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INSIDE

Financial Disclosure: *Internal Medicine Alert's* editor, Stephen Brunton, MD, serves on the advisory board for Lilly, Boehringer Ingelheim, Novo Nordisk, Sunovion, and Teva; he serves on the speakers bureau of Boehringer Ingelheim, Lilly, Kowa, Novo Nordisk, and Teva. Peer reviewer Gerald Roberts, MD; executive editor Leslie Coplin; and managing editor Neill Kimball report no financial relationships relevant to this field of study.

Antipsychotics and the Risk of Myocardial Infarction in Elderly with Dementia

ABSTRACT & COMMENTARY

By Rahul Gupta, MD, MPH, FACP

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Dr. Gupta reports no financial relationships relevant to this field of study.

Synopsis: *Antipsychotic drug use may increase the risk of myocardial infarction in elderly patients with dementia.*

Source: Pariente A, et al. Antipsychotic use and myocardial infarction in older patients with treated dementia. *Arch Intern Med* 2012;172:648-653.

In patients 65 years of age and older, most dementias are attributable to Alzheimer's disease. Currently, 5.4 million Americans are living with Alzheimer's disease. However, this population is expected to nearly triple over the next 40 years, reaching approximately 14.5 million. Alzheimer's disease is the sixth leading cause of death in the United States and the fifth leading cause of death in Americans aged 65 years and older. Since it is the only cause of death among the top 10 in the United States that cannot be prevented, cured, or even slowed, deaths attributable to Alzheimer's dementia have been rising dramatically, while other major causes of death have been on the decline.[1]

Advancing dementia is often accompanied by agitation, delusions, and hallucinations. Antipsychotic agents are often prescribed to control these symptoms. Research demonstrates that nearly one-third of elderly nursing home residents with dementia receive antipsychotic medications and more than one in five elderly nursing home residents with dementia use medications with marked anticholinergic side effects. Evidence also suggests that elderly patients with dementia may be more susceptible to developing antipsychotic medication-related adverse effects. Studies have shown that the use of both conventional and atypical antipsychotics is linked with increased risk of stroke.[2] Fur-

ther research has also demonstrated that antipsychotic use is associated with an increased risk for death compared with nonuse among older adults with dementia.[3] The risk for death may be greater with conventional antipsychotics than with atypical antipsychotics. However, the FDA's black box advisory has been associated with decreases in the use of such antipsychotics, especially among elderly patients with dementia. Since major cardiovascular events were one of the primary causes of increased deaths, it is important to examine the relationship of antipsychotic use and myocardial infarction in this population.

In their study, Pariente et al conducted a retrospective cohort study of community-dwelling older patients (≥ 66 years) in Quebec who had initiated cholinesterase inhibitor treatment between January 1, 2000, and December 31, 2009. Using statistical analysis, users and nonusers of the antipsychotics were matched and risk for acute myocardial infarction was evaluated. The researchers found that approximately 29.5% of dementia patients were started on antipsychotic medications. Atypical antipsychotics accounted for 97.8% of the medications (risperidone, quetiapine fumarate, and olanzapine). Within 1 year of being on the antipsychotic medications, 1.3% of patients suffered a myocardial infarction. The risk was highest within the first 30 days of initiation. In the retrospective cohort study, the hazard ratios for myocardial infarction among antipsychotic users relative to nonusers were 2.19 for the first 30 days, 1.62 for the first 60 days, 1.36 for the first 90 days, and 1.15 for the first 365 days.

■ COMMENTARY

The findings by Pariente et al demonstrate that the use of antipsychotic medication in the elderly population with dementia is associated with a modest increase in the risk of myocardial infarction. Since this study was limited to community-dwelling seniors, no data are available for long-term care individuals, although it is difficult to imagine that the results would differ significantly. While the authors were unable to differentiate the effects of atypical and conventional antipsychotics, it is also fair to assume that there may not be much difference based on the known effects of these drugs on stroke and overall mortality.

