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TIA AND MEMORY IMPAIRMENT AMONG THE ELDERLY

Common etiologies of dementia include Alzheimer Disease (AD), vascular dementia, and mixed dementia. Despite the association between stroke and dementia, the relationship between the symptoms of transient ischemic attacks (TIAs) and impaired cognition have not been consistently described. This study used data from the third National Health and Nutrition Examination Survey (NHANES III) to explore the hypothesis that TIA symptoms are associated with memory impairment.

The NHANES III survey population included 31,311 individuals examined from 1988 to 1994. The adult household survey (AHS) and the mobile examination center (MEC) components were used to obtain representative information on health and nutritional status. All subjects for this study were over the age of 60 years and did not have a self-reported history of stroke. Assessment of memory impairment was based on a delayed recall question. Participants with symptoms of transient ischemic attacks, as determined by five self-reported symptoms, were further assessed for memory impairment.

Of the 4617 participants, the prevalence of memory impairment was 6.6%. Among the conventional vascular risk factors of interest, systolic blood pressure greater than 140 had the highest odds ratio (9.78) for memory loss. Among the TIA symptoms, transient speech difficulty and transient weakness were associated with memory impairment. In the multivariate analysis, self-reported weakness was associated with a 52% increased odds of memory impairment after adjusting for other risk factors.

Conclusion: This study of patients over the age of 60 years, demonstrates that a history of transient ischemic attack with

symptoms of weakness is associated with a deterioration of memory.

Takahashi, P., et al. The Association of Transient Ischemic Attack Symptoms with Memory Impairment among Elderly Participants of the Third US National Health and Nutrition Examination Survey *J Geriatr Psychiatry Neurol* 2009, March; 22(1):46-51.

BETA ALANINE IMPROVES SPRINT PERFORMANCE

Beta Alanine-L-Histidine (B-ALA) is a naturally occurring histidine dipeptide which occurs at high concentrations in skeletal muscle. Among other cellular functions, B-ALA is believed to account for approximately 10% of the total buffering capacity in skeletal muscle cells. As muscle fatigue is thought to be related to the intramyocellular accumulation of protons, this buffering capacity may be useful for the delay of fatigue. This study investigated the effect on fatigue of short term B-ALA administration in a simulated bicycling race.

This double-blind placebo-controlled study included 17 healthy young male cyclists. Pretesting and posttesting test sessions were interspersed by an eight week B-ALA or placebo supplementation period. The B-ALA was titrated up to five grams per day for the final three weeks of the study. In the testing periods, subjects performed a 110 minute simulated cycling race followed by a 10 minute time trial and a 30 second isokinetic sprint. Blood levels were drawn to determine blood lactate concentration and pH.

During the final sprint, those in the B-ALA group increased peak power output by 11.4% and mean power output by 5% ($p=0.0001$ and $p=0.005$ respectively) as compared to the placebo group. There was no difference between the groups in the

time trial portion of the study. Measures of blood lactate and PH did not differ between groups.

Conclusion: This study of male cyclists demonstrates that supplemental Beta Alanine intake can enhance power output during the final sprint at the end of an endurance competition.

Van Thienen, R., et al. Beta Alanine Improves Sprint Performance in Endurance Cycling. *Med Sci Sports Exerc* 2009, April; 41(4):898-903.

PAIN REDUCTION USING TMS

In Israel, the prevalence of chronic pain has been estimated at 17%. Of these, 40% report that their pain is inadequately controlled, affecting their employment status. Percutaneous transcranial electrical stimulation (TCES) is a noninvasive brain stimulation technique that has been demonstrated, both in animal and human models to decrease pain. This study sought to test whether TCES could reduce pain among individuals with chronic persistent pain.

All participants had symptoms of cervical pain or chronic low back pain for more than three months. The patients were randomized to receive either TCES or an active placebo. The TCES was administered by eight, 30 minute sessions on eight consecutive days using a 77 Hz frequency with a 3.3 ms pulse width. The placebo group was treated with a 50 Hz signal and a maximum current of 0.75 mA. Before and during treatment, the patients use a diary to record a visual analogue scale for pain, sleep, and medication use.

A total of 58 subjects were included in the active, and 61 in the placebo groups. Pain levels decreased significantly in the active group as compared to the placebo group at three weeks after treatment termination ($p=0.017$). Three months

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after the end of the treatment, this effect was maintained.

