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The role of two-dimensional Ultrasonography in the diagnosis of Degenerative disease of cervical intervertebral discs in adolescents

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Objective: To improve the efficiency of cervical intervertebral discs protrusion by determining the ultrasound biomarkers. **Materials and methods:** The study included 72 healthy adolescents with normal intervertebral discs, 96 person with the degenerative changes in nucleus pulpous and 69 person with the disc protrusions. In axial section was performed the sagittal intervertebral disc and spinal canal sizes, the anterior dural space size, the width of spinal nerve canals.

Results: The protrusion of the cervical discs in 11 (15,9±4,4%) cases was noted in children aged 13-14 years, in 21 (30,5±5,5%) - at 15-16 years and in 37 (53,6±6,0%) - at 17-18 years ($p < 0,01$ and $p < 0,001$ respectively). In 24 (34,8±5,7%) cases, the protrusion was localized at the level of (34,8±5,7%), in 16 (23,2±5,1%) - C4-C5, in 11 (15,9±4,4%) - at the level C6-C7, in 9 (13,0±4,0%) - at the level of C3-C4 respectively. In 26 (37,7±5,8%) cases the protrusion had paramedian, in 18 (26,1±5,3%) cases - median-paramedian, in 16 (23,2±5,1%) cases - median, in 6 (8,7±3,4) cases - circular, in 3 (4,3±2,4) cases - posterolateral localization. In healthy children without degenerative changes of the intervertebral discs, the average sagittal disc size is 15,4±0,98mm, in a group with a change of the nucleus pulpous -

16,1±1,07 mm, in a group with disc protrusion - 16,3±1,12mm, respectively. The parameters of average sagittal spinal size was 15,9±0,97mm, 15,2±1,04 mm, 14,1±0,87mm, respectively. The IVD/SC index was 0,97±0,05, 1,06±0,06, 1,16±0,07, respectively. The ADS was 3,7±0,45mm, 3,2±0,38mm, 2,1±0,26 mm, and ADS/SC - 0,23±0,026, 0,21±0,019, 0,15±0,017 respectively.

Conclusions: In adolescents in the cervical spine, median-paramedian and paramedian protrusions are most commonly found, which are most often localized at the level of both C5-C6 and C4-C5. The greatest narrowing and deformation of the anterior dural space is observed by median and median-paramedian protrusions, and the spinal nerve canal-by posterolateral and paramedian protrusions.

Speaker Biography

Rizvan Abdullaev is currently working in the Kharkiv National Medical University Ukraine. He has published numerous research papers and articles in reputed journals and has various other achievements in the related studies. He has extended his valuable service towards the scientific community with his extensive research work.

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