While the use of antipsychotic medications in the elderly population — and especially in those with dementia — remains of significant concern and has been the subject of a cautionary tale for prescribers, it is somewhat disappointing to observe that almost a third of dementia patients (29.5%) were still being prescribed antipsychotics in the study population. Sufficient published data on the effect of antipsychotics in elderly patients with dementia provide little support for their use in routine practice. In fact, studies have consistently demonstrated that antipsychotic use by elderly individuals with dementia is associated with increased risk of death by approximately 30%, regardless of the use of conventional or atypical types of medication.[4] It is important to note in this study that rather than progressively incremental, the risk of myocardial infarction was found to be the highest within the first 30 days of initiating such a treatment. Therefore, it may be noteworthy that when antipsychotic therapy cannot be avoided, it is imperative to conduct a comprehensive cardiac risk assessment, discuss such risks with the patient and caregivers, and closely monitor the patient for several weeks upon initiation of the treatment. ■

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Coronary Artery Calcium and Cardiovascular Risk in Diabetic/Hypertensive Patients

ABSTRACT & COMMENTARY

Internal Medicine Alert, ISSN 0195-315X, is published monthly by AHC Media, a division of Thompson Media Group LLC, 3525 Piedmont Rd., NE, Bldg. 6, Suite 400, Atlanta, GA 30305.

EXECUTIVE EDITOR: Leslie Coplin.
MANAGING EDITOR: Neill L. Kimball.
SENIOR VICE PRESIDENT/GROUP PUBLISHER: Donald R. Johnston.

GST Registration Number: R128870672.

Periodicals Postage Paid at Atlanta, GA 30304 and at additional mailing offices.

POSTMASTER: Send address changes to ***Internal Medicine Alert,*** P.O. Box 105109, Atlanta, GA 30348.

Back Issues: $21. Missing issues will be fulfilled by customer service free of charge when contacted within one month of the missing issue's date.

This is an educational publication designed to present scientific information and opinion to health professionals, to stimulate thought, and further investigation. It does not provide advice regarding medical diagnosis or treatment for any individual case. It is not intended for use by the layman.

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Questions & Comments
Please call **Neill Kimball**, Managing Editor, at (404) 262-5404.

By Harold L. Karpman, MD, FACC, FACP

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Dr. Karpman reports no financial relationships relevant to this field of study.

Synopsis: *Patients with hypertension and diabetes mellitus can be stratified into a lower cardiovascular risk group in the absence of coronary artery calcium.*

Source: Shemesh J, et al. Relation of coronary artery calcium to cardiovascular risk in patients with combined diabetes mellitus and systemic hypertension. *Am J Cardiol* 2012;109:844-850.

Coronary artery calcium (CAC) as measured using computed tomography (CT) has become well accepted as a reliable marker of the total burden of coronary atherosclerosis.[1,2] The presence of CAC in an asymptomatic population has been demonstrated to indicate the presence of subclinical coronary heart disease (CHD) usually associated with an increased cardiovascular risk.[3-5] Certain disease states — such as hypertension,[6] chronic renal failure,[7] diabetes mellitus (DM),[8,9] and cigarette smoking[10] — have been demonstrated to significantly increase the risk of cardiovascular (CV) disease. The concept that type 2 DM is a CHD equivalent has been challenged by several investigators;[11,12] therefore, Shemesh and his colleagues[13] designed a study to evaluate whether the CAC score can help to identify patients with hypertension and DM who might be at low or moderate rather than high CV risk.

Baseline CAC measurements were obtained in 423 patients who were free of CV disease and were followed for a total of 3 years. Of this group, 268 patients were included in a 15-year, long-term follow-up. The rate of CV events was greater in patients with DM with CAC than in those without (15% vs 7% after 3 years and 52% vs 32% after 15 years). Subjects with DM and without CAC had a significantly better outcome than those with DM and CAC. The authors concluded that CAC measurements for the diagnosis of subclinical coronary atherosclerosis can be used to reclassify the CV risk of patients with hypertension and DM and might contribute to future strategies for preventive treatment.

