PS3-19:

Association of Racial Discrimination and Overweight Status Among Adolescents

Dayna Johnson¹; Christine Joseph¹; Andrea Cassidy-Bushrow¹

¹Henry Ford Health System / Health Alliance Plan

Background/Aims: The percent of overweight adolescents has tripled in the last 30 years, with increasing the risk for obesity and chronic diseases. Evidence suggests racial discrimination has implications for academic performance and health; however, research examining its contribution to obesity among adolescents is limited. We examined the association between discrimination and overweight status in a racially-diverse sample of healthy adolescents. **Methods:** Adolescents age 14-17 years completed a single research visit between November 2009 and June 2011. Height and weight were measured by trained staff. Discrimination was measured using 8 items from the school discrimination scale (SDS) which assesses the frequency with which adolescents perceive personal racial discrimination at school by their teachers and peers. Overweight was defined as a body mass index ≥ 85 th percentile for sex and age. Logistic regression was used to estimate the association of discrimination with overweight status. **Results:** The sample consisted of 333 adolescents (mean age 16.4 ± 1.0 years; 152 (44.6%) male; 174 (55.2%) African-American (AA); 127 (38.1%) overweight). Males had higher scores on the peer and teacher SDS than females, 1.26 ± 0.47 , 1.27 ± 0.59 vs. 1.14 ± 0.33 , 1.18 ± 0.48 , $P < .01$ and $P = 0.01$ respectively. In crude analyses, adolescents with higher peer and teacher SDS scores were more likely to be overweight, OR = 1.3 $P = 0.09$ and OR = 1.3 $P = 0.02$, respectively. In race- and gender-specific models, white males with a higher teacher SDS score had a 5.1 higher odds of being overweight, $P = .04$. The association persisted with adjusting for age. There was no association among white females, AA males or AA females for teacher SDS score and overweight status, $P = 0.68$, $P = 0.27$, and $P = 0.58$ respectively. Additionally, we found no association by race or gender for peer SDS and overweight status. **Conclusions:** Our results suggest that adolescents, particularly males that report being discriminated against by their teachers, are more likely to be overweight. We likely did not observe an association between peer SDS and overweight status, because our population was recruited from a highly segregated area, where students attend schools with peers of the same race. Given adolescent health is predictive of adult health, additional research examining the role of discrimination in producing poor health outcomes among adolescents is warranted.

Keywords: Overweight; Discrimination; Racial Discrimination

doi:10.3121/cmr.2013.1176.ps3-19

PS3-20:

Prevalence of Obesity and Extreme Obesity in Children Aged Three to Five Years

Joan Lo¹; Benjamin Maring¹; Malini Chandra¹; Stephen Daniels²; Alan Sinaiko³; Matthew Daley⁴; Nancy Sherwood⁵; Elyse Kharbanda⁵; Emily Parker⁵; Kenneth Adams⁵; Ronald Prineas⁶

¹Kaiser Permanente Northern California; ²Children's Hospital Colorado;

³University of Minnesota Medical School; ⁴Kaiser Permanente Colorado;

⁵HealthPartners; ⁶Wake Forest University School of Medicine

Background/Aims: Early childhood adiposity may have significant later health effects, highlighting the importance of early recognition in young children. This study examines the prevalence and recognition of obesity and severe obesity in preschool-aged children. **Methods:** The electronic medical record was used to examine body mass index (BMI), height, sex, and race/ethnicity in 42,559 children aged 3-5 years 2007-2010 within Kaiser Permanente Northern California. Normal BMI (BMI < 85 th percentile); overweight (BMI 85th-94th percentile); obesity (BMI ≥ 95 th percentile); and extreme obesity (BMI ≥ 99 th percentile or BMI $\geq 1.2 \times 95$ th BMI percentile) were classified using the 2000 Center for Disease Control and Prevention growth charts. Provider recognition of elevated BMI was examined for obese children aged 5 years. **Results:** Among 42,559 children, 12.4% (2,698 of 21,720) of boys and 10.0% (2,077 of 20,839) of girls had BMI ≥ 95 th percentile. The prevalence was highest among Hispanics (18.2%, 982 of 5,397 boys and 15.2%, 760 of 4,988 girls), followed by blacks (12.4%, 161

