Kulczyński Marcin, Marciniec Michał, Sapko Klaudia, Muñoz-Niklitschek Esteban. The importance of follow-up and re-diagnosis of patients with demyelinating syndrome suspicion - a case study of a conversion from radiologically isolated syndrome to clinically definite multiple sclerosis. Journal of Education, Health and Sport. 2020;10(7):188-191. eISSN 2391-8306. DOI http://dx.doi.org/10.12775/JEHS.2020.10.07.019
https://apcz.umk.pl/czasopisma/index.php/JEHS/article/view/JEHS.2020.10.07.019
https://zenodo.org/record/3957512

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

Received: 25.06.2020. Revised: 05.07.2020. Accepted: 23.07.2020.

The importance of follow-up and re-diagnosis of patients with demyelinating syndrome suspicion - a case study of a conversion from radiologically isolated syndrome to clinically definite multiple sclerosis

Marcin Kulczyński[1]*, Michał Marciniec[1], Klaudia Sapko[1], Esteban Muñoz-Niklitschek[2]

[1]Chair and Department of Neurology, Medical University of Lublin, Poland
[2]Faculty of Medicine, University of Concepción, Chile

*Corresponding author:
Marcin Kulczyński
ul. dr. K. Jaczewskiego 8
20-954 Lublin, Poland
tel. +48817244718
e-mail: mk.marcin.kulczynski@gmail.com

ABSTRACT

Introduction. Radiologically isolated syndrome (RIS) is a term to describe criteria of diagnosis for the individuals, who underwent brain MRI because of other reasons than multiple sclerosis (MS) suspicion, but turned out to have white matter lesions similar to those present in patients with diagnosed MS. RIS is a separate entity with the presence of MR detected lesions strongly suggestive of MS in patients with no neurological manifestations. Although RIS is not the first stage of MS in every individual, 30-45% of them will present clinical symptoms later. There is a consensus, that about 1/3 of RIS patients will convert to clinically definite MS (CDMS) within 5 years of follow-up. There are some significant predictors of conversion, such as: age (< 37 when diagnosed), male sex and presence of lesions in spinal cord.

Case report. We describe a case of a 35-year-old female patient who was initially diagnosed with RIS after MRI performed due to migraine. After about year and a half of follow-up she presented first clinical manifestation (temporary left eye blindness) followed by second episode (in the second eye), a progression in MRI and appearance of oligoclonal bands in cerebrospinal fluid.

Discussion. Among individuals with incidentally found lesions in MRI, only few happen to have white matter findings similar to demyelinating lesions in patients with CDMS. Non-specific MRI white matter lesions are much more often than those fulfilling 2017 MAGNIMS criteria.

There is more research needed to determine significant risk factors for conversion from RIS to CDMS. In RIS patients watchful neurological supervision is indispensable.

Key words: magnetic resonance imaging; multiple sclerosis; oligoclonal bands; demyelinating diseases

Introduction

Multiple sclerosis (MS) is a demyelinating syndrome with a variety of clinical manifestation. In order to plan the optimal treatment of patients, early diagnosis of MS is vital. Radiologically isolated syndrome (RIS) was described initially in 2009 in order to establish objective criteria of diagnosis for the individuals, who underwent brain MR imaging because of other reasons than MS suspicion, but turned out to have white matter lesions similar to those present in patients with diagnosed MS. RIS is a separate entity with the presence of lesions strongly suggestive of MS in patients with no neurological deficits. Neurologically asymptomatic individuals may have an initial MR examination performed in order to diagnose other conditions than suspicion of MS, most often because of headaches. Although RIS is not always the first stage of MS, 30-45% of patients diagnosed with the condition will present clinical symptoms later and there is a consensus, that about 1/3 of RIS patients will convert to clinically definite MS (CDMS) within 5 years of follow-up. There are some significant predictors of conversion, such as: age (< 37 when diagnosed), male sex and presence of lesions in cervical and thoracic spinal cord. Moreover, individuals with RIS, although neurologically asymptomatic, are proven to experience increased anxiety and depression, as well as some mild symptoms of cognitive impairment. [1-6]

Case report

The patient, aged 35, female, was admitted to the neurology department of the clinical hospital in June 2019 because of the suspicion of a demyelinating process ongoing in the central nervous system. The patient reported, that previously she had suffered from episodes of migraine headaches, due to which she had an MRI examination of the brain performed in January 2018. The MRI revealed numerous hyperintensive lesions located subcortically, periventricularly and paraventricularly, which were not enhanced after administration of the paramagnetic contrast agent. For this reason, the patient was then hospitalized in the neurology ward in a voivodship hospital and diagnosed for the CNS demyelinating process (observation negative - no signs of focal CNS damage, oligoclonal bands in the cerebrospinal fluid were absent). In addition, the patient was hospitalized in July 2018 at the infectious diseases clinic with suspicion of neuroborreliosis – diagnose was as well negative. In September of the same year a few-days-long episode of left eye blindness occurred – during hospitalization the second lumbar puncture was performed with the inconclusive oligoclonal bands test result. The patient received a course of steroid therapy, with good results. Currently the patient has been admitted to the hospital due to worsening of right eye vision. In the neurological examination on admission: the patient was conscious, in logical contact, negative meningeal signs, pupils were equal, reactive, normal eyes' movement, without nystagmus, other cranial nerves were normal, without obvious limb paresis, without ataxia, without sensory disturbances, excessive tendon reflexes in the upper limbs, without Babinski sign, normal gait. In the brain MRI quite numerous demyelinating lesions were found. Compared to the previous examination from January 2018, two new lesions were visible in the paraventricular / periventricular location (near the temporal horn of the right lateral ventricle), after intravenous administration of the paramagnetic agent there was a slight contrast enhancement within one of the described lesions (active focus). During hospitalization another lumbar puncture was performed and oligoclonal bands were found positive in the cerebrospinal fluid examination. Based on the clinical manifestation, laboratory tests' results and brain MRI, multiple sclerosis was diagnosed.

