
Excerpts from Persian Medical Literature

Correlation between Exposure to Air Pollution and Onset of Acute Coronary Syndrome

Recent evidence suggests that long-term exposure to air pollution contributes to progression of atherosclerosis and the risk of cardiac morbidity and mortality. Short-term exposure may also lead to thrombosis and acute ischemic events. To evaluate the correlation between the levels of major air pollutants (CO and PM10) and hospital admission for acute coronary syndrome (ACS) in Tehran, we performed a case-crossover design and checked whether individual characteristics act as effect modifiers.

We selected 250 residents of Tehran who had been hospitalized with ACS from fourth of April through tenth of June, 2007. The individuals' data including sex, age, date of hospitalization, and coexisting illnesses (hypertension, diabetes) were gathered. Daily air pollution data were taken from the Air Quality Control Center. Temperature, humidity, stress, physical activity, and weekend days were treated as confounding variables, and a conditional logistic regression model was used for statistical analysis.

We found a positive relation between ACS and average 24-hour CO levels. The odds ratio (OR) for each unit increase of the average 24-hour CO was 1.18 (95%CI: 1.03 – 1.34). The correlation between ACS and 24-hour average PM10 did not reach statistical significance (OR for average 24-hour PM 10 was 1.005, 95%CI: 0.99 – 1.01). The association between ACS and 24-hour average CO tended to be stronger in women (OR=1.68 for each unit increase, 95%CI: 1.25 – 2.26). The relation between 24-hour average PM10 and ACS did not change across the layers of the effect modifiers.

The results suggest that an increase in average 24-hour CO levels will augment the risk of ACS, and the effect is stronger in females. On the other hand, we were unable to document an relation between ACS and average 24-hour PM 10 levels.

Authors: *Qorbani MI, Yunesian M, Fotouhi A, Zeraati H, Sadeghian S, Rashidi Y.*

Source: *Iranian Journal of Epidemiology.* 2007; **3 (1,2):** 53 – 59.

Ovarian Structural Disturbances in Epileptic Patients Treated with Sodium Valproate

Recent studies have raised the issue of an increased incidence of polycystic ovaries (PCO) and menstrual disturbances in women with epilepsy treated with sodium valproate. It seems that antiepileptic drugs, especially valproate, may play a functional role in altering the endocrine system of child-bearing women with epilepsy. We conducted this study to investigate the association between sodium valproate and ovarian structural or menstrual disorders in women with epilepsy.

In this cross-sectional study, we compared a total of 64 patients with epilepsy, aged 16-45 years. Of them 32 were taking sodium valproate alone and 32 were taking other antiepileptic drugs for a minimum duration of six months. Ovarian ultrasonography was performed and body mass index (BMI) was calculated for all patients. We also recorded the presence of menstrual disturbances in both groups.

Fifteen (46%) patients in the sodium valproate group had PCO compared with seven (21.9%) patients in the other group. In the sodium valproate group, four (12.5%) had oligomenorrhea, one (3.1%) had amenorrhea, and 13 (40.6%) had irregular menstrual cycles. However, in the other group, two (6.3%) patients had oligomenorrhea, and seven (21.9%) patients had irregular menstrual cycles. Amenorrhea was not present in the patients who were taking other antiepileptic drugs. The mean BMI was 22.5 kg/m² in the sodium valproate group and 20.1 kg/m² in the other group.

This study supports the association of PCO and high BMI with sodium valproate treatment. The frequency of menstrual disturbances did not differ significantly between the two groups.

Authors: *Kahnouji H, Soltanzadeh A, Sedighi N, Monshi B, Yousefi N, Alaleh A.*

Source: *Tehran University Medical Journal (TUMJ).* 2008; **65 (10):** 36 – 39.

Assessment of the Effect of Nitric Oxide within Hippocampal CA1 Area on Spatial Learning and Memory in Morphine- Dependent Rats

There is evidence showing the role of nitric oxide (NO) in opiate reward properties. The role of NO signaling pathway as an intracellular mechanism on augmentation of long-term potentiation in hippocampal CA1 area of rat is also confirmed. It has also been reported that oral morphine dependency facilitates the formation of spatial learning and memory via activation of N-methyl-D-aspartate (NMDA) receptors located in hippocampal CA1 area of rats. The effect of NO within hippocampal CA1 area on the spatial learning and memory processes in morphine- dependent rats is unclear.

Thirty- three N-MRI male rats (250 – 350 g) were divided into four experimental groups. Two cannulae were stereotaxically implanted bilaterally into hippocampal CA1 area. After five days recovery, the animals received morphine sulfate or sucrose for 30 consecutive days in drinking water. Morris water maze (MWM) studies were performed from day 26 to 30. In this period, the animals received bilateral intrahippocampal CA1 injection of 3 µg/2 µL L-NAME (nitric oxide synthase [NOS] inhibitor) or 2 µL saline (1 µL/site), one minute before daily experimentation. Spatial learning and memory parameters were subjected to analysis of variance (ANOVA).

Morphine dependency facilitated spatial learning and memory in rats. This effect was inhibited by local administration of L-NAME in hippocampal CA1 area.

Activation of intracellular NO signaling pathway in the pyramidal cells of hippocampal CA1 area may involve in facilitating spatial learning and memory in morphine -dependent rats.

Authors: Pourmotabbed A, Yaghmaei P, Imani P, Nedaei SE, Touhidi A.

Source: *Physiology and Pharmacology*. 2008; **11 (4)**: 252 – 260.

Risk of Hepatitis B Virus Infection Following Upper Gastrointestinal Endoscopy

It is thought that the transmission of hepatitis B virus (HBV) through the endoscopic procedures is a very rare event. The aim of this study was to evaluate the effect of the standard disinfection procedure of the endoscopes and accessories versus conventional disinfection in the transmission of HBV.

