Content Analysis Information about Clinical and Beam Diagnostics of Injuries and Degenerative Diseases of the Cervical Spine (a Review of the Literature)

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Abstract

The purpose of the review is to analyze scientific information on clinical and beam diagnosis of degenerative diseases and injuries of the cervical spine. Used traditional qualitative method and content analysis for the study of 316 sources of scientific information, of which 77,5 % during the last 5 years. We selected 2 groups for the content analysis: 1) common clinical signs in syndromic contour of diseases and injuries of the spine, 2) beam diagnosis of spinal pathology. Defined a meaningful unit of analysis. In the literature quite fully consecrated to different aspects of modern methods of beam diagnostics of diseases and injuries of the spine (101 (32 %) domestic and 111 (35,1 %) from foreign sources), and their clinical manifestations (63 (19,9 %) and 41 (13 %) sources respectively). The majority of publications is devoted to the comprehensive assessment of patients (72 (34 %) of the source), sufficient attention is paid to methods of CT and MR tomography, ultrasonic research (39 (18,4 %), 38 (17,9 %) and 43 (20,3 %) respectively) and the lowest number of publications covering the X-rays (20 (9,4 %) of sources). The use of content analysis allows for a quantitative evaluation of available scientific information and highlight the most promising directions in the diagnosis.

Key words: Content Analysis, Beam Diagnostics, Duplex Sonography, Injury, Degenerate Diseases, Cervical Department of a Backbone.

References

1. *Bazhin A. V., Egorova E. A.* Functional magnetic resonance imaging of the lumbar spine (literature review). Radiologija — praktika. 2015. No. 4. P. 40–50 (in Russian).
2. *Egorova E. A.* Diagnostic radiology in osteology. Study guide for physicians and medical students. Moscow: AP Stolica, 2015. 556 p. (in Russian).
3. *Zakhmatova T. V., Shedrenok V. V., Moguchaja O. V.* Diagnosis of compression of the vertebral arteries using spiral CT and color duplex scanning. Vestnik RNCRR. 2014. No. 14; URL: http://vestnik.rncrr.ru/vestnik/v14/papers/zahmatova_v14.htm (in Russian).
4. *Zakhmatova T. V., Shedrenok V. V., Moguchaja O. V.* Degenerative diseases and injuries of the cervical spine: value of the imaging results at surgery planning. Radiologija — praktika. 2015. No. 6. P. 25–34 (in Russian).
5. *Mumentaler M., Shter M., Mjuller-Fal' G.* Lesions of peripheral nerves and radicular syndromes. Moscow: MIA, 2014. 616 p. (in Russian).
6. *Parfenov V. A., Bestuzheva N. V.* Diagnosis and treatment of vertigo in outpatient practice. Vrach. 2012. No. 12. P. 14–18 (in Russian).
7. *Sebelev K. I.* The optimization of radiological diagnosis of degenerative spinal diseases in the aspect of surgical treatment. Dis. ... d-ra med. nauk. SaintPetersburg, 2012. 283 p. (in Russian).
8. *Sitel' A. B., Kuz'minov K. O., Bahtadze M. A.* The influence of degenerative processes in the cervical spine on the hemodynamics disturbances in vertebrobasilar system. Manual'naja terapija. 2010. V. 37. No. 1. P. 10–21 (in Russian).

9. *Skoromec A. A., Skoromec A. P., Skoromec T. A.* Nervous diseases. 8-e izd. Moscow: MEDpress-inform, 2013. 560 p. (in Russian).
10. *Spuzjak M. I., Sharmazanova E. P., Kolomijchenko Ju. A., Spuzjak S. M.* Radiological diagnosis of injuries of the upper cervical spine in children of preschool age according to x-ray and magnetic resonance imaging. Radiologija — praktika. 2011. No. 4. P. 100–102 (in Russian).
11. *Sherman L. A., Stashuk G. A., Denisova L. B., Kiselev A. M., Biktimirov R. G.* Complex radial diagnostics of consequences of «minor injuries» spine. Radiologija —praktika. 2011. No. 4. P. 111–113 (in Russian).
12. *Banaszek A., Bladowska J., Szewczyk P., Podgorski P., Sasiadek M.* Usefulness of diffusion tensor MR imaging in the assessment of intramedullary changes of the cervical spinal cord in different stages of degenerative spine disease. Eur. Spine J. 2014. V. 23. No. 7. P. 1523–1530.
13. *Dong F., Shen C., Jiang S., Zhang R., Song P. et al.* Measurement of volume-occupying rate of cervical spinal canal and its role in cervical spondylotic myelopathy. Eur. Spine J. 2013. V. 22. P. 1152–1157.
14. *Fisher B. M., Cowles S., Matulich J. R., Evanson B. G., Vega D., Dissanaike S.* Is magnetic resonance imaging in addition to a computed tomographic scan necessary to identify clinically significant cervical spine injuries in obtunded blunt trauma patients? The Am. J. of Surgery. 2013. V. 206. P. 987–994.
15. *Hayashi T., Wang J. C., Suzuki A., Takahashi S., Scott T. P. et al.* Risk factors for missed dynamic canal stenosis in the cervical spine. The Spine J. 2014. V. 39. No. 10. P. 812–819.
16. *Kotil K., Kilincer C.* Sizes of the transverse foramina correlate with blood flow and dominance of vertebral arteries. The Spine J. 2014. V. 14. P. 933–937.
17. *McCutcheon L., Schmocker N., Blanksby K., Bhandary K., Deacon B., Reed W.* Best practice in diagnostic imaging after blunt force trauma injury to the cervical spine: a systematic review. J. of Medical Imaging and Radiation Sciences. 2015. V. 46. P. 231–240.
18. *Park M. S., Lee Y. B., Moon S. H., Lee H. M., Kim T. H. et al.* Facet joint degeneration of the cervical spine: a computed tomographic analysis of 320 patients. The Spine J. 2014. V. 39. No. 12. P. E713–E718.
19. *Payabvash S., McKinney A. M., McKinney Z. J., Palmer C. S., Truwit C. L.* Screening and detection of blunt vertebral artery injury in patients with upper cervical fractures: the role of cervical CT and CT angiography. Eur. J. of Radiol. 2014. V. 83. No. 3. P. 571–577.
20. *Peng B., Pang X., Li D., Yang H.* Cervical spondylosis and hypertension: a clinical study of 2 cases. Med. 2015. V. 94. No. 10. P. 618.
21. *Sultan M. J., Hartshorne T., Naylor A. R.* Extracranial and transcranial ultrasound assessment in patients with suspected positional «Vertebrobasilar Ischaemia». Eur. J. Vasc. Endovasc. Surgery. 2009. V. 38. P. 10–13.
22. *Takao T., Morishita Y., Okada S., Maeda T., Katoh F. et al.* Clinical relationship between cervical spinal canal stenosis and traumatic cervical spinal cord injury without major fracture or dislocation. Eur. Spine J. 2013. V. 22. P. 2228–2231.
23. *Vergari C., Rouch P., Dubois G., Bonneau D., Dubousset J. et al.* Non-invasive biomechanical characterization of intervertebral discs by shear wave ultrasound elastography: a feasibility study. Eur. Radiol. 2014. V. 24. No. 12. P. 3210–3216.

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