OBJECTIVES: Limited evidence exists on the risk of falls/fractures with use of anticholinergic medications in the elderly. This study examined the risk of falls/fractures associated with anticholinergic medication use. METHODS: A nested case-control design was conducted using regional Medicare Advantage Plan database. The base population included individuals aged >65 years, who survived during the entire study period (2009-2010). At least one institutional and one outpatient claim in the first 6 months (January-June 2009) and no event of falls/fractures during the first 6 months (Base Period). Cases were identified as patients who experienced incident diagnoses of falls/fractures in the elderly. For each case, 4 age- and sex-matched controls were selected using incidence density sampling (incidence density 1:4). The primary outcome was an event of incident falls/hip fracture, between July 1, 2009 and December 31, 2010. The primary exposure was prescription of any anticholinergic medication 30 days preceding the event date. Anticholinergic exposure was defined based on the Anticholinergic Drug Scale (ADS). Conditional logistic regression model stratified on matched case-control sets was used, with exposure to anticholinergic medications as the independent variable, falls/fractures as the outcome variable and other covariates associated with the outcome. RESULTS: The study sample consisted of 449 cases diagnosed with falls/fractures and 1,796 controls. After adjusting for other covariates, anticholinergic use was not associated with increased risk of falls/fractures (Relative Risk, RR 1.03; 95% CI, 0.82-1.31) compared to no use. The study findings remained consistent when high-level anticholinergic drugs (level 2/3) were considered (RR 1.19; 0.85-1.65). CONCLUSIONS: Use of anticholinergic medications was not associated with increased risk of falls/fractures compared to no use, among patients with no history of falls/fractures. Future studies are needed to address the role of dose and concomitant use of anticholinergics to evaluate risk in the elderly.

PIH5

USE OF ANTICHOLINERGIC MEDICATIONS AND RISK OF ALL-CAUSE HOSPITALIZATION IN ELDERLY

Chatterjee S1, Carnahan R.M.

PIH6

VITAMIN B12 STATUS IN FRAIL OLDER ADULTS ADMITTED IN A GERIATRIC ASCEND UNIT: CAN THE USE OF CERTAIN DRUGS BE DETERMINANT? Presses N1, Kerjoit MP2, Perreault S3

BACKGROUND: Use of proton pump inhibitors (PPIs) and metformin have emerged as potential risk factors of vitamin B12 (Vitamin B12) deficiency. Conversely, calcium supplements were shown to counteract the detrimental effect of metformin on absorption. These drugs are commonly prescribed to frail older adults in whom, Vitamin B12 deficiency is prevalent and has serious consequences. OBJECTIVES: To examine proportions of PPI, metformin, and calcium supplement users according to vitamin B12 absorption. METHODS: This is a retrospective study of 262 frail older adults admitted in the elderly care unit (ASCEND) at McGill University Health Center (MCMU). METHODS: This cross-sectional study was based on 172 medical chart reviews of patients discharged from the GAU between 2008 and 2012. VB12 status at admission was categorized as follows: ongoing treatment for VB12 deficiency, low (<30 pg/mL) and normal VB12 levels. RESULTS: VB12 status at admission revealed that 49.5% of patients had low B12 status, 33.1% had normal B12 status and 17.4% were taking vitamin B12 supplements. Use of PPIs, metformin and calcium supplements was determined from the pharmacist report. Proportions of PPI, metformin, and calcium supplement users were compared between VB12 status categories. CONCLUSIONS: Use of PPI and metformin was associated with lower proportions of normal VB12 status whereas calcium supplements seem to counteract the detrimental effect of PPI and metformin use. Further studies are needed to evaluate the role of these medications in the frail elderly.

PIH7

ADVERSE DRUG EVENTS IN THE ELDERLY OCCURRING IN EMERGENCY, INPATIENT, AND OUTPATIENT DEPARTMENTS IN AN ADMINISTRATIVE CLAIMS DATABASE

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OBJECTIVES: The adverse drug events (ADE) in the elderly are important sequelae of drug treatment playing a role in non-adherence and increased hospitalizations and emergency visits. This study sought to describe the rate of ADEs in an elderly population, to determine the characteristics of the ADEs to those who did not. METHODS: This study was a retrospective cross-sectional analysis that used a 10% random sample of the IMS LifeLink Health Plans commercial claims data during the period January 1, 2003 through December 31, 2009. Subjects were included if they were 65 years of age and older with a minimum of one year of continuous medical coverage. ADEs were defined based on previously published schema using ICD-9-CM codes that mention drug therapy or “due to drug” or “drug induced”. ADEs occurring in hospitalizations, emergency department visits, and outpatient physician visits are reported. Demographics, comorbidity, and health resource use were compared between persons with one or more ADEs compared to those without an ADE. RESULTS: 402,078 persons were eligible with 2.1% having at least one ADE. The ADE exposed group was older (77.5 vs 74.9, p<0.001), included more females (59.4% vs 54.5%, p<0.001), had higher CCI scores (2.27 vs 1.53, p<0.001) and incurred nearly three times the average health care cost per person ($38,386 vs $28,962, p<0.001). In the most commonly prescribed medications (PPI and metformin), the use of dermatitis (0.24%) with anticoagulants (0.15%) and chemotherapy (0.13%) being the most prevalent associated drugs. Nearly half (48.8%) of ADEs occurred in ED patients. CONCLUSIONS: Approximately 2% of 65 years age and older experienced at least one ADE. ADEs frequently required ED care underscoring the severity of many ADEs and the need to develop interventions that can reduce ADE occurrences in the elderly.

