

CROATIAN INTERNATIONAL PUBLICATIONS

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Fila B, Lovčić V, Sonicki Z, Magaš S, Sudar-Magaš Z, Malovrh M. Vein diameter after intraoperative dilatation with vessel probes as a predictor of success of hemodialysis arteriovenous fistulas. Med Sci Monit. 2014;20:191-8.

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BACKGROUND: Vascular access is "the life line" for patients on chronic hemodialysis. The autogenous arteriovenous fistula provides the best access to the circulation because of low complication rate, long-term use, and lower cost, compared to arteriovenous graft and central venous catheter. The primary objective of this prospective study was to investigate the predictive value of vein diameter after intraoperative dilatation with vessel probes on hemodialysis fistula maturation. **MATERIAL AND METHODS:** Ninety-three fistulas were performed by a single surgeon from February 1, 2006 to January 31, 2009. Intraoperative vein dilatation with vessel probes was attempted in all fistulas. Measurements of the feeding artery diameter, vein diameter and the increased vein diameter after intraoperative dilatation were performed and immediate failure, early patency, early failure, primary patency, and fistula survival outcomes were recorded during 48-month follow-up. **RESULTS:** Early failure occurred in 20% of fistulas and 70% matured sufficiently for cannulation. Variables with significant impact on the failure to mature by univariate analysis were: body-mass index ($P=0.041$), artery diameter ($P<0.001$), vein diameter ($P=0.004$), and vein diameter after dilatation ($P=0.002$). However, but multivariate analysis showed that only body-mass index ($P=0.038$), artery diameter ($P=0.001$), and the diameter of the vein after dilatation ($P=0.018$) significantly affected maturation. In a group of 56 (60%) pa-

tients with vein diameter before dilatation ≤ 2 mm, among vessel characteristics found by multivariate analysis, only vein diameter after dilatation ($P=0.004$) significantly affected function. **CONCLUSIONS:** Artery diameter and vein diameter after intraoperative dilatation with vessel probes were the main predictors of fistula function.

Duplancic B, Stambolija V, Holjevac J, Zemba M, Balenovic I, Drmic D, Suran J, Radic B, Filipovic M, Blagaic AB, Brcic L, Kolenc D, Grabarevic Z, Seiwerth S, Sikiric P. Pentadecapeptide BPC 157 and anaphylactoid reaction in rats and mice after intravenous dextran and white egg administration. Eur J Pharmacol. 2014;727C:75-79.

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Anesthetized mice or rats received intravenously 6%, 10%, 20%, 40%, 60%, 80%, and 90% dextran and/or white egg (1ml/rat or 0.15ml/mouse) into their tails. Medication (/kg b.w., 5ml/kg) was given intraperitoneally (BPC 157 10 μ g, 1 μ g, 10ng, and 10pg/kg, chloropyramine 20mg/kg, and cimetidine 10mg/kg intraperitoneally, alone or in combination while controls received an equivolume of saline), immediately after challenge or, alternatively, at 5min after or 24 or 48h before challenge. The effect was assessed at 5, 10, 20 and 30min after dextran and/or white egg challenge. We commonly noted prominent edema involving the face, upper and lower lip, snout, paws and scrotum (presented with extreme cyanosis), poor respiration and the number of fatalities after dextran and/or white egg application. Contrary, BPC 157 regimens (10 μ g, 1 μ g, 10ng, and 10pg/

kg) effectively, may both prevent anaphylactoid reactions that may arise from dextran and/or white egg application and furthermore, rescue already advanced reactions when given after the challenge. Chloropyramine and cimetidine given alone were only moderately effective. When given together with BPC 157, the observed effect correlates with the strong effect of BPC 157 given alone.

Knezevic N, Kulis T, Maric M, Grkovic MT, Krhen I, Kastelan Z. Laparoscopic partial nephrectomy with diode laser: a promising technique. Photomed Laser Surg. 2014;32:101-5.