Conclusion: This study of patients with chronic pain demonstrates that transcranial electrical stimulation may be an effective noninvasive method for pain relief

Gabis, L., et al. Pain Reduction Using Transcranial Electrical Stimulation: a Double-Blind Active Placebo Controlled Trial **J Rehabil Med** 2009, April; 41(4):256 -261.

PHYSICAL ACTIVITY, PAIN, AND DEPRESSION IN SCI

Pain, fatigue and depression are often linked to physical inactivity. In the spinal cord injury (SCI) population, the relationship of these conditions with the amount of physical activity has not been well explored. This study sought to evaluate the level and nature of physical activity in SCI and to determine its relationship to pain, fatigue and depression

This prospective cross-sectional study included 49 patients with SCI. Included were adults living in the community, with a minimum of one year since SCI who used a manual wheelchair as their primary mode of mobility. A semi structured interview was used to estimate the time each individual spent on mild, moderate, or heavy intensity physical activity. A fatigue severity scale, a graded chronic pain questionnaire, and a 10 item Center for Epidemiology Studies -- Depression Scale were used to assess fatigue, pain and depression. These results were compared with those of activity.

Forty-seven of the subjects reported mild intensity activity, 33 moderate intensity activity and 16 heavy intensity physical activities. High amounts of heavy intensity physical activity correlated with lower levels of fatigue, higher levels of self efficacy and lower levels of pain. Higher amounts of mild intensity activity correlated with lower levels of pain, higher levels of social support, and lower levels of depression. More total physical activity was related to higher self-efficacy and less depression.

Conclusion: This study of patients with spinal cord injury demonstrates that a high amount of physical activity is associated with

less pain, fatigue, and depression.

Tawashy, A., et al. Physical Activities Related to Lower Levels of Pain, Fatigue and Depression in Individuals with Spinal Cord Injury: a Correlational Study. **Spinal Cord** 2009 April; 47(4); 301-306.

PHYSICAL ACTIVITY AND LOW BACK PAIN

Physical activity is central to the management of low back pain. However, the contribution of physical activity to the prevalence, prevention and management of low back pain is still poorly understood. This study sought to assess whether extremes of physical activity, either insufficient or excessive, may contribute to back pain.

This study used a random sample of 8000 individuals ages 25 or higher from the Dutch population-based Musculoskeletal Complaints and Consequences Cohort study. A questionnaire was sent to each individual regarding musculoskeletal pain, the consequences of this pain, as well as individual levels of physical activity. Activity levels were defined and specific activities and sports were given a metabolic equivalent value. The participants were categorized by the amount and intensity of activity performed with these compared to complaints of chronic low back pain.

The point prevalence of low back pain in the study was 26.9%, while 21.3% of the respondents reported low back pain complaints with a duration of longer than three months. Being sedentary was associated with an increased prevalence of chronic low back pain (odds ratio of 1.41). Daily routine activity and leisure time activity were not associated with chronic back pain either according to intensity or to duration. However, those involved with strenuous physical activity were at elevated risk of low back pain with an odds ratio of 1.22. This was especially true for women.

Conclusion: This large Dutch study suggests that the relationship between physical activity and chronic low back pain may be U-shaped, with an increased risk with low activity and with high levels of strenuous activity.

Heneweer, H., et al. Physical Activity and Low Back Pain: a U-Shaped Relation? **Pain** 2009, May; 143(1-

REPEAT REVISION OF ACL RECONSTRUCTION

After anterior cruciate ligament (ACL) injury, surgical reconstruction can result in a successful outcome in up to 93% of the cases. The published failure rates for ACL reconstruction vary with some series reporting 10 to 25% of patients having recurrent laxity or pain. This study sought to compare the outcome of repeat ACL reconstruction and to describe the cause of the graft failure.

This study included 10 patients undergoing repeat reconstruction. All had undergone three surgical procedures for ACL reconstruction: a primary reconstruction, a first revision and then a second revision. The review of the patients included the surgical report, postoperative rehabilitation, timing and level of return to sport and radiographic evaluation. The International Knee Documentation Committee and Sports Level Assessment (IKDC) and sports activity assessment were performed after each surgery.