■ COMMENTARY

Shemesh et al were able to stratify hypertensive diabetic patients into high- and low-risk CV groups after both short- and long-term follow-up periods based on the presence or absence of CAC. The absence of CAC indicated a more favorable prognosis. In fact, the investigators for the Society of Heart Prevention and Education (SHAPE) have recommended that diabetic patients without CAC be considered to have a moderate rather than a high CHD risk and should therefore receive less-intensive lipid-lowering therapy than currently recommended. The Shemesh study supports such an approach; however, the question of whether asymptomatic diabetic patients should have their treatment intensity diminished solely because of the presence or absence of subclinical atherosclerosis as measured only by the CAC score has yet to be determined. It must be carefully recognized that soft tissue, noncalcified coronary arterial plaque rather than CAC may end up being the earliest marker of subclinical atherosclerosis. This marker was not measured in the Shemesh study because the CAC scores were generated using dual-detector spiral CT, which measures CAC scores and is not capable of accurately evaluating the presence or the character of plaque in the coronary arteries. The occurrence of noncalcified coronary artery plaque in a diabetic patient, even in the absence of an elevated CAC score, may require a recommendation of intensive lipid-lowering therapy and, therefore, the risk category of such a patient should not be reduced to the moderate risk category until adequate clinical trials relating noncalcified plaque to CAC scores and clinical outcomes have been performed.

For the time being, I would recommend that CAC scores be obtained in diabetic patients but would not recommend that the risk category depend on those scores only. Studies of noncalcified soft tissue plaquing as measured by 64-slice CT, which are now in progress, will aid in stratifying cardiovascular risk in these patients. Therefore, all diabetic patients should be considered at high risk for developing CAD whether they have an elevated CAC score or not. ■

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Estrogen and Breast Cancer

ABSTRACT & COMMENTARY

By Jeffrey T. Jensen, MD, MPH

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This article originally appeared in the May issue of OB/GYN Clinical Alert. *At that time it was peer reviewed by Catherine Leclair, MD, Associate Professor, Department of OB/GYN, Oregon Health & Science University, Portland, OR. Dr. Leclair reports no financial relationships relevant to this field of study. Dr. Jensen receives research support from, is a consultant to, and serves on the speakers bureau of Bayer Healthcare and Merck; he also receives research support from Abbott Pharmaceuticals and Medicines360.*

Synopsis: *New data from the Women's Health Initiative Study estrogen-only arm demonstrates that estrogen treatment not only was associated with a lower incidence of breast cancer diagnosis, but also fewer breast cancer deaths.*

Source: Anderson GL, et al. Conjugated equine oestrogen and breast cancer incidence and mortality in postmenopausal women with hysterectomy: Extended follow-up of the Women's Health Initiative randomised placebo-controlled trial. *Lancet Oncol* 2012;13:476-486.

Subjects in the Women's Health Initiative (WHI) trial estrogen-only study randomized to receive conjugated estrogens had a lower incidence of invasive breast cancer than did those who received placebo. The aim of the present study was to assess the influence of estrogen use on longer-term breast cancer incidence and mortality by evaluating extended follow-up of this cohort. Between 1993 and 1998, 10,739 postmenopausal women aged 50–79 years who had undergone hysterectomy and had normal breast health screening with clinical exam and mammography from 40 U.S. clinical centers were randomly allocated to receive either oral conjugated equine estrogen (0.625 mg/day; n = 5310) or matched placebo (n = 5429). The study drug was terminated early in February 2004, because of an adverse effect of treatment on stroke, but follow-up continued until the planned termination of March 2005 with original results reported from these data. After this, consent was sought for extended surveillance from 9786 living participants in active follow-up, and 7645 (78%) agreed. Data from this extended follow-up cohort available through August 14, 2009, was evaluated to assess the long-term effects of estrogen use on invasive breast cancer incidence, tumor characteristics, and mortality. The authors used Cox regression models to estimate hazard ratios (HR) in the intention-to-treat population.

