Journal of Scientific Research & Reports
4(4): 386-389, 2015; Article no.JSRR.2015.040
ISSN: 2320-0227

SCIENCEDOMAIN *international*
www.sciencedomain.org

Neuropsychiatric Systemic Lupus Erythematosus and Cognitive Impairment: A Complex Issue with a Dark Prognosis

Montserrat González Delgado[1*], Elena Santamarta[2], Antonio Sáiz[2], Sergio Rodríguez[3], Juan Carriles[1] and Luis Caminal[4]

[1]Department of Neurology, Hospital Universitario Central de Asturias, Oviedo, Spain.
[2]Department of Radiology, Hospital Universitario Central de Asturias, Oviedo, Spain.
[3]Department of Rheumatology, Hospital Universitario Central de Asturias, Oviedo, Spain.
[4]Internal Medicine Services, Hospital Universitario Central de Asturias, Oviedo, Spain.

Authors' contributions

This work was carried out in collaboration between all authors. Author MGD designed the study, and wrote the first draft of the manuscript. Authors MGD, ES, AS, SR, JC, LC designed the figures, managed literature searches and contributed to the correction of the draft. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JSRR/2015/13043
Editor(s):
(1) Amit Balakrishnan, School of Pharmacy, University of Maryland, Baltimore, USA.
Reviewers:
(1) Anonymous, Harvard Medical School, USA.
(2) Chia-Li Yu, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan.
(3) Zouhayr Souirti, Neurology, Sidi Mohammed Ben Abdellah University, Fez, Morocco.
Complete Peer review History: http://www.sciencedomain.org/review-history.php?iid=743&id=22&aid=6608

Case Study

Received 31st July 2014
Accepted 5th October 2014
Published 23rd October 2014

ABSTRACT

Aims: Neuropsychiatric systemic lupus erythematosus (NPSLE), may present as a wide range of symptomatology where cognitive impairment could play a key role in the prognosis of SLE patients.
Presentation of Case: A 24 year-old female was admitted in 1999 in unconsciousness. Cranial MRI showed two thalamo-mesencephalic lesions and the patient was discharged home with a diagnosis of metabolic and/or toxic encephalopathy. One year later systemic lupus erythematosus was diagnosed. Following up showed memory disturbance with several strokes and atrophy in neuroimaging, and positivity of antiphospholipid antibodies. Anticoagulation was indicated with an irregular compliance. In March 2010 the patient was admitted due to generalized articular pain and hemoptoic sputum due to bad control of the anticoagulation. One month later she was admitted to Intensive Care Unit due to acute pulmonary edema and acute renal failure. In June 2010, the

**Corresponding author: Email: mglezdelgado@yahoo.es;*

patient was discharged home where she died some months later.
Discussion: This case reflects the complexity of NPSLE: an acute encephalopathy as an early sign of the disease, the antiphospholipid syndrome, development of progressive cerebral global atrophy and cognitive impairment, and the coexistence of another autoimmune neurological disease such as myasthenia gravis.
Conclusion: The authors consider that the presence of cognitive impairment, intervening in the compliance of the treatment, could be one of the main risk factors in the prognosis of SLE patient.

Keywords: Cognitive impairment; neuropsychiatric lupus; SLE; autoimmune disease.

1. INTRODUCTION

Neurological affectation of the CNS, called as neuropsychiatric systemic lupus erythematosus (NPSLE) may present as a wide range of symptomatology [1-2], where cognitive impairment could play a key role in the prognosis of SLE patients.

2. PRESENTATION OF CASE

A 24 year-old female, a former smoker, was admitted in January 1999 in unconsciousness. After a party the previous night, at 9 am the patient reported somnolence and was found unresponsive in the evening. Neurological status at admission showed a coma with generalized hypotonia, unreactive pupils and divergent gaze. Cranial CT was normal. Determination of drugs in blood was negative. A posterior complete blood analysis showed an anemia, thrombopenia, and positivity of ANA (1/320, homogeneous pattern) and anti DNA (32 IU/ml, positive if >7 IU/ml) antibodies. Blood infectious assessment was normal. Cranial MRI showed a right cerebellum and two bilateral and symmetric thalamo-mesencephalic lesions (Fig. 1A), with a slight improvement in control some days later. A repeated CSF analysis revealed normal cell counts, glucose and protein levels, with negative infectious, cytological and oligoclonal bands results and a normal Ig G index. Due to these results, the patient was discharged home with a diagnosis of metabolic and/or toxic encephalopathy with paresis in vertical gaze and minor instability.

In January 2000 she consulted Internal Medicine and findings revealed generalized arthralgias, hematological alteration (anemia, leukopenia, thrombopenia), positive ANAs (1/5120, homogeneous pattern), anti DNA (68 IU/ml) and anti ENA antibodies (SS-A, SS-B); and photosensitivity. Anticardiolipin antibodies were negative. A diagnosis of SLE was made and treatment with corticosteroids and hydroxychloroquine was initiated with a good clinical response. At that time, control cranial MRI was performed due to diurnal somnolence and showed acute left cerebellar and left frontal ischemic lesions (Fig. 1B). Narcolepsia was excluded and somnolence was related with chronic thalamic lesion.

