SEER) databank linked to Medicare claims.¹ There, 16,703 cancer patients were identified who were treated with IV bisphosphonates (pamidronate and zoledronic acid) from 1995 to 2003. When 14,349 treated

patients were matched with 28,698 controls, the treated group had a 3-fold increased risk of jaw or facial bone surgery (HR = 3.15; CI = 1.86-5.32) and a very large increased risk of osteomyelitis of the jaw (HR = 11.48; CI = 6.49-20.33). The estimated absolute risk equaled 5.48 events per 100 patients over 6 years. In addition, the risk increased with increasing cumulative dose.

■ COMMENTARY

By now the link between bisphosphonates and jaw osteonecrosis is accepted even though the previous studies contained small numbers. It is acknowledged that this is a relatively rare complication. The mechanism is uncertain beyond the recognition that infection and blood flow changes are involved. It is postulated that compromised healing ability of bone because of inhibition of bone turnover leads to a sequestered osteomyelitis and necrosis. This study is of importance because of its large size, and it confirms the earlier reports. Yet despite its size, the number of cases is not great enough to provide an estimate of the exact relative risk (note the wide confidence intervals indicating imprecision, usually due to small numbers).

Previous studies have suggested that the risk of osteonecrosis of the jaw is greater in patients treated with zoledronic acid compared with pamidronate.^{2,4} Unfortunately, because of a delay in issuing a separate billing code for zoledronic acid, this question could not be addressed in this large cohort study.

The study also examined a large list of risk factors (such as different types of cancers, the presence of other medical conditions, the use of other drugs) and could find no associations with specific factors.

Awareness of this problem has led to increased attention to oral hygiene and the avoidance of tooth extractions in the high risk population of cancer patients receiving this treatment. The infrequency of this problem does not outweigh the substantial reduction in fractures and the need for irradiation or surgery of bone metastases in treated patients. But there remains the important question of the prevalence of this complication in individuals being treated for osteoporosis or the prevention of bone loss. Patients receiving bisphosphonate treatment for osteoporosis, with no history or evidence of malignancy, have experienced jaw osteonecrosis.^{4,5} Clinical judgment suggests the following guidelines:

1. Duration of exposure to bisphosphonate should be limited, avoiding high local dosage secondary to the liberation of tightly bound bisphosphonate combined with on-going treatment. Many clinicians recommend discontinuation after 5 years with resumption of treatment when bone loss is demonstrated.
2. Avoid combining two anti-resorptive agents

(even though there may be a small additional gain in bone density, there is no evidence that an additional benefit in fracture risk is achieved).

3. Think twice before treating young postmenopausal women with a bisphosphonate. ■

References

1. Wilkinson GS, et al. *J Natl Cancer Inst.* 2007;99:1016-1024.
2. Zervas K, et al. *Br J Haematol.* 2006;134:620-623.
3. Durie BGM, et al. *New Engl J Med.* 2006;353:99-100.
4. Farrugia MC, et al. *Laryngoscope.* 2006;116:115-120.
5. Ruggiero SL, et al. *J Oral Maxillofac Surg.* 2004;62:527-534.

Diagnosing Early Pancreatic Cancer

ABSTRACT & COMMENTARY

By **William B. Ershler, MD**

This article first appeared in the December 2007 issue of Clinical Oncology Alert.

Dr. William B. Ershler is on the speaker's bureau for Wyeth and does research for Ortho Biotech.

Synopsis: *Although pancreatic cancer growth is considered rapid, early recognition of resectable disease remains the best chance for long-term survival. It is possible that an early sign of evolving pancreatic neoplasm is glucose intolerance.*

Source: Pelaez-Luna M, et al. *Am J Gastroenterol.* 2007;102:2157-2163.

PANCREATIC CANCER REMAINS BOTH A CHALLENGE to diagnose and an even greater challenge to effectively treat. In fact, only patients discovered early and with resectable disease have a chance for long-term survival. Unfortunately, the majority of patients (greater than 85%) have unresectable disease by the time disease-associated symptoms occur and a diagnosis is made.¹ Patients who have the greatest chance for curative resection are those who have their tumors diagnosed when under evaluation for other problems and the pancreatic mass is discovered before symptoms occur. The timeline for progression of pancreatic cancer from resectable to unresectable is unknown. Evidence for glucose intolerance is known to occur in a substantial percentage of pancre-

atic cancer patients and it may occur earlier than other signs or symptoms of disease. In an effort to determine whether the investigation of new-onset diabetes for pancreatic cancer or the serendipitous discovery of a CT detected pancreatic mass offers a sufficiently early diagnosis to improve cure rates, Pelaez-Luna and colleagues at the Mayo Clinic reviewed 30 patients with pancreatic cancer who either had abdominal CT scans performed months or years prior to the diagnosis of pancreatic cancer and/or had developed diabetes prior to or concurrent with the diagnosis of pancreatic cancer.