They found that after a median follow-up of 11.8 years, the use of estrogen for a median of 5.9 years was associated with a significantly lower incidence of invasive breast cancer (151 cases, 0.27% per year) compared with placebo (199 cases, 0.35% per year; HR 0.77, 95% confidence interval [CI] 0.62 to 0.95; $P = 0.02$) with no significant difference in risk reduction in those women diagnosed during the intervention phase (21% decrease) and post-intervention (25% decrease). In subgroup analyses, they noted that the breast cancer risk reduction with estrogen use was limited to women without a personal history of benign breast disease ($P = 0.01$) or a family history of breast cancer ($P = 0.02$). Significantly, in the estrogen group, fewer women died from breast cancer (six deaths, 0.009% per year, compared with controls 16 deaths, 0.024% per year; HR 0.37, 95% CI 0.13 to 0.91; $P = 0.03$) or from any cause after a breast cancer diagnosis (30 deaths, 0.046% per year, compared with 50 deaths, 0.076% per year; HR 0.62, 95% CI 0.39 to 0.97; $P = 0.04$).

The authors concluded that these results provide reassurance that breast cancer diagnosis and mortality are not increased for women with hysterectomy who use estrogen-only menopausal therapy, but were cautious to note that these data do not support use of estrogen for breast cancer risk reduction.

■ COMMENTARY

The great thing about the weather in Oregon in the spring is change. If you don't like it now, just wait 20 minutes and the rain, snow, and hail will change to brilliant sunshine and balmy temperatures. Although it often switches back, the days become progressively longer, brighter, and warmer. So goes the Women's Health

Initiative Study, the large NICHD-funded evaluation of hormonal therapy in postmenopausal women. The initial news from the combined Prempro® arm was devastating, and the shock affected the confidence of clinicians and women such that use of postmenopausal HRT declined precipitously and many symptomatic women found it difficult to obtain treatment. The combined treatment with conjugated estrogen and medroxyprogesterone acetate (MPA) increased the risk of breast cancer, and increased the risk of cardiovascular complications like coronary heart disease, venous thrombosis, and stroke.[1] Over the years, much more has been learned. First, the results of the estrogen-only WHI studies differed from the combined therapy arm with respect to several clinically important outcomes; there was no overall impact on coronary heart disease with estrogen-only treatment and there was the trend toward a reduction in risk of invasive breast cancer in the estrogen-only arm.[2] The decreased risk of invasive breast cancer persisted in a 2011 analysis of results from this study,[3] and the present publication now provides more evidence showing that breast cancer mortality is also reduced. Taken together with similar favorable results evaluating cardiovascular effects with estrogen-only therapy, and in younger users of combined HRT, it seems that spring may be returning to hormonal therapy.

Given the fact that a steady diet of negative reporting has led many women and clinicians to view estrogen as a cancer-causing poison, the Anderson report is bound to cause confusion or, worse yet, to be ignored entirely. However, there is substantial basic research that suggests the true role of estrogen is a trophic hormone that positively affects growth of many tissues, including some cancers. More like a fertilizer than a toxin. You put fertilizer in the garden to support the growth of vegetables, accepting that it will improve the growth of weeds too. Natural estradiol should be viewed as a healthy organic fertilizer that helps the brain, bones, and many other tissues. While the data do not support that estrogens cause cancer, they will support the growth of these unwanted cells too; routine mammography is the way to identify these "weeds." The use of a progestogen complicates the picture in the breast. Using core needle biopsies, Murkes and colleagues found greater breast cell proliferation in postmenopausal women using oral conjugated estrogens and MPA than in those treated with transdermal estradiol and oral micronized progesterone.[4] Since increasing numbers of women are reaching menopause with an intact uterus, we need to re-energize research to develop and market local progestogen delivery systems (like the LNG IUS) for postmenopausal use. Until then, off-label use of the LNG IUS should be considered. ■

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Pharmacology Update

Azelastine HCl and Fluticasone Propionate Nasal Spray (Dymista™)

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

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

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

A COMBINATION HISTAMINE-1 RECEPTOR ANTAGONIST AND A corticosteroid nasal spray has been approved by the FDA for the treatment of seasonal allergic rhinitis. The product contains azelastine (AZE) and fluticasone propionate (FP). It is manufactured by Cipla in India and will be distributed by Meda Pharmaceuticals as Dymista.