PIH8

COMPARING THE EFFECT OF SEQUENTIAL THERAPY WITH TRIPLE DRUG THERAPY FOR HELICOBACTER PYLORI ERADICATION IN CHILDREN: A SYSTEMATIC REVIEW AND META-ANALYSIS

Sharma S1, Lin F1, Wu WK2

OBJECTIVES: We aimed to determine whether sequential therapy is superior to triple therapy in children. METHODS: We performed a systematic search of the English language literature using Medline, EMBASE, Web of Science, Google Scholar, and Cochrane database. Only randomized controlled trials (RCTs), comparing the efficacy of two treatments (ST: proton pump inhibitor (PPI) + 1 antibiotic for 5 days followed by PPI + 2 antibiotics for another 5 days) with triple therapy (TT: PPI + 1 antibiotic + 1 antibiotic for 7–10 days) were included. RESULTS: We included 11 RCTs (2,037 children). The eradication rate was not significantly different between the 2 treatments (ST 81.1% vs TT 83.5%, p = 0.61). CONCLUSION: There is no evidence that ST is superior to TT for treating Helicobacter pylori infection in children.

PIH9

FOLLOW-UP OF PSYCHOACTIVE DRUG USE IN NEWLY DIAGNOSED PATIENTS WITH AUTISM SPECTRUM DISORDER (ASD) IN CANADA

DelRio M1, Morin J1, Durell M2, Turrié J3, Perreault S3

OBJECTIVES: To characterize the temporal course of psychoactive drug utilization in a cohort of newly diagnosed autistic adults. METHODS: A cohort was built using the provincial public health insurance program (RMAQ) databases. Newly diagnosed autistic adults (2–25 years of age) were identified using ICD-9 codes: 299.3, excluding 299.2) between January 1998 and December 2010. Cohort entry was the date of first diagnosis confirmed by the absence of ASD diagnosis before the index date. RESULTS: Most patients were females (76.9%), 7% years old (87%), and community-living (90%). Serum vitamin B12 concentration was low and low-normal in 19% and 25% of patients, respectively, 19% had ongoing vitamin B12 treatment. Prevalence of PPI and metformin users were 7% and 12%, respectively, 7% and 13% of patients, respectively, had low vitamin B12 status according to VB12 status. The use of calcium supplements was also prevalent (56%). Interestingly, proportions of calcium supplement users was found to vary significantly between categories of VB12 status (P<0.001), being 21%, 35% and 62% in those with low, low-normal and normal status, respectively, and of 54% in those with ongoing VB12 treatment. CONCLUSIONS: PPI and metformin use did not appear as determinants of low vitamin B12 status in GAU patients whereas calcium supplements seem to promote better VB12 status. Whether calcium has counteracting effect on PPIs and metformin should be further examined using adjusted-analyses in a larger sample.

REFERENCE:
Paulus WJ, Chien CS, Hwang PS, Chuang YC, Chen YC, Lin CL, et al. Anticholinergic medications are frequently prescribed in the elderly, and have been associated with potential central and peripheral adverse events. The current study examined the risk of all-cause hospitalization associated with anticholinergic use in the elderly. METHODS: The study used a case-control design nested within a cohort of elderly individuals enrolled in a regional Medicare Advantage Prescription Drug Plan. The base population consisted of individuals aged >65 years, who survived during the entire study period (2009-2010). At least one institutional and one outpatient claim in the first 6 months (January-June 2009) and no event of hospitalization during the first 6 months (Base Period). Cases for the study experienced incident hospitalization anytime following the base period. For each case, 4 age- and sex-matched controls were selected using incidence density sampling (incidence density 1:4). The primary outcome measure was all-cause hospitalization. Prescription of any anticholinergic medication 30 days before the hospitalization date was the primary exposure, and was defined using the Anticholinergic Drug Scale (ADS). Conditional logistic regression stratified on matched case-control sets was used to model the hospitalization risk, after controlling for additional risk factors predictive of the outcome. RESULTS: There were 295 case- and 1,176 control-records included in the analysis. The use of any anticholinergic drugs was not associated with significantly higher risk of hospitalization (Relative Risk, RR 0.85; 95% CI, 0.62-1.17) compared to no use. The findings remained unchanged after considering higher level (Level 2/3) anticholinergic use (RR 0.97; 0.61-1.54). CONCLUSIONS: The study found that anticholinergic medication use was not associated with a significantly higher risk of hospitalization compared to no use in the elderly, with no history of drug discontinuation. Future studies with diverse samples are required to address the role of dose and concomitant use of anticholinergic agents in the elderly.