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OBJECTIVE: The aim of this study was to evaluate application of diode laser in laparoscopic partial nephrectomy (LPN), and to question this technique in terms of ease of tumor excision and reduction of warm ischemia time (WIT). **BACKGROUND DATA:** LPN is the standard operative method for small renal masses. The benefits of LPN are numerous, including preserving renal function and prolonging overall survival. However, reduction of WIT remains main challenge in this operation. In order to shorten WIT, many techniques have been developed, with variable results. **PATIENTS AND METHODS:** We performed a prospective collection and analysis of health records for patients who were operated on between March 2011 and August 2012. Inclusion criteria were single tumor ≤ 4 cm, predominant exophytic growth and intraparenchymal depth ≤ 1.5 cm, with a minimum distance of 5 mm from the urinary collecting system. **RESULTS:** We operated on 17 patients. Median operative time was 170 min. In all but two patients, we had to perform hilar clamping. Median duration of WIT was 16 min. Pathohistological evaluation revealed clear cell renal cancer and confirmed margins negative for tumor in all cases. Median size of the tumor was 3 cm. Median postoperative hospitalization was 5 days. Average follow up was 11.5 months. There were no intraoperative complications. One postoperative complication was noted: perirenal hematoma. **CONCLUSIONS:** Laser LPN is feasible, and offers the benefit of shorter WIT, with effective tissue coagulation and hemostasis. With operative experience and technical advances, WIT will be reduced or even eliminated, and a solution to some technical difficulties, such as significant smoke production, will be found.

Patrk I, Morović M, Markulin A, Patrk J. Cutaneous reactions in patients with chronic hepatitis C treated with peginterferon and ribavirin. Dermatology. 2014;228:42-6.

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BACKGROUND/OBJECTIVE: Peginterferon alfa and ribavirin could cause various cutaneous reactions. Treatment-related cutaneous reactions are common, and treatable complications can contribute to the treatment discontinuation. **METHODS:** We performed a 6-year prospective study of cutaneous reactions in 271 patients with chronic hepatitis C treated with peginterferon and ribavirin. **RESULTS:** Cutaneous reactions of mild to moderate degree were seen in 36 (13.3%) patients: localized cutaneous reactions in 7 (2.6%) patients, generalized reactions - pruritus, skin xerosis and eczematous changes - in 28 (10.3%) patients, alopecia in 11 (4.1%) patients; exacerbation of lichen planus was seen in 1 patient. **CONCLUSION:** The study showed a relatively low prevalence of cutaneous reactions without the need for discontinuation of any of the drugs used. These reactions correlated only with the age of the patients and treatment duration. This finding is of particular importance with regard to the recently introduced direct-acting antivirals in the treatment of hepatitis C virus infection, which can cause a very severe form of cutaneous reactions.

Saraga M, Vukojević K, Krželj V, Puretić Z, Bočina I, Durdov MG, Weber S, Dworniczak B, Ljubanović DG, Saraga-Babić M. Mechanism of cystogenesis in nephrotic kidneys: a histopathological study. BMC Nephrol. 2014;15:3.

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BACKGROUND: Nephrotic syndrome (NS) is pathological condition characterized by heavy proteinuria. Our study investigates hypothesis that change in cell proliferation of proximal tubules influences primary cilia structure and function and promotes cystogenesis in congenital nephrotic syndrome of the Finnish type (CNF) and focal segmental glomerulosclerosis (FSGS). **METHODS:** CNF kidneys were analyzed genetically. Proliferation (Ki-67), apoptosis (caspase-3), and primary cilia (α -tubulin) length and structure were analyzed immunohistochemically and ultrastruc-

turally in healthy, CNF and FSGS kidneys. Cyst diameters were measured and correlated with proliferation index. RESULTS: Proximal tubules cells of healthy kidneys did not proliferate. In nephrotic kidneys, tubules with apparently normal diameter covered by cuboidal/columnar epithelium (PTNC) contained 81.54% of proliferating cells in CNF and 36.18% in FSGS, while cysts covered with columnar epithelium (CC) contained 37.52% of proliferating cells in CNF and 45.23% in FSGS. The largest cysts, covered with squamous epithelium (CS) had 11.54% of proliferating cells in CNF and 13.76% in FSGS. Increase in cysts diameter correlated with changes in proliferation index, tubular cells shape, primary cilia formation and appearance of apoptotic cells. CONCLUSIONS: We present a novel histopathological data on the structure and possible changes in function of tubular cell in NS kidneys during cystogenesis. We suggest existence of common principles of cystogenesis in CNF and FSGS kidneys, including serious disturbances of tubular cells proliferation and apoptosis, and faulty primary cilia signaling leading to deterioration of proteinuria in NS kidneys.