Indications

Azelastine and fluticasone (AZE/FP) is indicated for the relief of symptoms of seasonal allergic rhinitis in adolescent and adult patients (≥ 12 years of age) who require the use of both agents.[1]

Dosage

The recommended dose is 1 spray per nostril twice daily.[1] Each spray contains 137 mcg of AZE HCl and 50 mcg of FP.

Potential Advantages

AZE/FP provides agents with different mechanisms of action and measurable improved effectiveness compared to either agent used alone.[1,2]

Potential Disadvantages

There is potential for additive adverse events with both agents. There may be a 50% increase in the systemic bioavailability of fluticasone with AZE/FP compared to FP alone, which is generally less than 2%.[1]

Comments

Safety and efficacy of AZE/FP were evaluated in three randomized, multicenter, double-blind, placebo-controlled 2-week clinical trials. Subjects (≥ 12 years; n = 3398) with moderate-to-severe allergic rhinitis were randomized to AZE/FP, AZE, FP, or vehicle placebo.[1,2] The dose was one spray in each nostril twice daily (every 12 hours) for 14 days. Efficacy was based on the reflective total nasal symptom score (rTNSS) and instantaneous total nasal symptoms (iTNSS). rTNSS is the sum of the patient's assessment of four nasal symptoms — rhinorrhea, nasal congestion, sneezing, and nasal itching — on a 4-point categorical severity scale (0-3) ranging from absent to mild-to-moderate to severe. Primary efficacy was the sum of morning and evening change from baseline in rTNSS over 2 weeks. The iTNSS was based on scores recorded immediately prior to the next dose. Secondary efficacy endpoints were changes in total reflective ocular symptom score (rTOSS) and change from baseline assessed by the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ). This health-related quality-of-life questionnaire includes activities, sleep, non-nose/eye symptoms, practical problems, nasal symptoms, eye symptoms, and emotion assessed on day 14. A meta-analysis of the three studies showed a reduced mean rTNSS of -5.7 (SD, 5.3) for AZE/FP, -5.1 (SD, 4.9) for FP, -4.4 (SD, 4.8) for AZE, and -3.0 (SD, 4.2) for placebo.[2] The effect of AZE/FP was statistically different from monotherapy with either agent and placebo. These represent a relative reduction of about 30%, 27%, 23%, and 16%, respectively.[2] Onset of action was observed at 30 minutes after the initial dose of AZE/FP. Time to 50% improvement was faster for AZE/FP over AZE but not FP. Similar results were observed for iTNSS. AZE/FP showed a clinically meaningful decrease in overall RQLQ compared to placebo but not over the active monotherapy arms.[1] Ocular symptoms based on rTOSS were improved with all active treatments compared to placebo. AZE/FP was not statistically different from AZE monotherpy. AZE/FP is well tolerated. The incidence of common adverse events (dysgeusia, headache, epistaxis) was less than 5%.[1]

Clinical Implications

AZE/FP is first intranasal combination of a corticosteroid (fluticasone) and H-1 receptor antagonist (azelastine). It appears to provide a modest increase in effectiveness over monotherapy with fluticasone or azelastine in patients with moderate-to-severe allergic rihinitis. A small percentage of patients showed complete or near-complete symptom relief, 12.4%, 9.3%, and 7.1%, for AZE/FP, FP, and AZE, respectively. The number needed to treat to gain an additional patient with complete symptom relief over FP is 32 and 19 over AZE. ■

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CME Objectives

Upon completion of this educational activity, participants should be able to:

- describe new findings in the differential diagnosis and treatment of various diseases;
- describe the advantages, disadvantages and controversies surrounding the latest advances in the diagnosis and treatment of disease;
- identify cost-effective treatment regimens;
- explain the advantages and disadvantages of new disease screening procedures.

