

### The Risk of Serious Hypersensitivity Reactions Among Patients With Food Allergies

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**Background/Aims:** Using Kaiser Permanente Northwest's electronic medical record and linked databases, we sought to estimate the incidence of serious hypersensitivity reactions among a community-based cohort of patients with clinically confirmed food allergies. **Methods:** We conducted a retrospective, dynamic cohort study, which enrolled patients as early as January 2000 and as late as December 2004. We followed patients 6 to 75 years old until they experienced their first serious hypersensitivity reaction requiring medical assistance: urgent care visit, emergency department visit, or hospitalization. Patients' food allergies-peanut, tree nut, fish, shellfish, egg, and milk-were confirmed through radioallergen sorbent test (RAST) food panel findings or skin prick test findings and an allergy diagnosis documented in the notes of their electronic medical record. **Results:** We identified 97 patients with a clinically confirmed food allergy who experienced 5 hypersensitivity reactions. The 1-year cumulative incidence was 4.3% (95% CI, 1.6% to 11.0%). All the reactions were emergency department visits. **Conclusions:** The electronic medical record can be used to identify efficiently those patients with clinically confirmed food allergies. Our incidence estimate is imprecise, in part, because so few patients had undergone recent RAST or skin prick testing and very few of them met allergists' strict criteria for a clinically confirmed allergy.

### Reasons for Diabetes Clinical Inertia in Primary Care Practice

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**Background:** Previous studies suggest clinical inertia, defined as lack of treatment intensification in a patient not at goal, is largely responsible for the slow improvement seen in population measures of diabetes care. It is controversial how much of the inertia problem is attributable to providers, care systems, or patient preference. **Methods:** An electronic visit-based decision support tool called Diabetes Wizard was successfully implemented in 6 HealthPartners Clinics from 10/06 through 5/07 as part of the NIDDK funded study entitled 'Reducing Clinical Inertia in Diabetes Care' (DK068314). The Wizard gave relevant clinical information and specific recommendations for treatment intensification for glycemia, blood pressure, and lipids. In addition, 19 consented physicians in the clinics agreed to complete an electronic visit action resolution (VAR) form at each encounter if the patient was not at goal for glycemia, blood pressure, or lipids and treatment was not intensified. The VAR was completed by checking from a list of possible reasons or through free text. **Results:** Out of 1639 encounters with patients not achieving A1C <7%, the WIZARD was used and VAR completed 831 times (51%). Inertia occurred in 258 (43%) of the VAR completed visits. Reasons that were specified by physicians for glycemia inertia were: (1) choice of patient not to increase or add medications, 70 (19.6%), (2) need for an updated A1c, 62 (17.3%), (3) followed by endocrinology or diabetes nurse, 53 (14.8%), (4) addressed dietary/lifestyle changes instead, 45 (12.6%), (5) other problem/acute illness addressed, 17 (4.7%), (6) not my patient, 13 (3.6%), (7) addressed adherence problem, 13 (3.6%). Other reasons that were cited less frequently (<2.5%) were medication regimen already too complex, hypoglycemia concerns, drug intolerance, cost concerns, advanced age or severe comorbidities, referred to endocrinology or diabetes educator, close to goal, and other miscellaneous reasons. **Conclusions:** Only a relatively small amount, <20%, of total glycemia inertia at diabetes patient encounters is attributable to patient refusal or preference. The remaining reasons could potentially be addressed through care system changes, including point of care testing to assure up-to-date A1C test results are available at visits, provider training, and better coordination of care with the extended care team and primary provider colleagues.

