Abstracts of Articles Authored or Coauthored by Permanente Physicians

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From Georgia

The relationship of cardiovascular risk factors to microalbuminuria in older adults with or without diabetes mellitus or hypertension: the cardiovascular health study.

Barzilay JI, Peterson D, Cushman M, et al. Am J Kidney Dis 2004 Jul;44(1):25-34.

BACKGROUND: Microalbuminuria is a risk factor for coronary heart disease (CHD). It occurs most commonly in the settings of diabetes and hypertension. The mechanisms by which it increases CHD risk are uncertain.

METHODS: We examined the cross-sectional association of microalbuminuria with a broad range of CHD risk factors in three groups of adults aged 65 years or older with and without microalbuminuria: those with 1) no diabetes or hypertension (n = 1098), 2) hypertension only (n = 1450), and 3) diabetes with or without hypertension (n = 465).

RESULTS: Three factors were related to microalbuminuria in all three groups: age, elevated systolic blood pressure, and markers of systemic inflammation. In patients with neither diabetes nor hypertension, increasing C-reactive protein levels were associated with microalbuminuria (odds ratio per 1-mg/L increase, 1.46; 95% confidence interval [CI], 1.15 to 1.84). Among those with diabetes, an increase in white blood cell (WBC) count was associated with microalbuminuria (odds ratio per 1000-cell/mL increase, 2.57; 95% CI, 1.12 to 5.89). Among those with hypertension, an increase in WBC count (odds ratio per 1000-cell/mL increase, 1.83; 95% CI, 1.04 to 3.23) and fibrinogen level (odds ratio per 10-mg/dL increase, 1.02; 95% CI, 1.00 to 1.05) were significantly associated with microalbuminuria. In all three groups, prevalent CHD was related to an elevated WBC count. In none of the three groups was brachial artery reactivity to ischemia, an in vivo marker of endothelial function, related to microalbuminuria.

CONCLUSION: Microalbuminuria is associated with age, systolic blood pressure, and markers of inflammation. These associations reflect potential mechanisms by which microalbuminuria is related to CHD risk.

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CLINICAL IMPLICATION: In this study, we show that coronary heart disease (CHD) and microalbuminuria share three common factors—elevated systolic blood pressure, advanced age, and the presence of increased levels of inflammatory markers. These associations—whether in the presence or absence of diabetes or hypertension—provide a mechanism to explain why the exudation of a small amount of protein in the urine is associated with an increased risk of CHD. –JB

From Southern California

The relationship of asthma medication use to perinatal outcomes.

Schatz M, Dombrowski MP, Wise R, et al. J Allergy Clin Immunol 2004 Jun;113(6):1040-5.

BACKGROUND: Maternal asthma has been reported to increase the risk of preeclampsia, preterm deliveries, and lower-birth-weight infants, but the mechanisms of this effect are not defined.

OBJECTIVE: We sought to evaluate the relationship between the use of contemporary asthma medications and adverse perinatal outcomes.

METHODS: Asthmatic patients were recruited from the 16 centers of the National Institute of Child Health and Human Development Maternal Fetal Medicine Units Network from December 1994 through February 2000. Gestational medication use was determined on the basis of patient history at enrollment and at monthly visits during pregnancy. Perinatal data were obtained at postpartum chart reviews. Perinatal outcome variables included gestational hypertension, preterm births, low-birth-weight infants, small-for-gestational-age infants, and major malformations.

RESULTS: The final cohort included 2123 asthmatic participants. No significant relationships were found between the use of inhaled beta-agonists (n = 1828), inhaled corticosteroids (n = 722), or theophylline (n = 273) and adverse perinatal outcomes. After adjusting for demographic and asthma severity covariates, oral corticosteroid use was significantly associated with both preterm birth at less than 37 weeks' gestation (odds ratio, 1.54; 95% CI, 1.02-2.33) and low birth weight of less than 2500 g (odds ratio, 1.80; 95% CI, 1.13-2.88).

CONCLUSIONS: Use of inhaled beta-agonists, inhaled steroids, and theophylline do not appear to increase perinatal risks in pregnant asthmatic women. The mechanism of the association between maternal oral corticosteroid use and prematurity remains to be determined.

Reprinted from the Journal of Allergy and Clinical Immunology, 113(6), Schatz M, Dombrowski MP, Wise R, Momirova V, Landon M, Mabie W, Newman RB, Hauth JC, Lindheimer M, Caritis SN, Leveno KJ, Meis P, Miodovnik M, Wapner RJ, Paul RH, Varner MW, O'Sullivan MJ, Thurnau GR, Conway DL; Maternal-Fetal Medicine Units Network, The National Institute of Child Health and Development; The National Heart, Lung and Blood Institute, 1040-5, Copyright 2004, with permission from the American Academy of Allergy, Asthma and Immunology.

From Georgia

The association of fasting glucose levels with congestive heart failure in diabetic adults > or =65 years: the Cardiovascular Health Study.