A prospective survey, comprising 520 consecutive upper gastrointestinal endoscopies was carried out simultaneously at three endoscopy centers in Iran, without altering the routine procedures. At center 1, the standard disinfection procedure (manual brushing of internal channel of the endoscope followed by 20 minutes exposure to 2% glutaraldehyde before starting the endoscopy sessions) and at center 2, conventional disinfection procedure (exposure of the endoscope to 2% glutaraldehyde for four minutes) were performed. Hepatitis B surface antigen (HBsAg) was tested for all patients and a questionnaire was filled by the patients to obtain information regarding the risk factors for HBV infection. Six months later, HBsAg testing was repeated, and a new questionnaire about HBV risk factors was completed by the patients.

A total of 520 patients (273 men and 247 women, mean age: 48.35 years) were enrolled. Of them 311 patients in the standard disinfection group and 209 patients in the conventional disinfection group underwent upper gastrointestinal endoscopy. Nineteen patients (10 in the conventional disinfection group, and nine in the standard disinfection groups) were HBsAg positive (3.7%). On survey for the risk factors of HBV infection, 14 patients (73.7%) had a history of dental procedures, two patients (10.5%) had positive family history of HBV infection, and two patients (10.5%) had a history of blood transfusion. Six months later, the patients were retested for HBsAg. Of those with negative HBsAg, one patient in the conventional disinfection group became HBsAg positive.

The probability of transmission of HBV by the endoscope in the conventional disinfection system is very low. In order to document that standard disinfection is preferable over the conventional one, a very large multicenter study is needed.

Authors: Mir-Nasseri MM, Poustchi H, Moshfeghi M, Shokravi S, Mohammadnejad M, Shakeri R, Malekzadeh R.

Source: *Govareh (Scientific Journal of the Iranian Association of Gastroenterology and Hepatology)*. 2007; **12 (1)**: 16 – 19.

A Brief History of Iodine Deficiency

Iodine deficiency today is a risk factor for delayed growth and development. It is the most common preventable cause of brain damage worldwide. More than two billions (38%) of the world's population from 130 countries are at risk. Iodine deficiency causes inadequate thyroid hormone production because iodine is the essential constituent of the thyroid hormone. Iodine deficiency was once considered as a minor problem, causing goiter; however, it is now known that its effects on the developing brain are much more deadly, and constitutes a threat to the social and economic development of many countries. The history of iodine deficiency began with the first reports of goiter and cretinism, dating back to the ancient civilizations, the Chinese and Hindu cultures and then to Greece and Rome. The first detailed descriptions of these subjects and documentation of the word "cretin" appeared in Diderot's encyclopedia in 1754, to refer to an "imbecile who is deaf, and dumb with a goiter hanging down to the waist", which at that time was widely present in Switzerland, southern France, and northern Italy. The 19th century marked the beginning of serious attempts to control the problem; however, the attempts were not successful until the latter half of the 20th century that the necessary knowledge for effective prevention and control was acquired. Present-day practice is based on the work of David Marine, who in 1915, declared that "endemic goiter is the easiest known disease to prevent." In the same year, Hunziger proposed that iodized salt be used for goiter control in Switzerland. During 1993-2003, the number of countries with iodine deficiency as a public health problem has decreased from 110 to 45. An estimated 41 million annual newborns still come into the world unprotected from brain damage as a result of iodine deficiency. Monitoring of iodine deficiency disorder elimination programs and education are two of the crucial elements for sustainability. Successes in some countries, e.g., Iran, China, Cameroon, and Peru show that sustainable optimal iodine nutrition is possible.

Author: Delshad H.

Source: *Iranian Journal of Endocrinology & Metabolism*. 2008; **9** (4): 439 – 454.

Analysis of *Cftr* Gene in Patients with Cystic Fibrosis in North-West Iran

Cystic fibrosis (CF) is the most common severe lethal autosomal recessive genetic disorder in Caucasians. This disease is caused by abnormal flow of electrolytes across the apical membranes of epithelial cells. It appears with elevated levels of Cl^- and Na^+ in sweat, and dysfunction of lung, pancreatic, gastrointestinal, reproductive, and hepatic systems. Its incidence is approximately one in 2500 live births. The responsible gene for CF is *cftr* gene located on human chromosome 7 including 27 exons. The results obtained from several studies on exon 10 indicate that there are many affected families from this region with unknown mutations. Therefore, it is necessary to study the mutation of other exons in these families. This study could be applied to estimate the mutation rates of these exons in the studied population and also to diagnose carriers and affected pregnancies.

Forty-eight affected families were referred by specialists to Genetic Center in Tabriz. DNA was extracted from peripheral blood of the patients and their parents. Then, polymerase chain reaction (PCR) was carried out and *cftr* gene was analyzed for exons of 7, 11, 13, 17b, 19, and 21 by single-strand conformation polymorphism (SSCP)/Hd technique.

The difference in SSCP pattern of exon 7 was observed in one of the families. SSCP pattern was different in exon II of nine families. The difference in SSCP pattern of exons 13, 19, and 20 was observed in two, two, and one families, respectively. SSCP pattern of exon 17 did not show difference in any families.

High heterogeneity was observed for the mutations of *cftr* gene in North-West population of Iran. Exon 11 showed more difference than the other exons in this study.

Authors: Azmoun S, Omrani O, Jabbarpour- Bonyadi M, Rafeey M, Bilan N, Ansarin KH.

Source: *Medical Journal of Tabriz University of Medical Sciences*. 2008; **30** (1): 7 – 14.