CROATIAN INTERNATIONAL PUBLICATIONS

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Tomić M, Ljubić S, Kaštelan S, Gverović Antunica A, Jazbec A, Poljičanin T. Inflammation, haemostatic disturbance, and obesity: possible link to pathogenesis of diabetic retinopathy in type 2 diabetes. Mediators Inflamm. 2013;2013:818671.

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Purpose. The pathogenesis of diabetic retinopathy (DR) is insufficiently understood but may possibly involve chronic, low-grade inflammation. The aim of this cross-sectional study was to investigate the relationship between inflammatory and haemostatic markers, other markers of endothelial dysfunction and anthropometric parameters, and their association with DR in patients with type 2 diabetes. Methods. According to the DR status patients were divided into three groups: no retinopathy, mild/moderate nonproliferative (NPDR), and severe NPDR/proliferative retinopathy (PDR). Results. The groups did not differ in the levels of inflammatory and haemostatic markers, other markers of endothelial dysfunction, and anthropometric parameters. After dividing the patients according to the level of obesity (defined by BMI, WC, and WHR) into three groups ANOVA showed the differences in C-reactive protein according to the WC ($P = 0.0265$) and in fibrinogen according to the WHR ($P = 0.0102$) as well as in total cholesterol ($P = 0.0109$) and triglycerides ($P = 0.0133$) according to the BMI. Logistic regression analyses showed that diabetes duration and prolonged poor glycemic control are the main predictors of retinopathy in patients with type 2 diabetes. Conclusion. Interrelations between obesity, inflammation, haemostatic disturbance, and other risk factors may possibly play an important additional role in endothelial dysfunction involved in the pathogenesis of diabetic retinopathy.

Drenjancevic I, Kibel A. Restoring Vascular Function with Hyperbaric Oxygen Treatment: Recovery Mechanisms. J Vasc Res. 2013;19;51(1):1-13.

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Treatment with hyperbaric oxygen can be a beneficial adjuvant therapy in various disorders characterized by compromised tissue oxygenation and perfusion. However, the effects of hyperbaric oxygenation cannot be simply explained as a compensation of the oxygen deficit. Hyperbaric oxigenation has a much broader influence and has the ability to alter protein expression, modulate signaling pathways and affect vascular structure and function. We discuss some of the most important uses of hyperbaric oxigenation for clinical conditions that involve abnormal vascular function. We present recent studies and insights into the mechanisms and effects of hyperbaric oxygen in the vasculature.

Boban M, Crnac P, Junaković A, Garami Z, Malojčić B. Blood flow velocity changes in anterior cerebral arteries during cognitive tasks performance. Brain Cogn. 2013;21;84(1):26-33.

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OBJECTIVE: Transcranial Doppler sonography (TCD) enables monitoring of blood flow velocities (BFVs) in basal cerebral arteries during different cognitive tasks performance with great temporal resolution. So far, BFVs changes during mental activity were monitored primarily in

middle cerebral arteries (MCAs) and little is known about these changes in anterior cerebral arteries (ACAs). AIM: To determine the effect of different cognitive tasks performance on BFV changes and hemispheric dominance in ACAs and to assess the most suitable activation test for monitoring of BFV changes in ACAs. METHODS: Fourteen right-handed, healthy subjects aged 20-26 were included in the study. BFVs in both ACAs were recorded simultaneously during performance of cognitive tasks designed to activate frontal lobes: phonemic verbal fluency test (pVFT), Stroop tests and Trail Making Tests (TMTs). RESULTS: A statistically significant BFV increase was recorded in both ACAs during performance of all cognitive tasks. Statistically significant right ACA dominance was found during performance of pVFT and TMTB. The most significant BFV increase was obtained during performance of TMTB. CONCLUSION: Our result addressed cognitive tests with great activation potential for monitoring of ACAs that might be used in distinguishing of healthy individuals and patients with neurovascular or neurodegenerative diseases.

Reiner Z, De Bacquer D, Kotseva K, Prugger C, De Backer G, Wood D; EUROASPIRE III Study Group. Treatment potential for dyslipidaemia management in patients with coronary heart disease across Europe: Findings from the EUROASPIRE III survey. Atherosclerosis. 2013;231(2):300-7.