CME Questions

1. **In the study by Pariente et al, the relationship between antipsychotics and risk of myocardial infarction in elderly dementia patients can be characterized as:**
   a. risk of myocardial infarction is highest within first 30 days of initiating antipsychotics.
   b. risk of myocardial infarction increases with the duration of antipsychotic treatment.
   c. risk of myocardial infarction does not change with the duration of antipsychotic treatment.
   d. risk of myocardial infarction is highest within 30 days of discontinuing antipsychotics.

2. **Coronary artery calcium:**
   a. in an asymptomatic population has been demonstrated to indicate the presence of subclinical coronary heart disease usually associated with increased cardiovascular risk.
   b. is of little value in determining increased cardiovascular risk.
   c. should never be measured in asymptomatic patients.
   d. should always be measured in patients who have suffered a myocardial infarction.

3. **Use of conjugated equine estrogens alone for more than 5 years in the WHI study was associated with:**
   a. an increased risk of breast cancer diagnosis and lower breast cancer mortality.
   b. an increased risk of breast cancer diagnosis and increased breast cancer mortality.
   c. a decreased risk of breast cancer diagnosis and increased breast cancer mortality.
   d. a decreased risk of breast cancer diagnosis and decreased breast cancer mortality.

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

Dr. Kuritzky is an advisor for Endo, Kowa, Pricara, and Takeda.

Lose-Dose Abdominal CT for Appendicitis

Source: Kim K, et al. Low-dose abdominal CT for evaluating suspected appendicitis. *N Engl J Med* 2012;366:1596-1605.

Radiation exposure from CT is quite substantial. A "typical" abdominal CT (AB-CT) examination exposes a patient to X-radiation equivalent to more than 500 chest X-rays. The dose-response relationship between diagnostic/therapeutic radiation and untoward consequences is uncertain; nonetheless, the magnitude of radiation from imaging — combined with the ever-increasing frequency with which high-dose diagnostic imaging is used — prompts concern. Perspicacity for wise use of radiation is imperative, especially in younger persons, in whom the lag time for adverse impact of radiation is most pertinent and in whom the likelihood of additional radiation exposure is increased.

When appendicitis is suspected, AB-CT has become the diagnostic imaging of choice. Standard-dose AB-CT exposes the patient to approximately 500 mGy/cm of radiation. Low-dose AB-CT exposes the patient to approximately 100 mGy/cm, but it is not widely used because of uncertainty about its accuracy (compared to standard AB-CT).

Kim et al randomized young adult patients with suspected appendicitis (n = 891) to low-dose or standard-dose AB-CT. The primary outcome of the study was the number of appendectomies performed that did *not* demonstrate appendicitis.

The negative appendectomy rate did not differ significantly between the two groups (3.2% vs 3.5%). Statistical criteria were satisfied that low-dose AB-CT is noninferior to standard dose AB-CT. Clinicians may wish to ascertain the radiation dose used in AB-CT for appendicitis at their institutions. ■

Degludec, a New Ultra-long-acting Basal Insulin for Diabetes

Source: Garber AJ, et al. Insulin degludec, an ultra-longacting basal insulin, versus insulin glargine in basal-bolus treatment with mealtime insulin aspart in type 2 diabetes (BEGIN Basal-Bolus Type 2): A phase 3, randomised, open-label, treat-to-target non-inferiority trial. *Lancet* 2012;379:1498-1507.

The advent of basal insulins that do not have a prominent peak plasma level — so-called "flat" pharmacodynamic activity — was a welcome addition to diabetes management, since their predecessor, NPH, was often limited by problematic hypoglycemia. Utilization of glargine and detemir insulins, the two basal insulin analogs most recently available in the United States, has mushroomed in response to their superior tolerability compared to NPH insulin: a reduction of about 20% in hypoglycemic episodes and less weight gain. Degludec has recently been submitted to the FDA for approval. It is considered an ultra-long-acting basal insulin.