In December 2003, the patient described memory disturbance. Neuropsychological study showed a severe attention deficit, slow information processing and a moderate to severe executive dysfunction. These data suggested a fronto-subcortical disconnection syndrome.

In August 2007, she again consulted Internal Medicine where a proteinuria was diagnosed with positivity of anticardiolipin (aCL) antibodies. Cranial MRI showed a severe cerebral atrophy, leukoaraiosis, and chronic ischemic lesions (Fig. 1C). Due to her cognitive status, anticoagulation treatment was initially ruled out by us. Acetyl salicylic acid and azathioprine were initiated.

In March 2009, the patient had blurred vision and she was admitted two months later because of vertical diplopia. The lupus anticoagulant (LA), aCL and anti beta2 glycoprotein antibodies were positive. Cranial MRI showed cerebral atrophy with an acute left frontal ischemic lesion (Fig. 1D). Anticoagulation treatment with warfarin was now indicated with an international normalized ratio (INR) of 2-3. However, the patient did not comply.

In January 2010, the patient reported the persistence of fluctuating blurred vision, diplopia and asthenia. Acetylcholine receptor antibodies were positive (43.6 nmol/l, normal if <0.4 nmol/l) and a diagnosis of myasthenia gravis (MG) was made. This was confirmed by a later neurophysiological study. Anticholinesterase medication with pyridostigmine bromide was initiated, but it was abandoned by the patient.

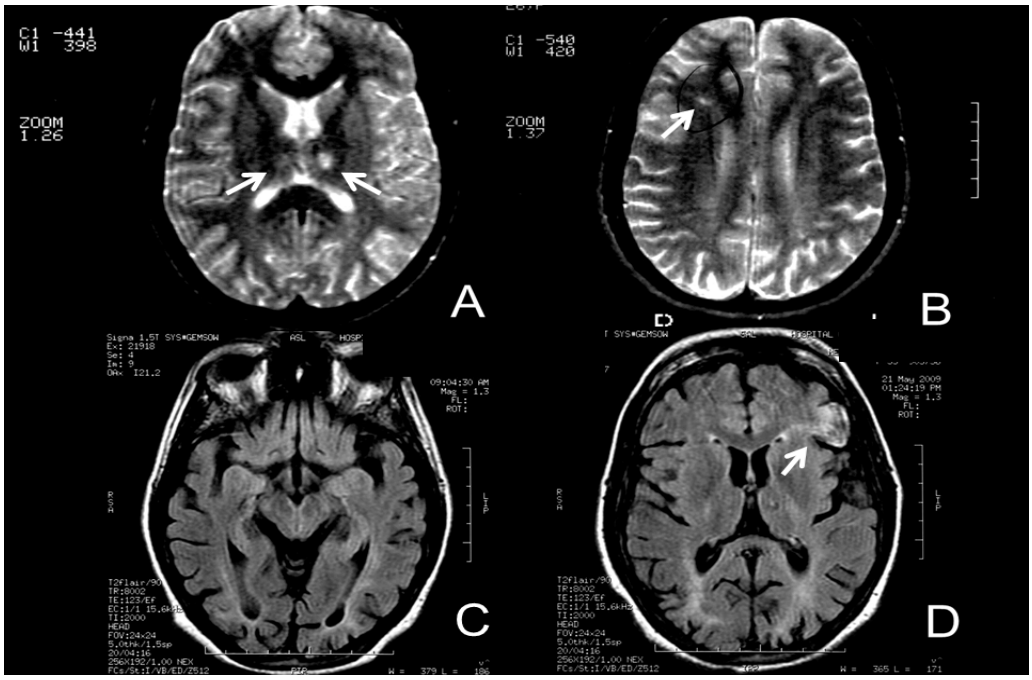

Fig. 1. Cranial magnetic resonance imaging scan (T2 and T2 fluid-attenuated inversion recovery [FLAIR] sequences) showed: (A) an acute bilateral thalamic stroke (white arrows); (B) an acute right frontal stroke (white arrow); (C) a severe cerebral global atrophy; and (D) a severe cerebral atrophy with an acute left frontal stroke (white arrow)

In March 2010 the patient was admitted to Internal Medicine reporting generalized articular pain and hemoptoic sputum related with bad control of the oral anticoagulation (pulmonary vasculitis and lung infection were excluded). Treatment with rituximab was essayed with clinical improvement and the patient was discharged home. One month later she was admitted to the Intensive Care Unit due to acute respiratory insufficiency, anuria and high blood pressure secondary to acute pulmonary edema and acute renal failure. In June 2010, after some clinical improvement the patient was discharged home where she died some months later.

