The authors report studies of a Croatian boy, a proven case of human S-adenosylhomocysteine (AdoHcy) hydrolase deficiency. Psychomotor development was slow until his fifth month; thereafter, virtually absent until treatment was started. He had marked hypotonia with elevated serum creatine kinase and transaminases, prolonged prothrombin time and low albumin. Electron microscopy of muscle showed numerous abnormalities of myelins: liver biopsy showed mild hepatitis with sparse rough endoplasmic reticulum. Brain MRI at 12.7 months revealed white matter atrophy and abnormally slow myelination. Hypermethioninemia was present in the initial metabolic study at age 8 months, and persisted (up to 784 microM) without tyrosine elevation. Plasma total homocysteine was very slightly elevated for an infant to 14.5-15.9 microM. In plasma, S-adenosylmethionine was 30-fold and AdoHcy 150-fold elevated. Activity of AdoHcy hydrolase was approximately equal to 3% of control in liver and was 5-10% of the control values in red blood cells and cultured fibroblasts. The authors found no evidence of a soluble inhibitor of the enzyme in extracts of the patient's cultured fibroblasts. Additional pretreatment abnormalities in plasma included low concentrations of phosphatidylcholine and choline, with elevations of guanidinoacetate, betaine, dimethylglycine, and cystathionine. Leukocyte DNA was hypermethylated. Gene analysis revealed two mutations in exon 4: a maternally derived stop codon, and a paternally derived missense mutation. The reasons for biochemical abnormalities and pathophysiological aspects of AdoHcy hydrolase deficiency are discussed.


The authors previously showed in a rat model that a single bout of high-intensity aerobic exercise 20 h before a simulated dive reduces bubble formation and after the dive protects from lethal decompression sickness. The present study investigated the importance of these findings in man. Twelve healthy male divers were compressed in a hyperbaric chamber to 280 kPa at a rate of 100 kPa min⁻¹ breathing air and remaining at pressure for 80 min. The ascent rate was 9 m min⁻¹ with a 7 min stop at 130 kPa. Each diver underwent two randomly assigned simulated dives, with or without preceding exercise. A single interval exercise performed 24h before the dive consisted of treadmill running at 90% of maximum heart rate for 3 min, followed by exercise at 50% of maximum heart rate for 2 min; this was repeated eight times for a total exercise period of 40 min. Venous gas bubbles were monitored with an ultrasonic scanner every 20 min for 80 min after reaching surface pressure. The study demonstrated that a single bout of strenuous exercise 24 h before a dive to 18 m of seawater signficantly reduced the average number of bubbles in the pulmonary artery from 0.98 to 0.22 bubbles cm⁻²(P = 0.006) compared to dives without preceding exercise. The maximum bubble grade was decreased from 3 to 1.5 (P = 0.002) by pre-dive exercise, thereby increasing safety. This is the first report to indicate that pre-dive exercise may form the basis for a new way of preventing serious decompression sickness.