Ten patients with an average age of 30 years were followed. The average follow-up of the second revision was 38 months. At final outcome the IKDC scores indicated a good or excellent outcome in 70% of the cases. Postoperatively only two patients recovered to the same level of sports activity that they had realized before their first reconstruction. Meniscal tear, meniscectomy and articular cartilage degeneration increased after the second revision. The incidence of articular cartilage degeneration was more prevalent in cases with meniscal tear and partial meniscectomy. First revision failures were caused by recurrent trauma (70%) or surgical tunnel malposition (10%).

Conclusion: This retrospective review of patients with ACL repeat revision found good to excellent results in a majority of the cases though inferior to that of the initial revision

Wegryzn, J., et al. Repeat Revision of Anterior Cruciate Ligament Reconstruction: a Retrospective Review of Management and Outcome of 10 Patients with an Average Three-Year Follow-Up **Am J Sports Med**

TREATMENT OF DIABETIC PERIPHERAL NEUROPATHIC PAIN

Neuropathic pain is often associated with diabetic peripheral neuropathy. In a recent study in the United Kingdom, among patients with diabetes, 16.2% reported symptoms of painful peripheral neuropathy. This meta-analysis sought to summarize the efficacy and tolerability of drug treatments and to compare the efficacy of three commonly prescribed medications.

This meta-analysis included studies of pregabalin, duloxetine and gabapentin. The primary assessment of treatment efficacy, available for all drugs, was 24 hour average pain severity, treatment response, and overall health improvement. The most frequently reported tolerability outcomes were premature discontinuation due to lack of efficacy and due to adverse events.

Using a random effects and a fixed effects analysis, all three medications were found to be superior to placebo for all efficacy parameters. Comparisons between the drugs found no differences in 24-hour pain reduction between duloxetine and pregabalin. For the patient global impression, pregabalin was superior to duloxetine.

Conclusion: This meta-analysis suggests that duloxetine has comparable efficacy and tolerability to gabapentin and pregabalin for the treatment of diabetic peripheral neuropathic pain.

Quilici, S., et al. Meta-Analysis of Duloxetine Versus Pregabalin and Gabapentin in the Treatment of Diabetic Peripheral Neuropathic Pain **BMC Neurology** 2009, February; 9:6.

LIMAPROST FOR MYELOPATHY IN CERVICAL STENOSIS

Limaprost alfadex (limaprost) is a prostaglandin E 1 derivative which acts both as a vasodilator and as an inhibitor of platelet aggregation. Limaprost has previously been demonstrated to be effective for lumbar spinal canal stenosis. This study sought to examine the effectiveness of limaprost in patients with cervical spinal canal stenosis (CSCS).

This prospective clinical trial included 21 patients with a history of spondylotic CSCS based on neurologic and MRI findings. All had failed previous treatment with the combination of oral nonsteroidal anti-inflammatory drugs, muscle relaxants, and or vitamin B12. The subjects were given oral limaprost at 15 mcg per day. Outcomes were measured by the Japanese Orthopedic Association score (JOAS), grip and release tests, finger escape sign and stabilometry. Measurements were made at baseline and at one and three months after treatment initiation

The mean JOAS improved at one and three months as compared with baseline. ($p=0.022$ and $p=0.009$ respectively). The mean grip and release test improved at one and three months ($p=0.017$ and $p=0.01$ respectively). Improvements in FES and stabilometry were not significant.

Conclusion: This study of patients with chronic cervical spinal canal stenosis demonstrates that the prostaglandin E 1 derivative limaprost may help improve the symptoms of myelopathy.

Sugawara, T., et al. Limaprost Alfadex Improves Myelopathy Symptoms in Patients with Cervical Spinal Canal Stenosis. **Spine** 2009, March; 34(6):551-555.

FATIGUE AND PARKINSON DISEASE

In Parkinson Disease (PD) fatigue has been reported in up to two thirds of patients. Many consider this to be one of their more disabling symptoms. This study sought to improve the understanding of this fatigue by exploring possible predictors among a wide range of motor and non-motor aspects of PD.

A total of 118 consecutive patients with PD were included in the study. The patients were assessed during the "on phase" using the unified PD rating scale, the Hoehn and Yahr staging of PD and the Mini Mental State Exam. The Functional Assessment of Chronic Illness Therapy -Fatigue scale was used to measure fatigue. In addition assessments were made of sleep quality, daytime sleepiness, depression anxiety and pain. For fatigue, patients were asked whether their fatigue typically was worse when

“on” or “off”, whether their motor systems were worse when experiencing fatigue and whether they had experienced fatigue prior to the onset of motor PD symptoms.