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OBJECTIVE: Dyslipidaemia is among the most important risk factors for coronary heart disease (CHD). The lowering of LDL-cholesterol (LDL-C) yields significant reduction in both morbidity and mortality rates, particularly in patients with established CHD. The aim of this survey was to assess how dyslipidaemia is managed following a coronary event in different places in Europe. METHODS: CHD patients' data from centres in 22 European countries were gathered using standardised methods. In total, 8467 CHD patients with lipid measurements in one central laboratory were included. Trends from 8 countries participating in all three EUROASPIRE surveys (1994-1995, 1999-2000, 2006-2007) were also investigated. RESULTS: 51.1% of CHD patients had elevated total cholesterol (≥4.5 mmol/L), 54.5% had raised LDL-C (≥2.5 mmol/L), 36.7% had low HDL-C (<1.0 mmol/L for men and <1.2 mmol/L for women), and 34.7% had increased triglycerides (≥1.7 mmol/L). The use of lipid lowering drugs was 79.8% but it varied considerably, ranging from only 41.6% (Lithuania) to 95.4% (Finland). Over the past decade, in 8 countries the prevalence of hypercholesterolaemia (≥4.5 mmol/L) in CHD patients has decreased from 94.5% in the first to 76.7% in the second and 46.2% in the third survey ($p < 0.0001$). The use of lipid-lowering drugs increased from 32.3% in the first, to 62.7% in the second and 88.8% in the third survey ($p < 0.0001$). CONCLUSIONS: Although management of dyslipidaemia in CHD patients is improving, a large majority of CHD patients with dyslipidaemia is still inadequately treated and many patients on lipid-lowering therapy are not reaching the treatment goals. Therefore, a considerable potential still exists throughout Europe to reduce CHD mortality and morbidity rates through better treatment of dyslipidaemia.

Škerk V, Markotić A, Delić Brkljačić D, Manola Š, Krčmar T, Gabrić ID, Štajminger G and Pintarić H. The association of ventricular tachycardia and endothelial dysfunction in the setting of acute myocardial infarction with ST elevation. Med Sci Monit. 2013; 19: 1027–1036.

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Background: Ventricular tachycardia (VT) is frequently seen in ischemic settings like acute myocardial infarction with ST segment elevation (STEMI). Endothelial dysfunction (ED) represents inflammation and the loss of all protective features of the endothelium. We aimed to examine the association between VT and ED in patients with STEMI. Material/Methods: The study included 90 subjects (30 with VT and acute STEMI, 30 with STEMI without VT, and 30 controls). Sera of all subjects were tested on ED markers by enzyme immunoassay: sICAM-1 (intracellular adhesive molecule-1), sVCAM-1 (vascular adhesive molecule-1), P- and E-selectins, and VEGF (vascular endothelial growth factor). In addition, CRP (C-reactive protein) was detected. Results: Significantly increased values of low-density lipoprotein, triglycerides, leukocytes, creatinine, and the number of cigarettes smoked were observed among patients with VT+STEMI in comparison to controls. The levels of E-selectin were significantly lower in the VT+STEMI group than in the other groups, while the levels of VCAM-1 were significantly higher in the groups with STEMI and VT+STEMI compared to the controls. Lower levels of VEGF were recorded in STEMI and VT+STEMI groups compared to the control group. A significant correlation between CRP and VCAM-1 in patients with VT +STEMI was demonstrated. Conclusi-

ons: We showed that ED may have a role in the immunopathogenesis of VT in patients with STEMI. The role of sE-selectin and correlation of sVCAM-1 with CRP as possible ED predictive markers in patients with VT+STEMI should be further investigated in a large cohort of patients.

Stemberga V, Petaros A, Kovacevic D, Coklo M, Simicevic N, Bosnar A. The assessment of lens opacity postmortem and its implication in forensics. J Forensic Leg Med. 2013;20(8):1142-4.