### The Effect of Simvastatin on Surrogate Markers of Vascular Health in Youth

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**Background:** Failure to diagnose preclinical cardiovascular disease in youth misses a major opportunity to prevent the long-term consequences of this disease. We have conducted a pilot study to evaluate surrogate vascular markers (SVMs) that are associated with early arterial injury including flow-mediated vasodilatation, carotid intima media thickness (IMT), arterial stiffness, and biomarkers including cell adhesion molecules (ICAM-1, VCAM-1), methylarginines (asymmetric dimethylarginine [ADMA], symmetric dimethylarginine [SDMA]), and C-reactive protein (C-RP). We hypothesized that one or more of these SVMs which are linked to early pathological vascular changes will identify high-risk youth with early vascular injury compared to a healthy group and that these markers will tend to normalize with risk factor reduction. We further hypothesized that one or more of the markers will correlate with the Pathological Determinants of Atherosclerosis in Youth (PDAY) risk score. **Methods:** Ten subjects without any known risk factors and 22 hypercholesterolemic (HC) youth, aged 10-20 years were recruited from the pediatric clinic. The majority of the HC group was also obese. The HC group was randomized to diet + 20 mg of simvastatin vs. placebo for 24 weeks followed by a forced titration to 40 mg vs. placebo for 24 weeks ending with a final evaluation after a 12 week washout period of diet alone. **Results:** The markers that best distinguished the HC from the control subjects were C-RP ( $P=0.03$ ), VCAM-1 ( $P=0.05$ ) and SDMA ( $P=0.04$ ). With the exception of ICAM-1 and C-RP, the marker values improved in the treatment group more than the placebo group and the relative changes were the largest for the methylarginines, a marker closely tied to insulin resistance. The markers that demonstrated the highest correlation with the number of risk factors were VCAM-1 ( $r=0.45$ ,  $P=0.055$ ) and SDMA ( $r=0.48$ ,  $P=0.04$ ). PDAY risk scores were calculated for each subject and SDMA ( $r=0.50$ ,  $P=0.03$ ) and Arg/SDMA ( $r=-0.50$ ,  $P=0.04$ ) again emerged as the most highly correlated SVMs. Consistent with the relatively low PDAY risk scores and a minimally thickened IMT, the data suggest that the majority of subjects do not have advanced atherosclerotic changes. We conclude that SVMs are a useful index of vascular injury in high-risk youth.

### The Effectiveness of a Screening Program for the Identification of Asymptomatic Women at Risk for Cardiovascular Disease

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**Background:** Women with peripheral vascular disease (PVD) remain under-diagnosed and under-treated due to lack of screening coupled with a lack of disease awareness. As the presence of PVD may be indicative of asymptomatic or subclinical cardiovascular (CV) disease, it is important to possess knowledge of risk factors and symptoms that may be associated with PVD so that appropriate medical care for systemic atherosclerosis is instituted. We screened ambulatory women for PVD and measured their knowledge and awareness of PVD and associated risk factors. **Methods:** In a cross-sectional study, we screened 162 ambulatory women (40-85 years) for the prevalence of PVD and associated atherosclerotic risk factors, and administered a survey to assess the participants' knowledge and awareness of PVD, its consequences, and their personally perceived risk of developing PVD. The electronic medical record was reviewed for documented evidence of CV risk factors, comorbidities, and corresponding treatment. Of the total cohort, 108 (66.7%) were categorized as having an increased risk of CV disease based on a modification of the Framingham CV risk score taking into account the presence of carotid intimal medial thickness (cIMT) >1.0 mm or ankle-brachial index (ABI) = 0.9 as surrogate markers for CV disease. **Results:** In the subgroup of 108 at-risk women, the number of risk factors present ranged from 2 to 7. Approximately 26% had 2 documented CV risk factors (classified moderate-risk), and 74% had >2 documented CV risk

factors (classified high-risk). Knowledge and awareness scores (% correct) for PVD were low regardless of CV risk factor group (<50%). To assess perceived risk, when asked whether they thought they had risk factors for PVD, 53.6% of moderate-risk women and 58.8% of high-risk women responded either 'no' or 'not sure'. **Discussion:** These data demonstrate that women are at an increased risk for both cardiac and non-cardiac vascular diseases, but lack knowledge and awareness of their risk and its implications for both heart and PVDs. We advocate screening programs to detect subclinical vascular and CV disease through the use of surrogate markers such as ABI and cIMT in asymptomatic women, as well as aggressive risk factor management to decrease future adverse event rates. Future longitudinal studies to evaluate the effectiveness of screening tools in the lowering of risk scores are underway.

Abstract PS2-03

#### **Health Communication and Health Literacy for Persons at Risk for CVD – Experiences Using Two Health Care Organizations**