All CT scans including those done at the time of diagnosis and those performed at earlier dates were reviewed and classified as either normal, potentially resectable, or unresectable pancreatic cancer. Fasting blood glucose levels were obtained at the time of diagnosis and also prior to diagnosis in 18 cases of the 30 patients.

Of the 30 patients, 28 had a total of 38 CT scans done at a median of 18 months (range 1 to 41 months) before the cancer diagnosis. At cancer diagnosis, only 7 of 30 patients could undergo margin negative surgical resection. CT scans done at six months before diagnosis or earlier revealed either a normal pancreas (n = 20) or a resectable mass (n = 6). None of the CT scans that were obtained earlier than six months before diagnosis revealed an unresectable mass.

With regard to diabetes, the mean interval between the onset of laboratory confirmed glucose intolerance and pancreatic cancer was 10 months (range 5 to 29 months). At the time of diagnosis of diabetes, 13 patients had CT scans. Of these, three had a normal appearing pancreas, six had a mass that was, even at that time, considered resectable, and four had a mass that was, even at that time considered unresectable.

Thus, the authors conclude that undetectable or resectable pancreatic cancer was apparent on CT scans obtained greater than six months prior to clinical diagnosis. At the onset of diabetes, pancreatic cancers were, in this series, generally resectable.

■ COMMENTARY

This series highlights the frustrating aspect of early diagnosis in pancreatic cancer. Unlike colon cancer, for example, where the development of a neoplastic lesion occurs over years and for which surveillance initiatives have demonstrated the capacity for early recognition allowing curative resection, such has not been the case for pancreatic cancer. This, no doubt results from what must be a rapid transition from resectable to unresectable disease and

the lack of an effective and feasible screening device. Most of the patients in this series had become diabetic, and for those who had CT scans obtained at or near the time of the newly diagnosed diabetes, at least half were shown to have a pancreatic mass that was considered resectable. In fact, patients with or without diabetes who had CT scans obtained six months or more prior to the onset of pancreatic cancer for unrelated conditions were likely to have resectable tumors as well. The fact that the masses discovered by retrospective analysis were not actively pursued in a timely fashion highlight the uncertainty of pancreatic imaging (by CT scans utilized during the years of this analysis) and the rapidity with which pancreatic cancers grow. Thus, although some might consider CT scanning for pancreatic cancer screening, the applicability of this expensive approach would likely be seriously hampered by measures of both sensitivity and specificity.

However, if a high-risk category were identified, CT scanning might prove reasonable. One such category of high-risk individuals would be those with newly-discovered diabetes. In a population-based study performed by this same group of Mayo Clinic investigators, those with new onset diabetes were shown to have eight times the likelihood of being diagnosed with pancreatic cancer within three years than the general population.² Thus, it would seem reasonable to investigate the role of CT scan screening for patients with new onset diabetes. However, prior studies that have addressed this question (screening for pancreatic cancer in those with new onset diabetes and cancer-related symptoms) have identified mostly unresectable pancreatic cancer.^{2,3} However, those studies relied on the presence of cancer-related symptoms in newly diagnosed

diabetics, and thus, the lack of discovering early (or small) pancreatic lesions is not surprising. A similar analysis of asymptomatic patients with newly discovered diabetes might be more successful.

As imaging studies become more precise and less intrusive, prospective studies may result in an improved understanding of the relationship between diabetes development, pancreatic mass, and pancreatic cancer. More importantly, these studies may identify individuals who would benefit from screening and heightened surveillance such that pancreatic cancers could be discovered in a resectable stage. ■

References

1. Jemal A, et al. Cancer statistics, 2006. *CA Cancer J Clin.* 2006;56(2):106-130.
2. Chari ST, et al. *Gastroenterology.* 2005;129(2):504-511.
3. Damiano J, et al. *Diabetes Metab.* 2004;30(2):203-207.

Pharmacology Update

Sorafenib Tablets (Nexavar®)

**By William T. Elliott, MD, FACP, and
James Chan, PharmD, PhD**

Dr. Elliott is Chair, Formulary Committee, Northern California Kaiser Permanente; Assistant Clinical Professor of Medicine, University of California, San Francisco; Dr. Chan is Pharmacy Quality and Outcomes Manager, Kaiser Permanente, Oakland, CA.

Drs. Chan and Elliott report no financial relationship to this field of study.