of 1,138 boys and 12.7%, 154 of 1,216 girls). A positive trend existed between BMI category and median height percentile, with obesity rates highest in the highest height quintile. The proportion with BMI ≥ 99 th percentile was 3.9% (1,670 of 42,559), nearly two-fold higher for boys (66.8%, 1,116 of 1,670) versus girls (33.2%, 554 of 1,670), and identified a larger proportion of children compared to BMI $\geq 1.2 \times 95$ th BMI percentile (1.6%, $P < 0.001$). Among those aged 5 years, 77.9% of obese children (1082 of 1389) had provider diagnosis of obesity or elevated BMI, increasing to 84.5% (424 of 502) among the subset with severe obesity. **Conclusions:** Obesity and severe obesity are evident as early as age 3-5 years, with race/ethnic trends similar to older children. This study underscores the need for continued recognition and contextualization of early childhood obesity in order to develop effective strategies for early weight management.

Keywords: Obesity; Pediatrics; Body Mass Index

doi:10.3121/cmr.2013.1176.ps3-20

PS3-29:

Impact of BMI and Change in BMI on Progression from Normotension to Prehypertension or Hypertension in Patients Ages 3-17

Emily Parker¹; Patrick O'Connor¹; Elyse Kharbanda¹; Kenneth Adams¹; Alan Sinaiko²; Karen Margolis¹; Louise Greenspan³; David Magid⁴; Matthew Daley⁴; Nancy Sherwood¹

¹HealthPartners; ²University of Minnesota Medical School; ³Kaiser Permanente San Francisco; ⁴Kaiser Permanente Colorado

Background/Aims: Overweight and obesity among US children and adolescents is an important public health problem. Conditions associated with obesity, such as type 2 diabetes, hypertension, and hypercholesterolemia, are becoming more common in children. This study examined the relationship between changes in BMI percentile and incident prehypertension and hypertension in a cohort of children and adolescents. **Methods:** Study subjects were 23,578 patients, ages 3-17, with three or more outpatient primary care visits between 2007 and 2010 at HealthPartners Medical Group, Kaiser Permanente Colorado, or Kaiser Permanente Northern California. Data were extracted from electronic health records (EHR). Change in BMI was defined as: increase, decrease, stayed obese, stayed overweight, and stayed healthy weight using established BMI percentile cut-points. Incident prehypertension and hypertension were defined using blood pressures and diagnosis codes from the EHR. We used time-dependent Cox proportional hazards models to estimate the hazard of change in BMI percentile with incident prehypertension and hypertension. **Results:** Over a median 2.6 years follow-up, there were 7,232 cases of incident prehypertension, 148 diagnoses of incident hypertension, and 107 additional cases of incident hypertension based on blood pressure data from the EHR. Seventy-one prehypertensives went on to develop hypertension. Those who stayed obese, stayed overweight, and increased BMI had increased hazard of incident prehypertension (1.96, 1.39, and 1.49, respectively) and increased hazard of incident hypertension (3.61, 1.21, and 1.83, respectively) compared with those who stayed healthy weight. **Conclusions:** Persistently high BMI or increasing BMI over time was associated with pronounced increase in risk of both incident prehypertension and hypertension. Future research should examine factors associated with the development and recognition of hypertension.

Keywords: Obesity; Hypertension; Pediatrics

doi:10.3121/cmr.2013.1176.ps3-29

PS3-30:

Recidivism to Uncontrolled BP Levels in Previously Controlled Hypertension Patients

Patrick O'Connor¹; Steven Asche¹; David Magid²; JoAnn Sperl-Hillen¹; David Price²; Heidi Ekstrom¹; Karen Margolis¹