The data demonstrated that fatigue was associated with increasing stages of PD, especially with the transition from stages I-II to stages III-IV. Five independent variables, determined by regression analysis, explained 48% of the variance in fatigue scores. These include anxiety, depression, lack of motivation, Unified PD Rating Scale motor score and pain. The strongest predictors were symptoms of anxiety/depression and impaired motivation.

Conclusion: This study demonstrates that symptoms of depression and anxiety are the main predictors of fatigue among patients with Parkinson Disease.

Hagell, P., et al. Towards an Understanding of Fatigue and Parkinson Disease **J Neurol Neurosurg Psychiatry** 2009, May; 80(4):489-493.

COGNITIVE IMPAIRMENT IN EARLY UNTREATED PD

While mild cognitive impairment has been reported in Parkinson disease (PD), most previous studies have been based on patients receiving dopaminergic medications which themselves may influence cognition. This study sought to assess the frequency, relative risk, and profile of mild cognitive impairment in nonmedicated patients with early PD

This case controlled study included 196 drug naïve patients with new onset PD. These patients were matched with 201 controls based on age, sex and educational status. Subjects with clinical dementia were excluded. The prevalence of mild cognitive impairment (MCI) was determined through neuropsychological testing of visuospatial, verbal, attentional, and executive function. Patients with scores which were more than 1.5 standard deviations below the control group were classified as having MCI

Of the patients with PD, 18.9% were found to have MCI. The relative risk for MCI as compared to controls was 2.6 for patients ages 65 years of age or greater and 1.5 for those less than 65 years of age. The patients

with PD were only slightly more impaired than were controls on all neuropsychological measures. The largest effects were noted in verbal memory and psychomotor speed.

Conclusion: This study of drug naïve patients with early PD found that mild cognitive impairment is present in almost 20% of the population. The risk was found to be significantly increased among those 65 years of age or older.

Aarsland, D., et al. Cognitive Impairment in Incident, Untreated Parkinson Disease: the Norwegian Park West Study **SYMBOLOGY Neurology** 2009, March; 31:72 (13):1121-1126.

HIGH DOSE OF RED WINE INHIBITS FIBRINOLYSIS

In contrast to moderate alcohol consumption, heavy consumption is known to increase mortality from several causes, including cardiovascular disease. The mechanism of this increase is not well understood. This study sought to determine the effects of heavy consumption of red wine on circulatory markers of atherosclerosis.

This study included 22 healthy, non-smoking Finnish men. The participants were randomly assigned in a crossover design to take doses of red wine, dealcoholized red wine or cognac. The drinks were consumed on separate days with a washout period of one week. The doses of red wine and cognac contained 1 g per kilogram of ethanol. All subjects were tested for serum ethanol concentrations, and plasma levels of multiple markers of fibrinolysis. The results were compared before and after consumption of each of the beverages.

Red wine, but not alcohol free red wine or cognac significantly increased tPAI-1 levels ($p < 0.001$). Other markers remain unchanged. The increased levels of tPA-1 indicated an enhanced inhibition of fibrinolysis which did not seem related to alcohol levels, as it did not occur in the cognac arm of the study.

Conclusion: This study demonstrated that high doses of red wine may cause an inhibition of fibrinolysis, suggesting a possible mechanism for the reversal of cardioprotection noted in moderate

use.

WillKiviniemi, T., et al. High Doses of Red Wine Elicits Enhanced Inhibition of Fibrinolysis **Eur J Cardiovasc Prev Rehabil** 2009, April; 16(4):161-163.

CANCER RISK IN MS

With the use of immunomodulatory therapy as a standard treatment for multiple sclerosis (MS) the overall cancer risk may be significantly impacted. Previous studies have shown mixed results concerning the changing risk of cancers among those with MS. This study reviewed the cancer risk and age at diagnosis among patients with MS

Patients diagnosed with MS between 1969 and 2005 were identified from the Swedish inpatient Registry. Those with MS were matched with 12 individuals without the disease. The cancer risk was estimated using the National Cancer Registry. A total of 20,276 patients with MS and 203,951 patients without MS were tracked for cancer.

