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CARDIOVASCULAR MODULATION OF DIETARY SODIUM RESTRICTION AND β_2-ADRENERGIC RECEPTOR POLYMORPHISM IN HUMANS. J.H. Eisenach, D.R. Schroeder, T.L. Pike, C.P. Johnson, W.G. Schrage, E.M. Snyder, B.D. Johnson, S.T. Turner, M.J. Joyner, Mayo Clinic College of Medicine, Rochester, MN.

Dietary sodium intake has been shown to influence β_2-adrenergic receptor (β_2-AR) responsiveness, and the Gly allele of the Arg16/Gly β_2-AR polymorphism has been associated with hypertension in a linkage analysis in Rochester, MN. We have also shown that Gly homozygotes (GG) have greater forearm β_2-AR mediated vasodilation than Arg (AA) after a controlled Na^+ diet (150 mmol • day^{-1}), and the difference is mediated by endothelial NO. The purpose of this study was to test the hypothesis that dietary Na^+ restriction affects forearm and systemic β_2-mediated dilation in healthy normotensive humans GG (n = 17) vs AA (n = 15). We measured HR, MAP, and CO (acetylene breathing) responses to intravenous infusion of terbutaline (TRB) before and after 5 days of dietary Na^+ restriction (10 mmol • day^{-1}). Also following the diet, a brachial artery catheter was placed to measure forearm blood flow (FBF, plethysmography) responses to isoproterenol (ISO) before and after NO inhibition with L-NMMA. There was a main effect of diet ($p < .03$) on weight loss, increased urine volume, and 24-hour urinary excretion of Na^+ but no influence from genotype. Diet significantly decreased baseline CO in GG (pre- vs postdiet mean ± SD: 6.4 ± 1.4 to 5.5 ± 1.2 L • min^{-1}; $p = .003$) but not in AA (5.8 ± 1.3 to 5.6 ± 1.0 L • min^{-1}, NS) and increased peripheral resistance in GG ($p = .02$) but not AA. Baseline HR, MAP, and stroke volume were similar between groups, and the responses of all cardiovascular measures to TRB were not influenced by genotype or diet. In contrast to previous findings after a normal Na^+ diet, the FBF dose response curves to ISO were not different based on genotype ($p = .51$). L-NMMA decreased baseline FBF and significantly blunted the response to ISO, but there was no evidence to suggest that the responses were influenced by genotype ($p = .89$, genotype-by-ISO-by-L-NMMA interaction). We conclude that dietary Na^+ restriction negates the increased forearm NO-mediated, β_2-AR responsiveness in GG subjects, which may explain the diet-evoked baseline increase in peripheral resistance and decrease in CO in this group, providing evidence that Na^+ intake modulates cardiovascular indices based on the Arg16/Gly β_2-AR polymorphism.

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SURGICAL TREATMENT OF PERIPHERAL ENTRAPMENT NEUROPATHY OF THE LOWER EXTREMITIES: OUTCOMES FROM 158 CONSECUTIVE SURGICAL CASES. J.M.V. Valdivia, C. Farley, M. Weinand, C. Maloney, The Institute for Plastic Surgery and Peripheral Nerve Surgery, University of Arizona, Department of Surgery, Division of Neurosurgery, University of Arizona College of Medicine, Tucson, AZ.

Objective: We report the outcome of 158 patients with peripheral entrapment neuropathy treated surgically by multiple nerve decompressions of the peroneal and tibial system. This is a promising approach for the treatment of pain, numbness, and balance disturbance in diabetic and nondiabetic patients with peripheral nerve entrapment syndromes in the lower extremities. **Methods:** Records of 158 consecutive patients with diabetic and nondiabetic neuropathy, treated surgically by multiple nerve decompression, were reviewed to document changes in the visual analogue scale, sensation improvement, reduction in pain medication requirement, and balance improvement. All patients underwent tarsal tunnel release and neurolysis of lower extremity nerves of the tibial and peroneal system as a concomitant part of the procedure. Patients offered surgical intervention met specific criteria including documented sensory abnormalities using neurosensory testing by the Pressure-Specified Sensory Device (PSSD) and a positive Tinel's sign on examination over the involved nerve. **Results:** Eighty-eight percent of the patients with preoperative numbness reported sensation improvement. Eighty-one percent of patients with balance disturbance reported improved balance after the procedure. From those patients who underwent the procedure mainly for pain relief, 83% reported an improvement in the visual analogue scale of more than 50% and 77% improved in more than 5 points of the scale. After the procedure, patients reported a decrease in their pain medication requirement ($p \leq .001$), sensation improvement ($p \leq .001$), and pain relief ($p \leq .001$). **Conclusion:** Similar to experiences found in the upper extremity, nerve decompression in the lower extremity is a safe and effective procedure to improve the quality of life of patients with peripheral neuropathy secondary to nerve compression. Documentation and staging of the severity of neuropathy with neurosensory testing and the presence of Tinel's sign facilitate successful selection of surgical candidates. Decompression and neurolysis of compressed lower extremity nerves are associated with statistically significant improvement in the visual analogue scale and sensation. The great majority of patients are very satisfied with the results.