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Visual impairment, mostly due to cataracts, has been demonstrated to be an important factor associated with traffic accidents. Although vision screening is standard procedure during licensing in order to prevent motor vehicle accidents, an eye exam is not typically administered after an accident has already occurred. Postmortem assessment of lens opacity in victims of car accidents would provide helpful information for attesting to the liability of the parties in specific accidents, determining the circumstances of the accident, and developing preventive measures for both drivers and pedestrians alike. In this paper, we explore the use of different methods and their limitations for assessing lens opacity postmortem. We discuss the possible use and benefits of a simple, but as-yet untested method: retrobulbar translucency. The method would be based on the recording of shadows formed by opaque regions of the lens while the eye is illuminated from the back with a rigid source of light. The efficacy and objectivity of the method, its reproducibility, and the inter- and intra-observer error should be tested before implementing such a technique to be regularly used to determine lens opacity in cadavers.

Civljak R, Papic N, Stamenic V, Kalenic S, Kuzman I, Car J. Influenza and hepatitis B vaccination coverage among healthcare workers in Croatian hospitals: a series of cross-sectional surveys, 2006--2011. BMC Infect Dis. 2013;5;13(1):520.

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BACKGROUND: Healthcare workers (HCWs) are at an increased risk of exposure to and transmission of infectious diseases. Vaccination lowers morbidity and mortality of HCWs and their patients. To assess vaccination coverage for influenza and hepatitis B virus (HBV) among HCWs in Croatian hospitals, we conducted yearly nationwide surveys. METHODS: From 2006 to 2011, all 66 Croatian public hospitals, representing 43--60% of all the HCWs in Croatia, were included. Statistical analysis was performed using the Kruskal--Wallis analysis of variance, Dunn's multiple comparison analysis and the chi-square test, as appropriate. RESULTS: The median seasonal influenza vaccination coverage rates in pre-pandemic (2006--2008) seasons were 36%, 25% and 29%, respectively. By occupation, influenza vaccination rates among physicians were 33 +/- 21%, 33 +/- 22% among graduate nurses, 30--34% among other HCWs, 26 +/- 21% among housekeeping and the lowest, 23 +/- 17%, among practical nurses ($p < 0.01$). In 2009--2010 season, seasonal influenza vaccination coverage was 30%, while overall vaccination coverage against pandemic influenza was fewer than 5%. Median vaccination coverage in the post-pandemic seasons of 2010--2011 and 2011--2012 decreased to 15% and 14%, respectively (reduction of 24% and 35%, respectively, $p < 0.0001$). Meanwhile, the median mandatory HBV vaccination coverage was 98%, albeit with considerable differences according to work setting (range 19--100%) and occupation (range 4--100%). CONCLUSIONS: We found substantial year-on-year variations in seasonal influenza vaccination rates, with reduction in post pandemic influenza seasons. HBV vaccination is satisfactory compared to seasonal influenza vaccination coverage, although substantial variations by occupation and work setting were observed. These findings highlight the need for national strategies that optimize vaccination coverage among HCWs in Croatian hospitals. Further studies are needed to establish the potential role of mandatory vaccination for seasonal influenza.

Lipozenčić J, Mokos ZB. Will nonablative rejuvenation replace ablative lasers? Facts and controversies. Clin Dermatol. 2013;31(6):718-24.

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Since the early 1980s, the field of skin rejuvenation has evolved rapidly. Traditional ablative resurfacing with carbon dioxide and Er:YAG lasers offered dramatic improvement of the skin tone and texture, but prolonged postoperative period and an increased risk for side effects and complications were unacceptable for the majority of patients. It prompted the development of nonablative lasers and non-laser systems, which stimulate dermal

neocollagenesis without epidermal disruption, and therefore, produce less adverse effects with little or no healing time. Recently, fractional nonablative and ablative lasers have been introduced, employing a completely new concept of fractional photothermolysis, which ensures high efficacy and fewer risks. Ablative laser resurfacing still remains the gold standard for treating advanced and severe photoaging providing excellent results in experienced hands. Alternatively, ablative fractional resurfacing can be used, with the results, which are comparable to fully ablative lasers with better standard of safety. Nonablative resurfacing is ideal for patients under the age of 50 years with minimal facial sagging, and for those who are unwilling to undergo expensive and demanding ablative procedures. It can be concluded that the key of therapeutic success is in proper patient selection, setting appropriate expectations and combining different rejuvenation technologies with other therapeutic modalities, such as botulinum toxin and fillers.