Discussion

The 2017 MAGNIMS Modified diagnostic criteria for Radiologically Isolated Syndrome consist of inclusion crtieria (demonstration of lesion dissemination in space {by ≥ 1 T2-hyperintense lesions involving at least two of the 2 following topographies: a. periventricular white matter; b. cortico-juxtacortical; c. spinal cord; d. infratentorial}) and exclusion criteria (1. Clinical evidence of neurological dysfunction suggestive of MS based on historical symptoms and/or objective signs; 2.MRI abnormalities explained by any other disease process, with particular attention to aging or vascular-related abnormalities, and those due to exposure to toxins or drugs.). [7]

Among individuals with incidentally found lesions in MRI, many of them do not have white matter findings similar to demyelinating lesions in patients with CDMS. Non-specific white matter lesions are much more often than than those fulfilling 2017 MAGNIMS criteria. The last 2017 McDonald's criteria revision does not recognize RIS as an MS phenotype and requires at least one clinical manifestation (accompanied by presence of oligoclonal bands in CSF) to diagnose CDMS. [1, 4, 8-10]

There is more research needed to determine significant risk factors for conversion from RIS to CDMS. The risk assessment should consist of MR imaging, as well as CSF test for oligoclonal bands presence and repeated neurological examination. Watchful neurological supervision of RIS individuals is indispensable.

References

1. Kulczyński M, Sapko K, Papuć E et al. Radiologically isolated syndrome - a not so rare prelude to multiple sclerosis. World Sci News. 2018;107:1-11.
2. Lebrun C, Kantarci OH, Siva A et al. Anomalies Characteristic of Central Nervous System Demyelination: Radiologically Isolated Syndrome. Neurol Clin. 2018 Feb;36(1):59-68. doi: 10.1016/j.ncl.2017.08.004. PMID: 29157404.
3. Yeh EA. Radiologically isolated syndrome in children: Can we predict future events? Neurol Neuroimmunol Neuroinflamm. 2017 Oct 23;4(6):e411. doi: 10.1212/NXI.0000000000000411. PMID: 29082298; PMCID: PMC5656405.
4. Yamout B, Al Khawajah M. Radiologically isolated syndrome and multiple sclerosis. Mult Scler Relat Disord. 2017 Oct;17:234-237. doi: 10.1016/j.msard.2017.08.016. Epub 2017 Aug 31. PMID: 29055465.
5. Makhani N, Lebrun C, Siva A et al. Radiologically isolated syndrome in children: Clinical and radiologic outcomes. Neurol Neuroimmunol Neuroinflamm. 2017 Sep 25;4(6):e395. doi: 10.1212/NXI.0000000000000395. PMID: 28959703; PMCID: PMC5614726.
6. Evans RW. Incidental Findings and Normal Anatomical Variants on MRI of the Brain in Adults for Primary Headaches. Headache. 2017 May;57(5):780-791. doi: 10.1111/head.13057. Epub 2017 Mar 13. PMID: 28294311.
7. De Stefano N, Giorgio A, Tintoré M et al. Radiologically isolated syndrome or subclinical multiple sclerosis: MAGNIMS consensus recommendations. Mult Scler. 2018 Feb;24(2):214-221. doi: 10.1177/1352458517717808. PMID: 29451440.
8. Yamout BI, Khoury SJ, Ayyoubi N et al. Alternative diagnoses in patients referred to specialized centers for suspected MS. Mult Scler Relat Disord. 2017 Nov;18:85-89. doi: 10.1016/j.msard.2017.09.016. Epub 2017 Sep 21. PMID: 29141828.
9. Klineova S, Lublin FD. Clinical Course of Multiple Sclerosis. Cold Spring Harb Perspect Med. 2018 Sep 4;8(9):a028928. doi: 10.1101/cshperspect.a028928. PMID: 29358317; PMCID: PMC6120692.
10. Aktas O, Wattjes MP, Stangel M et al. Diagnose der Multiplen Sklerose: Revision der McDonald-Kriterien 2017 [Diagnosis of multiple sclerosis: revision of the McDonald criteria 2017]. Nervenarzt. 2018 Dec;89(12):1344-1354. German. doi: 10.1007/s00115-018-0550-0. PMID: 29876600.