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ACUTE LUNG INJURY IN THE PEDIATRIC EMERGENCY DEPARTMENT: A RETROSPECTIVE EVALUATION OF RISK FACTORS FOR INTUBATION. R.J. Freishtat,[1,2,3] D. Mathison,[4] J.M. Chamberlain,[1] [1]Division of Emergency Medicine, Children's National Medical Center, Washington, DC; [2]Research Center for Genetic Medicine, Children's National Medical Center, Washington, DC; [3]School of Medicine and Health Sciences, George Washington University, Washington, DC; [4]Department of Pediatrics, Northwestern University, Chicago, IL.

Purpose: Early identification of acute lung injury (ALI) and acute respiratory distress syndrome (ARDS) is hypothesized to contribute to avoidance of invasive ventilation modalities. There are no studies evaluating ALI in the emergency department (ED), where early identification and interventions are most likely to take place. We aimed to describe the epidemiology of ALI in the ED and to determine factors associated with endotracheal intubation within 24 hours of presentation. **Methods:** Secondary analyses of 11,664 patient records from a study of quality involving 16 EDs were performed. Records were selected if SaO_2 was recorded during the visit. The methods of Ellis and Sevringhaus were used to convert SaO_2 to virtual PaO_2 and allowed calculation of PaO_2:FiO_2 (PF) ratios. Combining these and historical data, patients were classified as having ALI alone, ALI and ARDS, or neither according to 1994 American-European Consensus Conference criteria. **Results:** SaO_2 was recorded in 2,217 patients; 108 (4%) met ALI criteria, including 25 (1%) with ARDS. Logistic regression for all patients showed the following independent associations with ALI: lower SaO_2 (adjusted OR [95 CI] = 2.4 [2.1, 2.8]), lower temperature (4.1 [2.9,6]), and higher PRISA II (1.13 [1.09, 1.18]) (all $p < .001$, $R^2 = .22$, goodness of fit $p > .99$). No association was noted for age, gender, SIRS, shock, pCO_2, CNS, renal or hematologic dysfunction. Twelve (11%) ALI patients were intubated within 24 hours of presentation. Logistic regression for ALI patients showed an independent association for intubation with higher PRISA II only (1.21 [1.05, 1.39], $p = .007$) ($R^2 = .26$, goodness of fit $p = .36$). **Conclusions:** We found a moderate incidence of nonintubated ALI in the ED. The low R^2 values for the ALI and intubation regression models underscore the lack of criteria for early identification of patients with respiratory compromise. Therefore, the nonintubated ALI patients represent an important group for future studies aimed at early identification of critical illness in the ED.

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T-HELPER 2 LYMPHOCYTE–EXPRESSED NKG2A SUPPRESSES INTERLEUKIN-4 SECRETION UPON CD3/CD28/HLA-E COSTIMULATION: A NOVEL MECHANISM FOR T-HELPER 2 DOMINANCE IN ASTHMA. R.J. Freishtat,[1,2,3] B. Mojgani,[2,4] E.P. Hoffman,[2,3] [1]Division of Emergency Medicine, Children's National Medical Center, Washington, DC; [2]Research Center for Genetic Medicine, Children's National Medical Center, Washington, DC; [3]School of Medicine and Health Sciences, George Washington University, Washington, DC; [4]School of Medicine, Georgetown University, Washington, DC.

Purpose: Asthma exacerbations are frequently associated with viral infections. Many of these viruses cause a marked decrease in antigen-presenting cell MHC class I production. We have previously identified a potential mechanism linking the T-helper type 2 (T_H2) cytokine preponderance seen in acute asthma and this viral-mediated event. That is, NKG2A was identified as the only known ligand for MHC class I (ie, HLA-E) expressed by activated T_H2 lymphocytes. Therefore, we aimed to measure T_H2 cell effector function upon T cell receptor (TCR) stimulation in the presence and absence of HLA-E, intending to imitate the reduction in MHC class I seen with respiratory viral infections. **Methods:** Human monocytes and T_H2 cells were negatively purified from healthy volunteers using previously validated antibody cocktails. T_H2 cells were cultured in media containing anti-CD3 and anti-CD28 in the presence (or absence) of autologous monocytes, which served as HLA-E presenters. Four-color flow cytometry was performed. Analyses with FlowJo 5.7 were carried out after back-gating on $CD3^+CD4^+$ cells. Paired t-tests measured statistical significance using SPSS 14. **Results:** T_H2 isolates were > 95% pure $CD3^+CD4^+CD8^-$ cells and > 84% pure T_H2 cells. Monocyte isolates were > 90% pure. Flow studies of activated T_H2 cells showed mean ± SE (mean fluorescence intensity) NKG2A$^+$ of 11.4 ± 0% (15.4 ± 0.1) and intracellular IL-4$^+$ of 4.4 ± 0% (153.4 ± 0.1). In the presence of monocytic HLA-E, activated T_H2 lymphocytes showed NKG2A$^+$ of 11.2 ± 0% (35.6 ± 0) ($p < .001$) and intracellular IL-4$^+$ of 0.04 ± 0.01% (14.1 ± 0) ($p < .001$). There was no detectable switching from inhibitory NKG2A to the activating lectin NKG2C in any sample. **Conclusions:** We identified significant suppression of IL-4 expression in activated T_H2 cells via NKG2A-HLA-E (MHC class I) binding and ultimate TCR signaling inhibition. Extrapolated to a viral-induced asthma exacerbation scenario, where MHC class I and thus HLA-E are in low abundance, we have shown that T_H2 cells would exhibit a relatively robust response. This represents a new aspect of T_H1/T_H2 balance in the inflammatory response and could be clinically important in viral-induced T_H1/T_H2-associated diseases like asthma.