The overall risk of cancer was significantly lower among patients with MS as compared to the controls (hazard ratio= 0.91). This was particularly true among women. However, brain tumor and urinary cancer risk were significantly increased as compared to controls. There was no change in the risk of cancer among the parents of patients with MS

Conclusion: This large general population-based study of patients with MS demonstrates a reduction in cancer risk of approximately 10% as compared to the general population

Bahmanyar, S., et al. Cancer Risk among Patients with Multiple Sclerosis and Their Parents **Neurology** 2009, March; 72(13):1170-1177.

SEIZURE INCIDENCE FOLLOWING DBS

Functional stereotactic surgery using deep brain stimulation (DBS) is widely used for a range of movement disorders and pain conditions. This intervention is now being evaluated for the treatment of some mood and psychiatric disturbances. This study

sought to assess the risk of peri procedural seizures as well as the risk of epilepsy caused by chronic DBS.

This meta-analysis used an electronic literature review with Pub Med focusing on DBS, Parkinson disease, essential tremor, dystonia, and pain. Thirty-two papers were retrieved describing stereotactic placement of DBS electrodes. Sixteen of these papers discussed seizure as a complication.

In 16 papers seizures were described in 2.7% of the patients. The incidence of seizures ranged from zero to as high as 13%. At least 75% of the seizures occurred around the time of the implantation of the electrode. The risk of post-procedure seizures was found to be approximately 0.5%. The data were described as variable in quality with several papers published from the same institution

Conclusion: This literature review found that the incidence of seizures after the placement of a deep brain stimulator is less than 1%. The incidence is highest at the time of the actual implantation

Coley, E., et al. The Incidence of Seizures Following Deep Brain Stimulating Electrode Implantation for Movement Disorders, Pain and Psychiatric Conditions **Br J Neurosurg** 2009, April; 23(2): 179-183.

PRISM ADAPTATION AND NEGLECT IN STROKE

Hemispacial neglect is a common and disabling complication after right hemisphere stroke. A variety of rehabilitation techniques have been explored with prism adaptation techniques shown to be effective in large populations of patients. Some studies however have found reasonable improvement using neutral goggles (neutral pointing) using similar training techniques. This controlled trial compared the effects of a prism adaptation with those of a neutral pointing control.

Twenty right-handed patients with right hemispheric stroke and left neglect were included in this study. Half were assigned to the prism group and the other to a neutral goggle group. All received 10 sessions within two weeks comprising of 90 pointing movements towards a

visual target. The prism group wore prismatic goggles deviating the visual field ten degrees toward the right. After completion of the trial the neutral pointing group underwent an additional two-week treatment with prisms. Outcome measures included baseline, posttreatment and one-month assessments of pointing accuracy, a behavioral inattention test, cancellation tasks and reading test scores.

The prism group exhibited an initial rightward deviation which decreased with repetition. All outcome measures were higher for the prism group than for the neutral group. Six out of 10 prism patients and one out of 10 control patients obtained behavioral inattention test scores above the level of neglect. For cancellation tasks, nine of 10 in the prism group and six of 10 in the neutral group improved. Gains in reading accuracy reached statistical significance for the prism group. After additional prism therapy, both behavioral inattention and cancellation tasks improved for the neutral group. The effects were maintained at least one month after the end of treatment.

Conclusion: This controlled study demonstrated that prism adaptation therapy could provide lasting improvement in neglect and inattention in patients with right hemispheric stroke.

Serino, A., et al. Effectiveness of Prism Adaptation in Neglect Rehabilitation: a Controlled Trial **Stroke** 2009, April; 40(4):1392-1398.

RELATIONSHIP BETWEEN TBI AND BMI IN MVC

Motor vehicle collisions (MVC) are a leading cause of death in the United States. Injury pattern and severity of injury in crashes depend on a number of factors including human body characteristics. Previous studies have demonstrated that passenger body mass index (BMI) is related to injury severity and risk of death. This study sought to determine the relationship between BMI and head injury severity among front seat passengers.

All front seat passengers over the age of 18, involved in frontal collisions between 1993 and 2005 were included in the study. Data was

retrieved from the National Automotive Sampling System. Injuries were graded on a scale of zero to six from no injury to maximal injury. Other factors included airbag deployment, use of lap and shoulder belt, age, gender, weight, height and fatal outcome. Obesity was defined as a BMI of > 30.