Barzilay JI, Kronmal RA, Gottdiener JS, et al. J Am Coll Cardiol 2004 Jun 16;43(12):2236-41.

OBJECTIVES: The purpose of this study was to determine if fasting glucose levels are an independent risk factor for congestive heart failure (CHF) in elderly individuals with diabetes mellitus (DM) with or without coronary heart disease (CHD).

BACKGROUND: Diabetes mellitus and CHF frequently coexist in the elderly. It is not clear whether fasting glucose levels in the setting of DM are a risk factor for incident CHF in the elderly.

METHODS: A cohort of 829 diabetic participants, age > or = 65 years, without prevalent CHF, was followed for five to eight years. The Cox proportional hazards modeling was used to determine the risk of CHF by fasting glucose levels. The cohort was categorized by the presence or absence of prevalent CHD.

RESULTS: For a one standard deviation (60.6 mg/dl) increase in fasting glucose, the adjusted hazard ratios for incident CHF among participants without CHD at baseline, with or without an incident myocardial infarction (MI) or CHD event on follow-up, was 1.41 (95% confidence interval 1.24 to 1.61; $p < 0.0001$). Among those with prevalent CHD at baseline, with or without another incident MI or CHD event on follow-up, the corresponding adjusted hazard ratio was 1.27 (95% confidence interval 1.02 to 1.58; $p < 0.05$).

CONCLUSIONS: Among older adults with DM, elevated fasting glucose levels are a risk factor for incident CHF. The relationship of fasting glucose to CHF differs somewhat by the presence or absence of prevalent CHD.

Reprinted from the Journal of the American College of Cardiology, 43, Barzilay JI, Kronmal RA, Gottdiener JS, Smith NL, Burke GL, Tracy R, Savage PJ, Carlson M, The association of fasting glucose levels with congestive heart failure in diabetic adults > or =65 years: the Cardiovascular Health Study: 2236-41: Copyright 2004, with permission from the American College of Cardiology Foundation.

CLINICAL IMPLICATION: Diabetic patients have more than twice the burden of heart failure (HF) as compared to nondiabetic individuals. In this article we demonstrate that CHF risk in people with diabetes has a strong association with glucose control. This is especially so in the absence of coronary heart disease (ie, "diabetic cardiomyopathy"). These findings offer one more reason that the clinician should attempt tight glucose control in diabetic patients. –JB

From Southern California

Irritable bowel syndrome and surgery: a multivariable analysis.

Longstreth GF, Yao JF. Gastroenterology 2004 Jun;126(7):1665-73.

BACKGROUND AND AIMS: Patients with irritable bowel syndrome (IBS) have high surgical rates. We investigated the demographic and medical factors independently associated with surgical histories of health examinees.

METHODS: We applied multiple stepwise logistic regression analysis to self-completed questionnaire data from 89,008 examinees, assessing six surgeries as outcomes. We assessed questionnaire/physician record agreement of physician-diagnosed IBS and surgical history on 201 randomly selected examinees with ≥ 3 years of records.

RESULTS: Questionnaire/record agreement for IBS and surgery was 83.6% (kappa = 0.68) and 95.5%-100.0% (kappa = 0.82-1), respectively. IBS was reported by 4587 examinees (5.2%) (1382 men [3.0%] and 3205 women [7.5%]). Subjects with and without IBS, respectively, reported the following surgical procedures: cholecystectomy, 569 (12.4%) versus 3428 (4.1%), $p < 0.0001$; appendectomy, 967 (21.1%) versus 9906 (11.7%), $p < 0.0001$; hysterectomy, 1063 (33.2%) versus 6751 (17.0%), $p < 0.0001$; back surgery, 201 (4.4%) versus 2436 (2.9%), $p < 0.0001$; coronary artery surgery, 127 (2.8%) versus 2033 (2.4%), $p > 0.05$; peptic ulcer surgery, 22 (0.5%) versus 277 (0.3%), $p > 0.05$. Among independent surgery associations, IBS was associated with cholecystectomy (adjusted odds ratio [OR], 2.09; 95% confidence interval [CI], 1.89-2.31; $p < 0.0001$), appendectomy (OR, 1.45; 95% CI, 1.33-1.56; $p < 0.0001$), hysterectomy (OR, 1.70; 95% CI, 1.55-1.87; $p < 0.0001$), and back surgery (OR, 1.22; 95% CI, 1.05-1.43; $p = 0.0084$).

CONCLUSIONS: Health examinees with physician-diagnosed IBS report rates of cholecystectomy three-fold higher, appendectomy and hysterectomy two-fold higher, and back surgery 50% higher than examinees without IBS; IBS is independently associated with these surgical procedures.