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THE PREVALENCE OF NEUROPSYCHIATRIC SYMPTOMS IN MILD COGNITIVE IMPAIRMENT: A POPULATION-BASED STUDY. Y.E. Geda, W.A. Rocca,* D.S. Knopman,* R. Roberts,* R.C. Petersen,* Mayo Clinic College of Medicine, Jacksonville, FL; *Mayo Clinic College of Medicine. Rochester, MN.

Objective: To estimate the prevalence of neuropsychiatric symptoms among subjects with mild cognitive impairment (MCI) in a defined population. **Background:** The population-based prevalence of neuropsychiatric symptoms in MCI is unknown except for a recent report (Lyketsos et al, 2002, JAMA) that has not yet been replicated. **Design/Methods:** The Mayo Clinic Study of Aging is an NIH-funded population-based study that was launched in October 2004. It is designed to estimate the prevalence and incidence of MCI. Elderly individuals of age 70 to 89 years are being recruited by using a stratified random sampling from the target population of Olmsted County, Minnesota (equal allocation of men and women). All participants undergo neurological, neuropsychiatric, and psychometric evaluations. A consensus panel of behavioral neurologists, geriatrician, neuropsychiatrist, neuropsychologists, and nurses determined the classification of normal cognitive aging, MCI, or dementia based on standard definitions. The Neuropsychiatric Inventory (NPI) was administered to all participants, and the prevalence of symptoms in MCI cases was compared to cognitively normal individuals (controls), matched by age and gender (1 case to 3 controls), by using chi-square or Fisher's exact test. **Results:** Neuropsychiatric data were available on 104 participants with MCI and 312 cognitively normal individuals. The prevalence of apathy was 24% in MCI ($n = 25/104$) vs 6.1% (19/312) in cognitively normal individuals ($p < .0001$). Similarly, there were significant differences in the prevalence of depression 26% vs 11.5% ($p = .0004$), anxiety 11.5% vs 3.9% ($p = .004$), and irritability 18.3% vs 8.7% ($p = .007$). **Conclusions:** The prevalence of neuropsychiatric symptoms in our study is comparable to the published report (Lyketsos et al, 2002) that used a similar design (population based) and measurement instrument (NPI); however, we report a slightly higher frequency of apathy and depression. One major finding of our study is that apathy may be the most distinguishing neuropsychiatric feature between MCI and normal cognitive aging, and this, in turn, may have an implication for a future interventional study that can target apathy in order to delay the progression of MCI to dementia.

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EFFICACY OF CYCLOOXYGENASE 2 INHIBITORS ON TUMOR ANOREXIA-CACHEXIA SYNDROME IN PATIENTS WITH CANCER OF THE HEAD AND NECK AND GASTROINTESTINAL TRACT. V. Lai,[3] J. George,[3] L. Richey,[3] T. Cannon,[1] H.J. Kim,[2] C. Shores,[1] M. Couch,[1] Departments of [1]Otolaryngology/Head and Neck Surgery (OHNS) and [2]General Surgery, and the [3]Doris Duke Fellowship Program, University of North Carolina at Chapel Hill, Chapel Hill, NC.

Background: Nonsteroidal anti-inflammatory drugs (NSAIDs) may palliate cachexia by maintaining muscle mass. A recent animal study demonstrated that cyclooxygenase 2 inhibitors (COX-2) reversed tumor-induced wasting in mice bearing human head and neck squamous cell carcinoma and colon carcinomas. Our hypothesis was that NSAIDs given to patients with cancer cachexia will stabilize or reverse their loss of lean body mass. **Methods:** A prospective, randomized, double-blind, placebo-controlled clinical trial was designed to determine whether intervention with the COX-2 inhibitor celecoxib was effective at improving cancer cachexia in patients with cancer of the head and neck and gastrointestinal (GI) tract. After the clinical diagnosis of cachexia was established, the following measurements were made: weight; body composition via dual x-ray absorptiometry; resting energy expenditure (REE) via indirect calorimetry; quality of life (QoL) surveys via Func-