The mortality rate was reduced with the combination of airbag and belt as a restraint system ($p < 0.01$). There was a significant increase in fatal outcome and injury severity in the obese cohort ($p < 0.0001$ and $p < 0.0001$ respectively). Obese patients had a higher chance of having a higher maximum head injury than those who were not obese ($p = 0.003$).

Conclusion: This study demonstrates that obese individuals are more likely to suffer more severe traumatic brain injury during a front end collision than are non obese individuals.

Tagliaferri, F., et al. Traumatic Brain Injury after Frontal Crashes: Relationship with Body Mass Index **J Trauma** 2009, March; 66(3):727-729.

WALKING, PAIN AND FATIGUE AMONG ADULTS WITH CP

The motor disorders of cerebral palsy (CP) are often accompanied by disturbances of sensation, perception, cognition, communication, epilepsy and secondary musculoskeletal problems. While extensive research has been conducted in the pediatric CP population, the adult population is not as well studied. This study sought to assess the stability over time of walking function, pain and fatigue among patients with spastic CP.

This follow-up study assessed a subgroup of participants from a survey of the health status of adults with CP in Norway conducted in 1999. Participants include those with unilateral or bilateral spastic CP at a Gross Motor Function Classification System Level I-IV. Using the same questionnaires used in 1999, walking function, musculoskeletal pain, and fatigue were assessed. Of the 288 people originally studied, 149 were available and willing to participate in this seven year follow-up.

For walking, 16% reported improved, 31% unchanged, and 52% a deteriorated walking status. Among

patients with bilateral involvement, 71% reported deteriorating walking as compared to 37% with unilateral CP. The prevalence of daily pain increased from 23% in 1999 to 31% at follow-up. Fatigue scores showed no change in the physical or mental fatigue subscales between the two dates. However fatigue severity scores were significantly higher among those who reported deteriorating walking. The number of people reporting problems with overall mobility was nearly doubled at follow-up

Conclusion: This study of patients with spastic CP demonstrates that, over seven years, the number of people reporting difficulty with walking and musculoskeletal related pain increased, especially among those with bilateral involvement. The number of people reporting problems with overall mobility nearly doubled.

Opheim, A., et al. Walking Function, Pain and Fatigue and Adults with Cerebral Palsy: a Seven-Year Follow-Up Study **Dev Med Child Neurol**: 2009, May; 51(5):381-388.

HYPOGONADISM AND FUNCTIONAL OUTCOMES IN PATIENTS WITH TBI

Hypogonadism and neuroendocrine dysfunction are often complications of traumatic brain injury (TBI). This study sought to assess the rate of neuroendocrine dysfunction in patients with TBI, and its association with functional status at the time of hospital admission and discharge.

Forty-three male patients with TBI were admitted to an inpatient rehabilitation unit within six months of injury. Hormone levels including free and total testosterone, prolactin, and cortisol were measured within 24 hours of admission. Functional independent measures (FIM) including physical and cognitive subscales were analyzed at the time of admission and discharge.

The average age of the patient was 40 years. Hypogonadism was found in 32% and hyperprolactinemia in 40% of the patients. On average the total, physical and cognitive FIM were higher at admission in subjects with normal testosterone levels than among those with low levels ($p=0.032$). There was a small but significant negative change in the

cognitive FIM with increasing adrenal hormones (cortisol, ACTH). There was however no significant correlation between the FIM scores and prolactin levels.

Conclusion: This study demonstrates an association between testosterone levels and functional status of patients admitted to a rehabilitation hospital for traumatic brain injury.

Carlson, N., et al. Hypogonadism on Admission to Acute Rehabilitation Is Correlated with Lower Functional Status at Admission and Discharge. **Brain Inj** 2009, April; 23(4):336-344.

SEX-BASED DIFFERENCES IN MI CAUSED BY SMOKING

Many population-based studies have demonstrated that smoking is a major risk factor for ischemic heart disease. Some studies have suggested that smoking increases the risk of ischemic heart disease relatively more in women than in men. This study sought to explore this topic further in order to quantify the extent to which smoking causes premature first acute myocardial infarction (AMI).