SORAFENIB HAS BEEN APPROVED BY THE FDA FOR the treatment of inoperable hepatocellular cancer. It is an oral multikinase inhibitor that was previously approved for advanced renal cell carcinoma. It is manufactured by Bayer HealthCare AG in Germany and marketed by Bayer Pharmaceuticals Corporation as Nexavar.

CME Objectives

The objectives of *Internal Medicine Alert* are:

- to describe new findings in differential diagnosis and treatment of various diseases;
- to describe controversies, advantages, and disadvantages of those advances;
- to describe cost-effective treatment regimens;
- to describe the pros and cons of new screening procedures.

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Indications

Sorafenib is indicated for the treatment of patients with unresectable hepatocellular carcinoma (HCC) and patients with advanced renal cell carcinoma.¹

Dosage

The recommended dose is 400 mg (2 x 200 mg) taken orally twice daily. It should be taken at least one hour before or 2 hours after meals.¹

Sorafenib is available as 200 mg tablets.

Potential Advantages

Sorafenib treatment has shown a median survival advantage of about 3 months compared to placebo in patients with limited therapeutic options.¹

Potential Disadvantages

Common adverse events (20%) include fatigue, weight loss, rash/desquamation, hand-foot skin reaction, alopecia, diarrhea, anorexia, nausea, and abdominal pain. Common laboratory abnormalities include elevated lipase, amylase, lymphopenia and anemia. Serious dermatological toxicity may require interruption or discontinuation of therapy.¹ Other adverse events include hypertension and less likely, hemorrhage, cardiac ischemia, myocardial infarction, and gastrointestinal perforation.¹ Strong CYP3A4 inducers can decrease the levels of sorafenib. Sorafenib increases the level of docetaxel and drug metabolized by UGT1A1 (eg, irinotecan). Caution use be exercised with coadministration with doxorubicin, 5-fluorouracil, CYP2C8 and CYP2B6 substrates.¹

Comments

The efficacy of sorafenib has been shown in the Multinational Sorafenib HCC Assessment Randomization Protocol (SHARP) trial. This phase III trial included 602 patients with unresectable HCC who were randomized to sorafenib 400 mg daily (n = 299) or matched placebo group (n = 303).^{1,2} These patients had biopsy proven HCC, mainly Stage III or IV (90%), Eastern Cooperative Oncology Group performance status from 0-2, Child-Pugh Class A, measurable disease, and no prior therapy. The median survival times were 10.7 months for sorafenib compared to 7.9 months for placebo (hazard ratio, 0.69; 95% CI, 0.55-0.87). The median times to disease progression were 5.5 months for sorafenib compared to 2.8 months for placebo (hazard ratio (95% CI) 0.58 (0.45-0.74). Additionally, 2.3% vs 0.7% had partial response, 71% vs 67% had stable disease and 18% vs 24% had progressive disease. These frequencies did not reach statistical difference ($p = 0.06$). No complete response was observed. The drug also did not appear to improve quality of life.³ The cost is approximately \$4600.

Clinical Implications

Hepatocellular carcinoma is on the rise in the United States and Western Europe.⁴ Unresectable and metastatic disease carries a poor prognosis and survival is measured in months. The estimated number of new cases in the US per year is 18,500 with 16,000 deaths.⁵ While sorafenib showed statistical improvement in survival compared to placebo, and the drug is touted as the new reference standard for therapy of HCC, the benefit is modest at less than 3 months improved survival. ■

References

1. Nexavar Product Information. Bayer Pharmaceutical Corporation. November 2007.
2. Zhu AX. *Cancer*. Nov 26, 2007 (Epub)
3. Hampton T. *JAMA*. 2007;298:273-275.
4. El-Serag HB, Mason AC. *N Engl J Med*. 1999;340:745-750.
5. American Cancer Society. Cancer Facts and Figures 2007. Atlanta, Ga. American Cancer Society 2007.

CME Questions

59. Which of the following is most likely to benefit a 45-year-old cigarette smoker with recurrent sinusitis symptoms:
- a. oral amoxicillin
 - b. nasal steroids
 - c. smoking cessation
 - d. oral amoxicillin plus nasal steroids
60. Approximately what percentage of unselected nursing home admissions in this study included orders for acid suppressive medication?
- a. 10%
 - b. 20%
 - c. 40%
 - d. 60%
 - e. 80%

Answers: 59 (c); 60 (d)

By **Louis Kuritzky, MD**, Clinical Assistant Professor, University of Florida, Gainesville

Dr. Kuritzky is a consultant for GlaxoSmithKline and is on the speaker's bureau of GlaxoSmithKline, 3M, Wyeth-Ayerst, Pfizer, Novartis, Bristol-Myers Squibb, AstraZeneca, Jones Pharma, and Boehringer Ingelheim.