Rheumatoid arthritis (RA) is a progressive disease that leads to an increasing loss of functional ability. Its management should be multidisciplinary, focused primarily at the prevention of functional loss. The aim of the present study was to investigate the effectiveness of monotherapy with disease-modifying antirheumatic drugs (DMARDs) on the prevention of functional loss in RA patients. Of 188 patients with RA, 95 had received DMARD monotherapy (mainly gold salts, but also antimalarials and sulfasalazin) for at least 36 months; 93 patients had not received DMARDs because of their inability to attend the rheumatology clinic regularly because of accessibility difficulties. All 188 patients were examined at the start of the follow-up and at its completion, some 42 months later. The following parameters were determined at the two examinations: tenderness and pain in individual joints, functional independence, functional and working status, and the results of ancillary tests. At the end of the follow-up there was a decrease in functional independence and deterioration in the functional and working status in both groups. Long-term monotherapy with DMARDs had not prevented functional loss or the ensuing disability in RA patients.
OBJECTIVE: To explore the relationship between teaching scientific methodology in Year 2 of the medical curriculum and student attitudes towards and knowledge about science and scientific methodology. DESIGN: Anonymous questionnaire survey was developed for this purpose. SETTING: Zagreb University School of Medicine, Zagreb, Croatia. PARTICIPANTS: A total of 932 students (response rate 58%) from all 6 years were invited to participate. MAIN OUTCOME MEASURES: Score on attitude scale with 45 Likert-type statements and score on knowledge test consisting of 8 multiple choice questions. RESULTS: The average attitude score for all students was 166±22 out of a maximum of 225, indicating a positive attitude towards science and scientific research. The students’ average score on the knowledge test was 3.2±1.7 on 8 questions. Students who had failed their Year 2 had the highest mean attitude (173±24) and knowledge (4.7±1.7) scores compared with other year groups (P<0.001, anova and Tukey posthoc test). For students who had attended a mandatory Year 2 course on the principles of scientific research in medicine (Years 3 to 6), multiple linear regression analysis showed that knowledge test score (B=3.4; SE=0.4; 95% confidence interval 2.5-4.2; P<0.001) and average grades (B=7.6; SE=1.5; 95% CI 4.6-10.6; P<0.001) were significant predictors of attitude towards science, but not sex or failure to pass a year (B=0.6; SE=1.7; 95% CI -3.9-2.6; P=0.707; and B=-3.1; SE=1.9; 95% CI -6.8-5.7; P=0.097, respectively). CONCLUSION: Medical students have generally positive attitudes towards science and scientific research in medicine. Attendance of a course on research methodology is related to a positive attitude towards science.


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Some of potential causes proposed to explain the reported increased haematological malignancies in Croatia towards the end of the post-war period were depleted uranium, chemical pollution and population mixing theory. The aim of this study was to define the population of Croatian children aged 0-14 years who were potentially exposed to each of those risks during the war and to investigate any possible association between the exposure and the incidence of haematological malignancies. The authors analyzed the data reported by the Cancer Registry of Croatia during the pre-war period (1986-1990), war period (1991-1995) and post-war period (1996-1999). In the group of 10 counties potentially exposed to depleted uranium and two counties where chemical war damage occurred, no significant difference in incidence of the studied haematological malignancies was noted in comparison to pre-war period. The incidence of lymphatic leukemia significantly increased in four counties where population mixing had occurred during the war period, supporting the ‘mixing theory’. In those counties, the incidence of Hodgkin’s lymphoma decreased during and after the war. In Croatia as a whole, decreases in incidence of myeloid leukaemias during war and non-Hodgkin lymphoma after the war were noted.


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Angle parameters proposed by Graf and linear parameters introduced by Morin are the most common currently in use for quantification and classification of ultrasonographic findings in the diagnosis of developmental dysplasia of the hip. The aim of this study was to determine which of the two parameters is more suited to routine clinical use. Investigation was carried out on 100 hips of 50 infants by the same examiner who obtained two separate sonograms for each hip. Based on the results of our study, angle parameters appear to be more functional in identifying and classifying pathology, and more adequate for screening and diagnosis.


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In 2000, 23 Neisseria meningitidis (meningococcal [Men]) isolates were collected in Croatia through an active laboratory-based surveillance for bacterial meningitis (17 Men serogroup B [MenB], 4 MenC, 1 MenW135, and 1 nongroupable isolate). Molecular characterization revealed a substantial level of diversity with only six isolates belonging to electrophoretic type 5 (ET-5) and ET-37 hypervirulent complexes.