¹HealthPartners; ²Kaiser Permanente Colorado

Background/Aims: We posit that as rates of hypertension (HT) control improve nationally, recidivism from controlled to uncontrolled HT will emerge as a major obstacle to ongoing improvement in overall population rates of HT control. To probe this hypothesis, we examined rates and predictors of HT recidivism in adults with baseline adequate HT control who are receiving care at medical groups that have overall high rates of HT

control. **Methods:** Study subjects were adults with controlled hypertension at baseline based on two consecutive visits with normal BP readings (<140/90 mmHg or <130/80 mmHg for those with diabetes) at Medical Group A (MG-A; N = 12,766) and Medical Group B (MG-B; N = 9,768). We classified HT recidivism after follow-up for 4-16 months after the initial BP measures using the mean of the last two BP readings for each patient. **Results:** At baseline, the proportion of adults with HT who were at BP goals was 55% at MG-A, and 66% at MG-B. HT recidivism occurred in 19% of subjects with baseline controlled HT (based on two consecutive baseline visits) at MG-A and 13% of subjects at MG-B. At MG-A, men ($P = .008$) and those with higher BMI ($P < .001$) were more likely to have HT recidivism. At MG-B, those who were younger ($P < .001$) and with higher BMI ($P < .001$) were more likely to have BP recidivism. At both MGs, DBP was more likely to rise to uncontrolled levels in those age 50 or under compared to older age groups, while SBP was more likely to rise to uncontrolled levels in those age 65 or older compared to younger age groups. **Conclusions:** HT recidivism occurred in 13% to 19% of patients with previously controlled HT over a mean of 14 months of follow-up time. In medical groups with relatively high levels of baseline HT control, HT recidivism represents a brake on efforts to improve overall BP control. Effective strategies to minimize HT recidivism have great potential to improve overall levels of HT control on a population basis, and could improve HT-related quality measures at the medical group and individual provider level.

Keywords: Hypertension; Blood Pressure; Recidivism
doi:10.3121/cmr.2013.1176.ps3-30

PS3-31:

Patients with Hyperuricemia and the Effect of Urate-Lowering Therapies on Renal Function in a Managed Care Organization

Nazia Rashid¹; T. Craig Cheetham¹; Fang Niu¹; Gerald Levy¹

¹Kaiser Permanente Southern California

Background/Aims: Preliminary data suggests that elevated serum uric acid levels (sUA) play a significant role in the development of renal disease. Few studies have evaluated urate-lowering therapies (ULT) in a population with hyperuracemia and the impact on development of renal disease. Our aim was to investigate whether initiation and maintenance of ULT, in patients with sUA ≥ 7.0 mg/dL, has a beneficial impact on renal function as measured by glomerular filter rate (GFR) reductions and adverse renal outcomes. **Methods:** Patients 18 years and older, with sUA ≥ 7 mg/dL and kidney disease stage 1, 2 or 3 from 01/01/2002 to 12/31/2010 were identified within Kaiser Permanente Southern California. Serum UA levels and GFR were collected at baseline and throughout follow-up for all patients. Patients on ULT were categorized into no-treatment, $\leq 70\%$ time on treatment, and $>70\%$ time on treatment during follow-up. Patients were followed until they had one of the following primary outcomes: new onset dialysis, a 30% reduction in their GFR level from baseline, receipt of a kidney transplant, or a GFR level <15 mL/min/1.72m². Baseline characteristics between the treatment groups were compared using descriptive statistics. A Cox proportional hazards model was used to estimate the hazard ratio (HR) and 95% confidence intervals (95% CI) associated with ULT treatment controlling for patient characteristics. **Results:** A total of 33,745 patients were identified (n = 21,481 no-treatment, n = 9,136 $\leq 70\%$ time on treatment, n = 3,128 $>70\%$ time on treatment). Overall, 3,592 patients reached a study endpoint; 2,114 patients in the no-treatment, 1,109 in the $\leq 70\%$ treatment and 369 in the $>70\%$ treatment group. Controlling for demographics and co-morbid conditions, treatment for $>70\%$ of the time was associated with a 20% reduction in events (HR = 0.8; 95% CI 0.71–0.90). Factors associated with high risk of events included age, female gender, renal disease, congestive heart failure, and diabetes. **Conclusions:** Our findings suggest that ULT may preserve renal function, and prevent or delay renal outcomes such as reductions in GFR and time to dialysis.