Pletikos M, Sousa AM, Sedmak G, Meyer KA, Zhu Y, Cheng F, Li M, Kawasawa YI, Sestan N. Temporal specification and bilaterality of human neocortical topographic gene expression. *Neuron*. 2014;81:321-32.

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Transcriptional events involved in the development of human cerebral neocortex are poorly understood. Here, we analyzed the temporal dynamics and laterality of gene expression in human and macaque monkey neocortex. We found that interareal differences exhibit a temporal hourglass pattern, dividing the human neocortical development into three major phases. The first phase, corresponding to prenatal development, is characterized by the highest number of differentially expressed genes among areas and gradient-like expression patterns, including those that are different between human and macaque. The second, preadolescent phase, is characterized by lesser interareal expression differences and by an increased synchronization of areal transcriptomes. During the third phase, from adolescence onward, differential expression among areas increases again driven predominantly by a subset of areas,

without obvious gradient-like patterns. Analyses of left-right gene expression revealed population-level global symmetry throughout the fetal and postnatal time span. Thus, human neocortical topographic gene expression is temporally specified and globally symmetric.

Boban M, Persic V, Jovanovic Z, Brozina A, Miletic B, Rotim A, Drinkovic N Jr, Manola S, Laskarin G, Boban L. Obesity dilemma in the global burden of cardiovascular diseases. *Int J Clin Pract*. 2014;68:173-9.

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Obesity is a well-known risk factor in the cardiovascular disease continuum. However, its clinical effects are multimodal, perplexed and non-unanimously understood. Our aim was to assess the prevalence and effects of obesity on the cardiometabolic risk factors and systolic function of left ventricle ejection fraction (LVEF) in patients scheduled for cardiovascular rehabilitation. METHODS: A cohort of 302 consecutive patients recently treated for ischaemic or valvular heart disease was matched according to the existence of obesity, defined with body mass index (BMI ≥ 30 kg/m² ; n = 90 vs. 212), and the advanced grade of obesity (BMI ≥ 35 kg/m² ; n = 19 vs. 283). Nutritional risk screening was performed using the standardised NRS-2002 tool. RESULTS: The mean age of patients was 62.4 ± 11.2 (range 23-86) years; there were more men than women 244 (80.8%) : 58 (19.2%). Group of obese conveyed higher prevalence of ischaemic heart disease than non-obese (OR = 2.69; 95% CI: 1.01-7.20; p = 0.048); while the difference was insignificant for the advanced grade of obesity (n = 17; 89.5%) vs. controls (n = 233; 82.3%; p > 0.05). There was no significant difference in prevalence of other comorbidities (diabetes, glucose intolerance, hypercholesterolaemia, chronic renal and chronic obstructive pulmonary disease) between studied groups (p > 0.05). Utilisation of lipid-lowering drugs was of similar range between the studied groups (p > 0.05), respectively. LVEF (%) was 50.5 ± 8.2 vs. 50.7 ± 7.7 (p > 0.05) and 50.6 ± 7.8 vs. 49.6 ± 10.9 (p > 0.05; Rho = 0.001; p > 0.05), respectively. CONCLUSION: In studied set of patients, BMI positively correlated with left ventricle dimension and thickness. No significant connection of obesity was found with the prevalence of chronic comorbidities, increased nutritional risk, laboratory diagnostics or systo-

lic function of left ventricle. Existence of obesity paradox in clinical practice was in part reaffirmed with our study.

Boban M, Crnac P, Junaković A, Garami Z, Malojčić B.
Blood flow velocity changes in anterior cerebral arteries during cognitive tasks performance. Brain Cogn.
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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.