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Synthesis of new potential COX-1 and/or COX-2 inhibitors, derivatives of 1,1-di(3-carboxyphenylethylene, their biological activity, docking results on COX-1 enzyme and absorption, distribution, metabolism, excretion (ADME) properties are presented. In addition to known interactions between ketoprofen and ibuprofen, leading NSAID agents and COX-1 active site, the possibility of formation of additional interactions is explored. Interactions with Ala527, and with one of the water molecules situated within the active site are identified. Molecular mechanics and DFT calculations for studied compounds have revealed free rotation around two central bonds (C1-C3’ and C1-C3’), making them flexible, thus easier to enter and adjust to the active site. Further modifications of core structure have been undertaken to optimize biological activity and ADME properties. As a result, two of the compounds are indicated as novel COX-1 inhibitors.


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AIM: To assess the prevalence of, attitudes towards and willingness to report different forms of academic dishonesty among medical students in a post-communist transitional country. METHODS: An anonymous, self-administered questionnaire was distributed to medical students in Years 2-6 at the Zagreb University School of Medicine; 827 (70%) valid questionnaires were returned and analysed. RESULTS: Most of the students (94%) admitted cheating at least once during their studies. The most frequent type of misconduct was ‘signing in an absent student on a class attendance list’ (89.1%), and the least frequent ‘paying for passing an examination’ (0.7%). The number of committed types of misconduct out of 11 listed types increased from Year 2 (median 2) to Year 6 (median 4). Cheating behaviours could be clustered into 4 groups based on self-reported cheating, perceived prevalence of cheating, attitudes towards cheating, and willingness to report cheating. The clustered behaviours that most students admitted to were perceived as the most frequent, more approved of and less likely to be reported. The strongest predictors of dishonest behaviour were attitude, perception of peer group behaviour and study year. Almost half (44%) the students said they would never report any form of cheating. CONCLUSION: Academic misconduct is widespread among medical students at the largest medical school in Croatia.
The influence of hyperbaric oxygen (HBO) treatment on the activities of superoxide dismutase (SOD) and Na\(^+\)K\(^-\)-ATPase was determined during different time periods of reperfusion in rats exposed to global cerebral ischemia. Ischemic animals were either sacrificed or exposed to the first HBO treatment 2, 24, 48 or 168 h after ischemic insult (for SOD activities measurement) or immediately, 0.5, 1, 2, 6, 24, 48, 72 or 168 h after ischemic procedure (for Na\(^+\)K\(^-\)-ATPase activities measurement). Hyperbaric oxygenation procedure was repeated for seven consecutive days. The results demonstrated the statistically significant increase in the hippocampal SOD activity 24 and 48 h after global cerebral ischemia followed by a decrease in the enzymatic activity 168 h after ischemic insult. In the ischemic rats treated with HBO the level of hippocampal SOD activity was significantly higher after 168 h of reperfusion in comparison to the ischemic, non HBO-treated animals. In addition, it was found that global cerebral ischemia induced a statistically significant decrease of the hippocampal Na\(^+\)K\(^-\)-ATPase activity starting from 1 to 168 h of reperfusion. Maximal enzymatic inhibition was obtained 24 h after the ischemic damage. Decline in Na\(^+\)K\(^-\)-ATPase activity was prevented in the animals exposed to HBO treatment within the first 24 h of reperfusion. Enhanced SOD activity and preserved Na\(^+\)K\(^-\)-ATPase activity within particular periods of reperfusion, could be indicators of a possible beneficial role of HBO treatment in severe brain ischemia.


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In the introductory part, the authors present several patrons/patronesses of the eyes and sight, as well as the protectors from eye diseases. In addition, presented is a short hagiography of St. Lucia, the most famous among the patrons of the eyes. The second part is dedicated to the cult of St. Lucia, which has existed among the Croats from the 10th century until present day. Testimonies to this are numerous churches, chapels, altars, paintings, sculptures, processions, pilgrimage, prayers, votive gifts, and many other forms of folk piety. By reviewing several characteristic examples from Istria and the region of Kvarner, the importance of this veneration is indicated, for general and religious tradition as well as for the history of medicine, especially the history of ethno-ophthalmology.