Incidentalomas: It's All In Your Head

ONE OF THE DOWNSTREAM "CONSEQUENCES" of our ever more-sophisticated quiver of diagnostic arrows—CT, MRI, etc.—is the discovery of incidental findings. Sometimes these "incidentalomas" are important new findings that are ultimately lifesaving. Most often, however, the findings are benign entities which sometimes nonetheless require additional follow-up and added expense.

Vernooij, et al performed MRI of the brain on 2000 persons who are participating in the population-based Rotterdam Study. This study group is comprised of persons age 45 or greater (mean age = 63 years.). All MRIs were read by one of two reviewers, neither of whom had clinical information about the subjects.

The most common incidental finding was asymptomatic ischemic CVA (7.2%). Aneurysms were the next most frequent (1.8%), most of which were <7 mm in size. Benign brain tumors were almost as common as aneurysms (1.6%), most of which were meningiomas.

It is generally recommended that asymptomatic meningiomas be followed for growth, even though most will not require any intervention. Aneurysms of the size discovered in this trial also generally do not merit intervention. Secondary stroke prevention strategies (eg, ASA, clopidogrel) are predicated upon a pre-existing symptomatic stroke or TIA; little guidance is available as to the propriety of secondary stroke prevention driven by incidentally identified CVA. Outcomes follow-up of incidentalomas will help guide future management strategies. ■

Vernooij MW, et al. *N Engl J Med*. 2007;357:1821-1828.

Skin Cancer Screening: Our Patients Want It!

THE STATISTICS OF SKIN CANCER (Sk-Ca) are stark: not only does Sk-Ca overall outnumber all other cancers combined in the US, melanoma diagnosis is anticipated in up to 60,000 individuals in the US in 2007. Since only modest progress in survival for melanoma sufferers has been made, we must rely upon early diagnosis to make an impact.

In 2006, the National Center for Health Statistics reported that for adults over age 18, only 14.5% reported ever undergoing screening for skin cancer; only 8% said they had had a "recent" skin cancer screen. Further insights come from this study performed at University of Miami in 2006. Questionnaires given to patients seeing primary care and dermatology health professionals included whether patients received Full Body Skin Examination, if they would be embarrassed to receive such an examination, if their PCP should perform FBSE regularly, and if it was done, had the clinician performed it with thoroughness.

Only 20% of PCP patients reported regular FBSE, with slightly fewer women than men. More women reported feeling embarrassed by FBSE, but still the majority did not report embarrassment.

Sk-Ca screening is different than almost all other cancer screenings, hence, patient perception of the frequency of screening may be a marked underestimate. In any case, it is clear that patients endorse Sk-Ca screening, and that it may be necessary to either increase our frequency of FBSE, or make our involvement in the process more evident to our patients. ■

Rodriguez GL, et al. *J Am Acad Dermatol*. 2007;57:775-781.

Bell's Palsy: Steroids, Acyclovir, Both, or Neither?

OF THE THOUSANDS OF PERSONS afflicted each year with Bell's Palsy, the majority will recover without sequelae. As many as 30%, however, are left with some degree of facial paresis, pain, or both. Best evidence supports an etiologic role for herpes virus infection, although vascular and inflammatory disorders have also been implicated. Based upon the putative herpes virus etiology, coupled with the belief that perineural swelling contributes to nerve palsy, it has been commonplace to treat with steroids, antivirals, or both. The evidence supporting such practice is not robust. Indeed, a Cochrane review found insufficient evidence to endorse the use of either intervention. Sullivan, et al now publish the results of a Department of Health (England)-commissioned study to ascertain the effects of prednisolone (PRED), acyclovir (ACYC), or both in Bell's palsy (BELL).

Scottish patients (n=551) with BELL of duration <72 hours were randomized to PRED, ACYC, both, or placebo. The proportion of patients who recovered full facial function was evaluated at 3 and 9 months after intervention.

At 3 months, there was a significant difference in full recovery for patients who received PRED compared to those who did not (83% vs 63.6%) which persisted at 9 months (94.4% vs 81.6%). No evidence of benefit was seen in those receiving ACYC, whether in comparison to placebo, or when added to PRED. This is the largest study on treatment of Bell's palsy, and supports only the utilization of PRED. ■

Sullivan FM, et al. *N Engl J Med*. 2007;357:1598-1607.

In Future Issues:

A Simple Screen for Cancer?

INTERNAL MEDICINE ALERT[®]

A twice-monthly update of developments in internal and family medicine

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