3. RESULTS AND DISCUSSION

The presentation of SLE may not be typical, as in our case, and neurological symptomatology may be the early sign of the disease. NPSLE may present as a wide range of symptomatology from focal to diffuse symptoms [1,2] such as an acute encephalopathy. The presence of two thalamic lesions in our patient was initially confusing but the diagnosis of SLE later, made ischemic vasculitic etiology the most probable one. (due to the absence of antiphospholipid antibodies in the blood analysis, atherosclerosis and a cardiogenic embolic source). Some years later, a progressive positivity of several antiphospholipid antibodies was seen: seven years later a positivity of a CL; and two years later positivity of aCL, LA and anti b2 glycoprotein was also seen. Both, SLE vasculitis and antiphospholipid antibodies considerately increased the risk of thrombosis. In our patient, follow-up neuroimaging showed several acute (cortical and subcortical) ischemic lesions and a progressive global cerebral atrophy. Although mild brain atrophy on MRI is a frequent abnormal finding in NPSLE, rapidly progressing moderate to severe brain atrophy has seldom been reported [3]. Recent studies have suggested that cortical atrophy is more important in CNS damage in these patients than white matter lesions, with a possible selective grey matter but not white matter atrophy [1]. If there is a relationship between subcortical ischemic lesions and cerebral atrophy in this disease this remains unknown. But it seems clear in our case the relationship between both of the above and cognitive impairment. The prevalence of cognitive dysfuntion in SLE patients reaches 80% and NPSLE patients have a greater risk of developing a cognitive impairment [4], the presence of anti-neuronal antibodies being the major etiologic factor for this

[5]. Although cognitive impairment in SLE patients is well-documented, it seems to be probable that such is different between NPSLE and non-neuropsychiatric SLE patients (quantitative and qualitative) [4]. Moreover, a Cl antibodies have been also linked with cognitive impairment in these patients [6,7].

Thus in our case, several factors intervened for development of a cognitive impairment. Here cognitive impairment made difficult accurate therapeutically compliance and as a result a dismal clinical prognosis.

Finally, other autoimmune neurological disease was seen in this case. Some authors consider SLE and MG as part of the same autoimmune spectrum of diseases [8,9]. The presence of MG still worsened the clinical management and prognosis.

4. CONCLUSION

This case reflects the complexity of NPSLE: an acute encephalopathy as an early sign of the disease, the antiphospholipid syndrome, development of progressive cerebral global atrophy and cognitive impairment, and the coexistence of another autoimmune neurological disease such as MG. The authors consider that the presence of cognitive impairment, intervening in the compliance of the treatment, could be one of the main risk factors in the prognosis of SLE patient.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Zivadinov R, Shucard JL, Hussein S, Durfee J, Cox JL, Bergsland N, et al. Multimodal imaging in systemic lupus erythematosus patients with diffuse neuropsychiatric involvement. Lupus. 2013;22 (7):675-83.
2. Brey RL, Holliday SL, Saklad AR, Navarrete MG, Hermosillo-Romo D, Stallworth CL, et al. Neuropsychiatric syndromes in lupus: Prevalence using standardized definitions. Neurology. 2002;58 (8):1214-20.
3. Katsumata Y, Kawaguchi Y, Yamanaka H. Rapid progressive cerebral atrophy in systemic lupus erythematosus. J Rheumatol. 2011;38(12):2689.
4. Monastero R, Bettini P, Del Zotto E, Cottini E, Tincani A, Balestrieri G, et al. Prevalence and pattern of cognitive impairment in systemic lupus erythematosus patients with and without overt neuropsychiatric manifestations. J Neurol Sci. 2001;184(1):33-9.
5. León T, Henríquez C, Calderón J, Massardo L. An update on neuropsychiatric lupus with emphasis in cognitive dysfunction. Rev Med Chil. 2012;140(10):1333-41.
6. Ruiz-Irastorza G, Crowther M, Branch W, Khamashta MA. Antiphospholipid syndrome. Lancet. 2010(9751);376:1498-509.
7. Ruiz-Irastorza G, Cuadrado MJ, Ruiz-Arruza I, Brey R, Crowther M, Derksen R, et al. Evidence-based recommendations for the prevention and long-term management of thrombosis in antiphospholipid antibody-positive patients: report of a task force at the 13th International Congress on antiphospholipid antibodies. Lupus. 2011;20(2):206-18.
8. Barbosa RE, Córdova S, Cajigas JC. Coexistence of systemic lupus erythematosus and myasthenia gravis. Lupus. 2000;9(2):156-7.
9. Bhinder S, Majithia V, Harisdangkul V. Myasthenia gravis and systemic lupus erythematosus: Truly associated or coincidental-two case reports and review of the literature. Clin Rheumatol. 2006;25(4):555-6.

© 2015 Delgado et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=743&id=22&aid=6608