80. CLINICAL APPLICATIONS OF MRI 3.0 T TRACTOGRAPHY IN THE SPINAL CORD INJURY

Gavriliuc Olga

Academic adviser: **Mihail Gavriliuc,** M.D., Ph.D., Associate Professor, State Medical and Pharmaceutical University "Nicolae Testemiţanu", Chişinău, Republic of Moldova

Introduction: Spinal cord lesions are often devastating. Clinical syndrome caused by a spinal injury includes paralysis of the limbs and trunk, with sensory disturbance and dysfunction of the gastrointestinal and genitourinary sphincters. Spinal lesions sometimes remain insufficiently visualized by conventional MRI, therefore it is an important region of interest in biomedical research. DTI (Diffusion Tensor Imaging) tractography is a quantitative MRI technique that can visualize the white matter tracts in vivo, so it can be useful in diagnosing spinal cord injury.

Purpose and objectives: To assess the feasibility and clinical value of MRI 3.0 T tractography for evaluating spinal cord injury.

Materials and Methods: Imaging was performed on total of 10 subjects: 7 patients with suspected pathology of the spine (ischemic, tumorous, degenerative) and 3 healthy volunteers. Imaging was performed at 3.0 T MRI (Siemens Skyra) with tractography reconstruction. Regions of interest were defined manually and measured on apparent diffusion coefficient (ADC) and fractional anisotropy (FA) maps.

Results: In one patient with ependymoma tractography showed displacement of the fibers, one patient with traumatic spinal cord–interruption of the fibers, two patients with spinal compression–local fiber tracts were compressed, 3 patients with ischemic lesions-insignificant interruption of fibers. In 3 volunteers the white matter tracts were normal. All patients had decreased FA values and increased ADC values at the affected spinal segments (which suggest fiber damage) and relatively normal FA values and ADC values cranial and caudal of the lesion (which suggest that the lesion is much smaller that showed on the conventional MRI).

a **b**

a – post traumatic cervical defect seen on T2-weighted image

b – interruption of the fibers seen on tractography

Conclusions: The FA and ADC values offer an objective measure for evaluation of the spinal cord fiber integrity. This method has the potential to demonstrate alterations of white matter tracts, therefore has a great potential with the diagnosis and follow-up of patients with diseases of the spinal cord. The FA and ADC values offer an objective measure for evaluation of the spinal cord fiber integrity.

Keywords: tractography, spinal cord, FA, ADC

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81. WATERSHED ISCHEMIC STROKE – CLINICAL AND IMAGING PECULARITIES

Gudumac Veronica

Academic advisor: **Gavriliuc Mihail**, Ph.D., Professor, State Medicine and Pharmacy University „Nicolae Testemitanu", Chişinău, Republic of Moldova

Introduction: Watershed Stroke (WS) is a subtype of ischemic stroke, produced at the borderzones of main brain arteries' vascularisation, and has proved to have specific features.

Purpose and objectives: Specific clinical aspects' analisis of WS as a classic ischemic stroke subtype. Determination of specific imaging pattern in patients with WS. Early neurological

manifestations' study in patients with WS. WS risk factors analysis. Study of classic brain CT use in WS diagnosis.

Materials and Methods: 60 patients with ischemic stroke (IS), with male-female ratio= 1:0,86, divided in 2 groups: main group-30 patients wuth WS, and control group-30 patients with classic IS. Comparative imaging, clinical, and paraclinical features, together with statistic analysis were provided.

Results: Inclusion criteria were the presence of 1 or 2 IS in past with a maximum of 3 years from the onset, the age ranking from 18 to 81, and CT-confirmed IS. Exclusion criteria were concomitant decompensated vascular pathologies, hemorrhagic stroke, and a period of more than 3 years from the first stroke. More frequently IS occurred in the middle cerebral artery territory, and more often it was primary, and bilateral or combined (involving 2 border zones at a time). The neurological deficit was found to be directly proportional with the proximity of the affected cerebral artery. Differences between neurological manifestations were found. In patients with WS they were characterizing generalized brain ischemic suffering (headache- 25,8%, dizziness- 27,3%, vision diminuation-6,6%, phosphenes-19,5%, tinnitus-20,8%). A higher rate of internal carotid artery (ICA) stenosis was found in patients from the main group (46,6% versus 40%), with an evident prevalence for patients with moderate stenosis (41,66% for 51-70% of ICA stenosis versus other degrees of stenosis). The types and morphology of atherosclerotic plaque (AP) also showed differences between those 2 groups: a higher frequency of „hard" (ateromatous) plaques was identified in patients with WS in comparison with those from control group (46,66% versus 43,33%), together with higher rate of calcificates and emboligen potential were found in WS patients. Cerebral lacunarism was found much more frequently in patients with WS, especially in those with ICA stenosis.

Conclusions: Neurological score in patients with WS is directly proportional with the proximity of the cerebral artery that was affected; Primary WS episodes have smaller neurological deficit score; ICA stenosis is a WS risk factor; AP has specific morphology in patients that underwent WS; Cerebral lacunarism development is directly dependent on the stenosis degree, being more frequently associated with WS; Neurological manifestations in patient with WS are specific for cerebral hypoperfusion state; Brain CT allows cortical WS diagnosis, but has some limitations in subcortical WS identification; The relationship between cerebral metabolism's modifications adapted to brain hypoperfusion, are still a domain of further research.

Keywords: Watershed, CT, Atherosclerosis

82. CLINICAL AND BIOLOGICAL FEATURES IN CHRONIC HEPATITIS D

Jaber Samer

Academic adviser: **Berliba Elina**, M.D., Associate Professor, Department of Gastroenterology, State Medical and Pharmaceutical University "Nicolae Testemiţanu", Chişinău, Republic of Moldova

Introduction: Infection with hepatitis D virus (HDV) has a worldwide distribution, but areas of high prevalence include the Mediterranean Basin, inclusively Moldova. Most of the patients have progressive deterioration of liver function and increased risk of liver cirrhosis and end-stage of liver failure.

Purpose and objectives: To evaluate clinical features, paraclinical results and laboratory peculiarities of liver function in patients with chronic hepatitis D, in comparison with chronic hepatitis B patients.

Material and methods: Thirty-six patients, twenty with chronic HDV infection, with median age of 40.2 years, and other 16 with chronic HBV infection, with median age of 43,3 years, were investigated consecutively.

Results: The clinical presentation of patients with chronic hepatitis D shows the predominance of astheno-vegetative syndrome (100%), dull pain in right upper quadrant (83%), hepatomegaly (60%) and splenomegaly (33%). In patients with HDV was found veridical pronounced cytolytic syndrome, manifested by increase of ALT (97.55+8.5 U/l) and AST (78.83+6.2 U/l) compared with control group ($p<0.001$) and patients with HBV ($p<0.05$), also was determined tendency towards reduction of prothrombin and albumin compared with chronic hepatitis B. Research blood count revealed a white blood cell ($3.6+0.57 \times 10^9$/l) and platelet counts ($156.8+10.2 \times 10^9$/l) decreased truthful in HDV versus the control group ($p<0.01$), as well as to patients with HBV ($p<0.05$). In HDV patients we have detected the presence of HBsAg, anti-HBcor and anti-HDV in all patients (100%), HBeAg – in 30% of patients,