This Norwegian study consisted of patients discharged from a district hospital with a diagnosis of first AMI. Given the geographic location and organization, nearly all admitted AMI patients within the catchment area came to the hospital. Data collected included age, sex, history of smoking, history of hypertension, cholesterol, diabetes, angina, and history of stroke. The association between risk factors and age at first AMI was analyzed by multivariate regression.

A total of 1784 patients were discharged with a diagnosis of first AMI. The mean age at the time of hospitalization was 72.3 years for the entire sample, 69.8 years for men and 76.2 years for women. In men, the mean age of hospitalization was 72.2 years for non-smokers and 63.9 years for current smokers ($p<0.001$). In women, the age was 80.7 years for non-smokers and 66.2 years for current smokers ($p<0.001$). After adjusting for other risk factors, in women, smoking caused a lowering of age at first AMI of 13.7 years compared to 6.2 years in men ($p<0.001$).

Conclusion: This study demonstrates that tobacco abuse

results in twice as many years lost before myocardial infarction among women than it does in men.

Grundtvig, M., et al. Sex Differences in Premature First Myocardial Infarction Caused by Smoking: Twice As Many Years Lost by Women as Men. **Eur J Cardiovasc Prev Rehabil** 2009, April; 16(2):174-179.

EVIDENCE SUPPORTING PRESCRIPTION RUNNING SHOES

It has been estimated that 30% to 60% of recreational distance runners become injured at least once per year. The prescription of the correct running shoe is considered important for preventing these injuries. This study sought to determine whether the current practice of prescribing running shoes featuring elevated cushioned heels and pronation control is supported by the scientific literature

This literature review included search items concerning the questions of cushioning, heel elevation, and pronation control systems. Articles were sought which included adult recreational or competitive runners.

No studies were identified that reported on research addressing the capacity of shoes to control the target conditions for the prevention of injury. No systematic reviews or reports of original research were found focusing on the enjoyment of running, on physical activity levels of the wearers or of the uptake of prescribed physical activity

Conclusion: This systematic literature review failed to find any scientific research supporting the benefit of prescription of running shoes which control for cushioning, elevated heel or pronation.

Richards, C., et al. Is Your Prescription of Distance Running Shoes Evidence-Based? **Br J Sports Med** 2009, March; 43(3):159-162.

COGNITION AND FETAL EXPOSURE TO ANTI-EPILEPTIC DRUGS

Anti-epileptic drugs may have differential risks in pregnancy. However, studies are lacking which can guide the choice of anti-epileptic

drugs in women who are or may become pregnant. This study was designed to assess the neurodevelopmental outcomes of children's exposed to antiepileptic drugs *in utero*.

This prospective observational study enrolled pregnant women who were using any of several anti-epileptic drugs as monotherapy between 1999 and 2004. Information was collected on several potentially confounding variables. Assessors blinded to the drug exposure evaluated cognitive outcomes using multiple tests. All children were assessed at the age of three years, with the results of these tests compared by drug exposure.

Cognitive assessments were conducted in 258 children at either two or three years of age. Of these, 73 had been exposed to carbamazepine, 84 to lamotrigine, 48 to phenytoin, and 53 to valproate. At three years, those exposed to valproate in utero had significantly lower IQ scores than those exposed to other anti-epileptic drugs. On average, those exposed to valproate had an IQ score 9 points lower than those exposed to lamotrigine ($p=0.009$).

Conclusion: This study suggests that in-utero exposure to valproate as compared to other commonly used anti-epileptic drugs may be associated with an increased risk of impaired cognition at the age of three years.

Meador, K., et al. Cognitive Function at Three Years of Age after Fetal Exposure to Anti-Epileptic Drugs. **N Engl J Med** 2009, April 16; 360 (16):1597-1605.

PROPHYLACTIC IVC FILTERS AND DVT

Acute spinal cord injury (SCI) results in more than 11,000 permanently disabled individuals annually. Inferior vena cava (IVC) filters have been suggested as a method to decrease the incidence of pulmonary embolism among patients with SCI. Placement of IVC filters however have been shown to increase DVT formation. This study sought to determine the relative risk of developing DVTs among patients with SCI with and without IVC filters.