Keywords: Urate Lowering Therapy; Renal Outcomes
doi:10.3121/cmr.2013.1176.ps3-31

PS3-32:

Patients with Co-Occurring Hypertension, Obesity, and Depression: Diagnosis vs. Treatment, and Is Treatment of One Condition Associated with Changes in Other Conditions?

Ming Tai-Seale¹; Caroline Wilson¹; Jun Ma¹; Harold Luft¹

¹Palo Alto Medical Foundation for Healthcare, Research and Education

Background/Aims: Hypertension (HTN), overweight and/or obesity (OVRWT), and depression (DEP) frequently co-occur. Research on co-occurring chronic conditions often relies on Medicare claims data, and is subject to biases from age limits and reliance on claims-based diagnoses. We use electronic health record (EHR) data from a multispecialty practice to study the occurrence of these conditions among all adults. We assess the probability that previously untreated patients with high blood pressure (BP) receive a diagnosis and subsequently are treated with drugs, and the impact of such treatment on both the BP and body mass index (BMI) of people who also have OVRWT and/or DEP. **Methods:** EHR data for 2002-2010 were used to examine BP and BMI trajectories among adults with HTN, OVRWT, or DEP and to examine the impact of prescriptions for HTN and DEP on trends in BP and BMI, controlling for patient characteristics. We used propensity score stratification to address treatment selection bias. **Results:** Most (71%; 23,806/33,326) people with any of these 3 conditions were aged <65 . About 32% (21,166/66,552) of those with high BP were neither diagnosed nor treated for HTN. Only 53% (14,254/27,016) of obese patients had a weight-related diagnosis. Recorded depression was associated with increases over time in BP (coeff = .09, $P < .01$) and BMI (coeff = .06, $P < .01$), but hypertension was associated with slower increases in BMI (coeff = -.08, $P < .01$). With propensity score stratification, growth curve modeling revealed antihypertensive treatment to be associated with declines in both BP and BMI. Depression medications were not significantly associated with BP or BMI changes. **Conclusions:** Less than two-thirds of the patients with elevated BPs were diagnosed as having HTN. The favorable impact of HTN treatment on BMI, as well as on BP, suggests addressing missed opportunities for treatment can potentially lead to better outcomes for patients with both problems.

Keywords: Multiple Chronic Conditions; Hypertension; Obesity
doi:10.3121/cmr.2013.1176.ps3-32

PS3-34:

Does Reporting of Estimated Glomerular Filtration Rates Affect Clinician Behavior?

Micah Thorp¹; David Smith¹; Eric Johnson¹; Nancy Perrin¹; Jessica Weiss²; Suma Vupputuri³; Amanda Petrik¹; Xiuhai Yang¹

¹Kaiser Permanente Northwest; ²Oregon Health and Sciences University; ³Kaiser Permanente Colorado

Background/Aims: The National Kidney Disease Education Project and other groups have recommended automated calculation and reporting of estimated glomerular filtration (eGFR) rates among all patients who have a serum creatinine measured. Few studies have assessed whether clinical practice patterns have changed in response to this new initiative. We conducted a time series analysis assessing the rate of nephrology referrals, visits and follow up laboratory testing before and after automated reporting was implemented. **Methods:** We conducted a retrospective cohort study of patients who had incident eGFR levels <60 measured before and after implementation of eGFR reporting at Kaiser Permanente Northwest (KPNW). We compared rates of subsequent evidence of clinical recognition including nephrology referral, repeat serum creatinine and proteinuria testing before and after implementation of eGFR reporting. Logistic models were used to compare change in clinical recognition rates controlling for baseline trends, and determine if the change in rates is related to clinician characteristics. **Results:** We found 21,612 patients who had an eGFR <60 , had been members for 2 years, were 18 years or older, and did not have a diagnosis of CKD. The number of referrals increased after the eGFR by 1.3 referrals per month ($P = .05$). However, the trend in monthly referral slowed after eGFR by .59 per month in comparison to the baseline trend ($P = .02$). Differences in the change in likelihood of referral after eGFR were found for age ($P = .01$), amount of FTE ($P = .04$), and type of practice ($P = .01$). Slope changes