Garber et al performed a controlled trial in type 2 diabetic patients (n = 972) to compare degludec with glargine as part of a basal-bolus regimen. The primary endpoint of the trial was achieved A1c, but rates of hypoglycemia were also compared.

Both insulins achieved similar A1c improvement, and the overall rate of hypoglycemia was low in both groups. However, the degludec patients experienced almost 20% fewer hypoglycemic episodes (defined as glucose < 56 mg/dL) than the glargine group.

Degludec insulin, if FDA approved, may provide a superior hypoglycemia risk profile than insulin glargine while achieving a similar level of A1c reduction. ■

Prevention Benefits of Aspirin: Cancer, Vascular, or Both?

Source: Rothwell PM, et al. Short-term effects of daily aspirin on cancer incidence, mortality, and non-vascular death: Analysis of the time course of risks and benefits in 51 randomised controlled trials. *Lancet* 2012;379:1602-1612.

American clinicians have typically thought of aspirin as a preventive (primary and secondary prevention) for cardiovascular (CV) events. Recently, the role of aspirin for primary prevention of CV events has been embattled because although clinical trial data indicate reduction in CV events, total mortality has not been convincingly favorably impacted.

Aspirin appears to have at least two favorable effects upon cancer. It appears to decrease the incidence of colon cancer, and — as a consequence of what otherwise might appear to be an adverse effect — enhances detection rates of existing colon cancers by increasing their proclivity to bleed.

Rothwell et al performed an analysis of trial data from 51 randomized, controlled aspirin prevention trials. Among almost 70,000 participants, risk of cancer death was reduced by approximately 15%, and incidence of cancer was reduced by about one-fourth. Although there is a reduction in vascular events with the use of aspirin, bleeding events induced by aspirin tend to balance this out in the earliest years of aspirin use.

Since cancer is well-entrenched as the No. 2 cause of death in America (and is inching into the No. 1 slot), when we think of the preventive benefits of aspirin, it is time to reframe our thinking into appreciation of the combined benefits of cancer mortality reduction in addition to CV event reduction. ■

Adenosine for a Wide Tachycardia?

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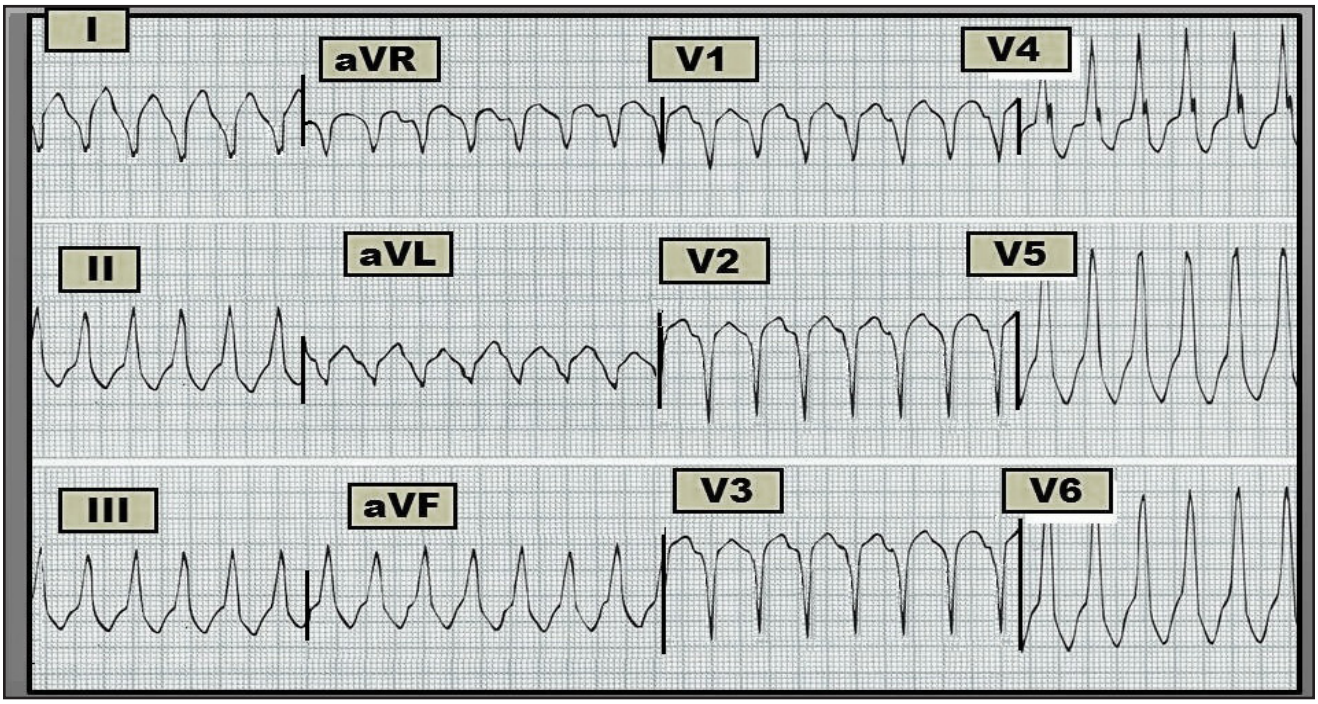