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CLINICAL IMPLICATION: To minimize unnecessary abdominal surgery in IBS patients, physicians should diagnose IBS unequivocally, explain to patients that it can cause severe pain, and avoid unnecessary tests. For example, gallstones are common (especially in women), but biliary pain can usually be distinguished from bloating, fatty food intolerance and other types of dyspepsia that are common in IBS patients but not of biliary origin. By limiting gallbladder sonography to patients with biliary-type pain, asymptomatic gallstones will remain undiscovered and untreated by mistaken surgery. "Chronic pelvic pain" is often due to IBS, whether or not gynecological pathology is present, and collaboration of gynecologists with other physicians can reduce unnecessary hysterectomy. – GL

From The Northwest

An evaluation of one-on-one advanced proficiency training in clinicians' use of computer information systems.

Kirshner M, Salomon H, Chin H. Int J Med Inform 2004 May;73(4):341-8.

OBJECTIVE: We examined the effectiveness of a one-on-one training strategy for advanced proficiency in computer information systems (CIS) by clinicians in a large health maintenance organization (HMO). Specifically, this

study assessed the level of self-reported improvement in CIS efficiency following one-on-one training, and assessed the perceived value of one-on-one training compared to other teaching methods.

DESIGN: We performed a cross-sectional study using a paper-based survey of 129 clinicians practicing in the HMO.

MEASUREMENTS: We used a multi-item satisfaction index to measure clinician satisfaction with the one-on-one training. We measured whether clinicians thought they were more efficient using the system after training.

RESULTS: The one-on-one method was significantly preferred over other teaching methods. Compared to other CIS components, use of the electronic medical record (EMR) improved most following one-on-one training. Sixty-one percent of the clinicians reported major improvements (ie, >3 on a 5-point Likert scale; 5 being the highest score) in using the EMR.

CONCLUSION: Perceived effectiveness of one-on-one training and overall satisfaction were ranked high by clinicians. The findings support the assumption that clinicians value one-on-one training and value this training method above other methods.

Reprinted from International Journal of Medical Informatics, 73(4), Kirshner M, Salomon H, Chin H, An evaluation of one-on-one advanced proficiency training in clinicians' use of computer information systems, 341-38, Copyright 2004, with permission from Elsevier.

CLINICAL IMPLICATION: Becoming proficient in use of clinical information systems (CIS), such as Hyperspace, requires training and practice. When compared to small groups, classrooms, and e-learning, one-on-one personalized training is favored by most primary care providers studied. Clinicians reported improved satisfaction, effectiveness, and efficiency with CIS following one-on-one training. Offering multiple venues, however, may be necessary to provide appropriate opportunities for individual learning styles and the apparent benefits must be weighed against associated time and financial costs. Despite these limitations, one-on-one CIS training is viewed as providing high value to Permanente clinicians. –MK

From Northern California

Smoking, coffee, and pancreatitis.

Morton C, Klatsky AL, Udaltsova N. Am J Gastroenterol 2004 Apr;99(4):731-8.

OBJECTIVES: We studied relationships of cigarette smoking and coffee drinking to risk of pancreatitis.

METHODS: This was a cohort study among 129,000 prepaid health plan members who supplied data about demographics and habits in 1978-85. Among 439 persons subsequently hospitalized for pancreatitis, probable etiologic associations were cholelithiasis (168/439 = 38%), alcohol (125/439 = 29%), idiopathic (110/430 = 25%), and miscellaneous (36/439 = 8%). Cox proportional hazards models with seven covariates (including alcohol intake) yielded relative risk estimates for smoking and coffee use.

RESULTS: Increasing smoking was strongly related to increased risk of alcohol-associated pancreatitis, less related to idiopathic pancreatitis, and unrelated to gallstone-associated pancreatitis. Relative risks (95% confidence intervals, CI) of one pack per day (vs never) smokers for pancreatitis groups were: alcohol = 4.9 (2.2-11.2, $p < 0.001$), idiopathic = 3.1 (1.4-7.2, $p < 0.01$), and gallstone = 1.3 (0.6-3.1). The relationship of smoking to alcohol-associated pancreatitis was consistent in sex and race subsets. Drinking coffee, but not tea, was weakly inversely related to risk only of alcohol-associated pancreatitis, with relative risk (95% CI) per cup per day = 0.85 (0.77-0.95; $p = 0.003$). Male sex, black ethnicity, and lower-educational attainment were other predictors of alcohol-associated pancreatitis.

CONCLUSIONS: Cigarette smoking is an independent risk factor for alcohol-associated and idiopathic pancreatitis. Coffee drinking is associated with reduced risk of alcohol-associated pancreatitis. The data are compatible with the hypotheses that smoking may be toxic to the pancreas or may potentiate other pancreatic toxins while some ingredient in coffee may have a modulating effect.

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CLINICAL IMPLICATION: Since these data strongly suggest that cigarette smoking promotes or causes pancreatitis, they mandate that especially strong advice to stop smoking be given to persons at risk of pancreatitis or recurrence of the condition. On the other hand, there is no reason to prohibit or discourage coffee drinking among such persons, in view of the apparent protective role of coffee drinking. —CM ❖

The Possibility

To become aware of the possibility of
the search is to be onto something.

— Walker Percy, 1916-1990, American author