This retrospective chart review included 112 patients admitted to a

freestanding university affiliated inpatient rehabilitation hospital. All were diagnosed with SCI between the levels of C3 and L3. Subjects were classified into two groups: those who had received prophylactic IVC filters during their acute stay and those who had not. The presence of DVT was confirmed by duplex ultrasound, which had been ordered based on clinical suspicion

Of the patients with IVC filters, 20.4% experienced a DVT as compared to 5.2% of those without filters ($p=0.021$). Of ASIA A patients 24.2% with IVC filters developed a DVT compared with 9.1% without a filter ($p=0.41$). Of ASIA B-D patients with IVC filters, 14.3% developed a DVT compared to those without a filter. No clinically significant differences were found between groups based on the referring center, mechanism of injury, or presence/absence of long bone fractures.

Conclusion: This study suggests that prophylactic IVC filter placement may result in an increased risk of developing a subsequent DVT among patients with acute spinal cord injury.

Gorman, P., et al. Prophylactic Inferior Vena Cava (IVC) Filter Placement May Increase the Relative Risk of Deep Venous Thrombosis after Acute Spinal Cord Injury **J Trauma** 2009, March; 66(3): 707-712.

GENDER, STROKE PRESENTATION AND ER CARE

While age-specific stroke incidence rates are higher in men, more strokes occur in women as a result of their longer life expectancy. Some studies have also found evidence of worse stroke outcomes among women even after adjusting for potential confounders. This study sought to assess sex differences and symptoms of presentation, hospital delays, door-to-doctor and door to imaging times among patients presenting with stroke symptoms seen in the emergency room (ER). Data were analyzed covering 1922 stroke cases reported by 15 Michigan hospitals. Numbness, weakness, confusion, speech disorder, vision, walking -- dizziness -- balance disorder and headache were classified as classic stroke warning signs. Time between symptoms and ER presentation and medical

engagement were compared between sexes.

There was no difference in pre-hospital delay although slightly more males than females arrived within six hours of stroke onset. The door to doctor times were 27 minutes for men and 29 minutes for women. Door to imaging times were 82 minutes for men and 95 minutes for women. Males were slightly more likely to report trouble with walking, balance or dizziness and to present with any warning sign of suspected stroke as compared with women. Symptoms associated with shorter delays included facial droop, speech and language problems, and loss of consciousness. None of the individual symptoms reached statistical significance.

Conclusion: This emergency room study demonstrates that after, accounting for differences in symptomatology and time post onset, women had 11% longer door to doctor delays and 15% longer door to imaging delays than did men.

Gargano, J., et al. Do Presenting Symptoms Explained Sex Differences in Emergency Department Delays among Patients with Acute Stroke? **Stroke** 2009, April; 40(4):1114-1120.

INTEGRATED CARE FOR REDUCING SECONDARY STROKE

Despite evidence showing that risk factor management reduces recurrent cerebral vascular disease, there are very few structured care programs for stroke survivors. This study evaluated the Integrated Care for the Reduction of Secondary Stroke (ICARUSS), a risk factor management method for stroke victims. This protocol targets seven modifiable risk factors including blood pressure, cholesterol, atrial fibrillation, body mass index, smoking, alcohol intake and physical activity.

This study randomized 186 patients with stroke into two groups. The ICARUSS model involved collaboration between stroke service specialists, a hospital coordinator, and the patient's general practitioner. The main goal of the program was the promotion of vascular risk factor management through frequent patient contacts and education. The outcomes of patients in this arm of the study were compared with those who received usual care.

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Between 2000 and 2004, 233 patients diagnosed with stroke were enrolled in the study. The patients in the treatment group were significantly more successful at lowering their systolic blood pressure or reducing their body mass index, and increasing their walking than were control patients. Of those with atrial fibrillation, more treatment patients than control patients were taking warfarin at 12 months follow up. The difference in cholesterol change scores was significant in favor of the treatment group ($p < 0.005$). The group differences in the 12 month change in the Rankin scale and in the quality-of-life questionnaire remained significant in favor of the treatment group at 12 months

Conclusion: This pilot study of patients with stroke demonstrates that an integrated system of education, advice and support aimed at the patient and the general practitioner can be effective in modifying a variety of vascular risk factors.

Joubert, J., et al. Integrity Care Improves Risk Factor Modification after Stroke: Initial Results of the Integrated Care for the Reduction of Secondary Stroke Model *J Neurol Neurosurg Psychiatry* 2009, April; 80 (4):279-284.

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