Figure — 12-lead ECG obtained from a 30-year-old man with palpitations.

Scenario: The 12-lead ECG shown above was obtained from a previously healthy 30-year-old man who presented to the emergency department with new-onset palpitations. No prior ECG was available for comparison. The patient was alert and hemodynamically stable at the time this tracing was recorded. What is the rhythm? Is this rhythm likely to respond to adenosine?

Interpretation: The rhythm is rapid and regular at a rate of ~180/minute. The QRS complex is obviously wide. No P waves are seen. Thus, the rhythm is a *regular* wide-complex tachycardia (WCT) without clear sign of atrial activity. Ventricular tachycardia (VT) must be assumed until proven otherwise!

Clinical management of sustained VT depends on the clinical setting in which it occurs. If no pulse is present, the rhythm is treated the same as for ventricular fibrillation — with immediate unsynchronized countershock. If a pulse is present but the patient is unstable (i.e., hypotensive, short of breath, having chest pain), then immediate synchronized cardioversion is in order. On the other hand, if the patient is hemodynamically stable and tolerating the rhythm (as in this case), there is at least a moment of time to contemplate management. A trial of antiarrhythmic therapy (with amiodarone, procainamide, or other antiarrhythmic agent) is in order — keeping in mind that the patient should be cardioverted if decompensation occurs at any time during the process.

Much has been written about the role of adenosine in the management of a stable patient with either VT or a regular WCT of uncertain etiology. If (as may occur on occasion) the WCT is supraventricular with preexisting bundle branch block or aberrant conduction, adenosine may convert the rhythm. Because of the ultra-short half-life of this drug (less than 10 seconds!), any adverse effects that may result from adenosine are usually short-lived. The important clinical point to appreciate is that a small but significant percentage of VT rhythms are adenosine-responsive! The reason for this is uncertain, but thought to relate to adenosine receptor inhibition of adenylate cyclase, as well as modulation in autonomic tone. The most common adenosine-responsive form of VT originates from the right ventricular outflow track (RVOT). Clinically, this most often occurs in otherwise healthy young adults without structural heart disease. Episodes of VT are often related to catecholamine release, and therefore commonly occur with exercise or stress. The ECG picture of RVOT VT is distinctive: The QRS is wide with a left bundle branch block pattern in the precordial leads and a superior axis in the limb leads (as in the Figure). Other forms of adenosine-responsive VT may not be distinguishable from non-responsive forms. The patient with RVOT VT should be referred for electrophysiologic study following conversion of the acute rhythm disturbance. By way of perspective, it is important to emphasize that most VT will not be adenosine-responsive. Nevertheless, it is well to be aware that some VT will respond to this drug, which provides an additional rationale for considering a trial of adenosine when confronted with a stable patient who presents in either VT or a WCT of uncertain etiology. ■