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**Background/Aims:** Technological advances in health communications can potentially help or create barriers for individuals to manage chronic disease care. However, we know little about preferences for receiving cardiovascular disease (CVD) prevention information among individuals with multiple risk factors for CVD and varying health literacy levels. The overall design of the study is a mixed-methods design assessing health literacy levels and preferences for receiving CVD prevention information using surveys and in-depth interviews with patients who have two or more risk factors for CVD. However, this presentation will focus on the recruitment process for the study. **Methods:** Participants were recruited from two health care organizations (an HMO organization and a community health clinic) in Denver, CO in order to obtain a more diverse study sample as well as capture a wider range of health literacy levels and experiences with receiving health information. Using two health care systems required receiving human subjects' approval from two institutional review boards (IRB). The original recruitment methods, which consisted of identifying potentially eligible individuals through each organization's electronic medical records system, sending out an introductory recruitment letter with an opt-out postcard followed up with a recruitment call, were approved by one IRB and not the other. **Results:** After reassessing the allowable recruitment methods from the community health clinic's IRB, it was decided that the overall recruitment methods for the project would be selected to suit each organization's patient populations. In the HMO setting, the originally proposed methods were used. In the community health care setting, two different methods were used. First, 5 physicians identified patients that were potentially eligible for the study and an 'opt-in' introductory letter was mailed out from each of the physicians. Second, in-clinic recruitment was conducted to reach the final recruitment goal. Experiences with using two different recruitment methods for participants and outcomes associated with using these methods will be reported. **Conclusions:** The results of these recruitment efforts are important for researchers in that one must consider and plan for potential changes required from IRBs and the implications of such changes on projects when partnering and conducting research with multiple institutions.

Abstract PS2-04

#### **The Potential Impact of Heart Disease Prevention and Treatment Interventions**

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**Background:** Rational policy making could benefit from an estimate of the deaths that might be prevented or postponed (DPP) by developing more effective behavior change programs and fully implementing technologies that are currently available to prevent and treat heart disease. **Methods:** To estimate the impact of developing more effective behavior change programs and fully implementing currently available technologies to prevent and treat heart disease, we created a hypothetical population ages 30-85 years resembling that of the United States. We divided the population into three prevalence pools (no apparent heart disease, known heart disease without left ventricular systolic dysfunction [LVSD] and known heart disease with

LVSD). We divided clinical events into one of three types: out-of-hospital cardiac arrest, acute or emergent heart disease events, and non-emergent heart disease events. We defined the difference in total DPP between current implementation levels and full implementation levels as the outcome of interest. **Results:** In this hypothetical population, 87,500 would have no apparent heart disease; 9900 would have heart disease without LVSD; and, 2600 would have heart disease with LVSD. Expected death rates for the three subpopulations would be 0.007, 0.035, and 0.067, respectively. During 1 year without treatment 1133 individuals would be expected to die: 613 without apparent heart disease, 346 with heart disease but no LVSD, and 174 individuals with heart disease and LVSD. The DPP that would result from implementing lifestyle changes and prescribing medications in the prevalence pools would be 648 and the DPP from implantable defibrillators might be another 60. The DPP from fully implementing treatments during the three types of acute cardiac events would be 70. **Conclusions:** If effective behavior change programs were developed and currently available heart disease prevention and treatment technologies were fully implemented, approximately 62% of all deaths among adults in the United States might be prevented or postponed. Fully implementing currently available interventions during acute cardiac events would prevent or postpone about 7% of all deaths.

Abstract PS2-05

#### **Anemia in Heart Failure: Patterns & Relationships With Health Outcomes**

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**Background/Aims:** The prevalence of anemia in chronic heart failure (HF) is at least one in five patients. Several studies suggest that anemia is independently associated with mortality and hospitalization among patients with HF. Existing studies are often limited by several factors (e.g., inadequate clinical data, non-standardized definitions of anemia), but the most important limitation has been the use of only one laboratory measurement to identify anemia. These studies are thus unable to characterize patterns of anemia over time and their relationship with health outcomes. Within Kaiser Permanente Colorado (KPCO), we identified a 6-year cohort of HF patients. Our aims included 1) describing the incidence and prevalence of anemia, 2) characterizing trajectories of anemia over time, and 3) assessing patterns of anemia over time relative to outcomes of hospitalization and mortality. **Methods:** To be included in the study cohort, a patient had to be older than 18 years of age with a primary hospital discharge diagnosis of HF (defined as the index event), a KPCO member for at least 6 months prior to the hospitalization, and have at least one hemoglobin (HGB) value during the index event. Patients were classified as anemic at time of index event and at time points during their follow-up period (minimum of 6 months; maximum of 6 years) based on HGB values. Cox proportional hazards analysis was used to assess the independent association between the pattern of anemia and subsequent hospitalization or death. Covariates included baseline HGB value, time dependent comorbidities, serum sodium concentrations, creatinine clearance values, age, and sex. **Results:** During the 6 year study period, 2478 patients met cohort inclusion criteria. All patients had a baseline HGB value and 90% had at least one follow-up HGB value. Forty-five percent of patients were determined to be anemic at the index event. Final results will be completed in early January 2008. **Conclusions:** Preliminary analysis shows that patients with anemia with HF may have poorer outcomes than HF patients who are not anemic. The treatment of HF patients with anemia will be discussed.