

Posterior Reversible Encephalopathy Syndrome: Clinical Differences in Patients with Exclusive Involvement of Posterior Circulation Compared to Anterior or Global Involvement

Luiz Carlos Porcello Marrone, MD, PhD, William Alves Martins, MD, Magno Tauceda Borges, Bruna Carvalho Rossi, João Pedro Farina Brunelli, MD, Viviane Maria Vedana, MD, Nathalia Missima, MD, Ricardo Bernardi Soder, MD, PhD, Antônio Carlos Huf Marrone, MD, PhD, and Jaderson Costa da Costa, MD, PhD

Introduction: Posterior reversible encephalopathy syndrome (PRES) is a clinical–radiologic syndrome not yet fully understood and characterized by transient neurologic symptoms in addition to typical radiological findings. There are only a few articles that describe the clinical differences between patients with PRES that involve carotid and vertebrobasilar circulations. Our study aims to further evaluate the differences between predominantly anterior and posterior circulation PRES. *Methods:* We review 54 patients who had received the diagnosis of PRES from 2009 to 2015. The patients were divided into 2 groups: (1) exclusively in posterior zones; and (2) anterior plus posterior zones or exclusively anterior zones. Several clinical characteristics were evaluated, including the following: age, sex, previous diseases, the neurologic manifestations, the highest blood pressure in the first 48 hours of presentation, highest creatinine level during symptoms, and the neuroimaging alterations in brain magnetic resonance imaging. *Results:* Mean age at diagnosis was 28.5 years old (9 men and 45 women) and mean systolic blood pressure among patients with lesions only in posterior zones was 162.1 mmHg compared to 179.2 mmHg in the anterior circulation. The most common symptoms in the 2 groups were headache and visual disturbances. *Discussion:* PRES may have several radiological features. A higher blood pressure seems to be 1 of the factors responsible for developing widespread PRES, with involvement of carotid vascular territory. This clinical–radiological difference probably occurs because of the larger number of autonomic receptors in the carotid artery in comparison to the vertebral–basilar system. **Key Words:** Posterior reversible encephalopathy syndrome—PRES—cerebral autoregulation—cerebral edema—blood pressure.

© 2016 National Stroke Association. Published by Elsevier Inc. All rights reserved.

From the Neurology Department of Hospital São Lucas and Instituto do Cérebro (Inscer), Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Porto Alegre, Rio Grande do Sul, Brazil.

Received January 29, 2016; revision received March 16, 2016; accepted March 19, 2016.

Address correspondence to Luiz Carlos Porcello Marrone, MD, PhD, Hospital São Lucas and Instituto do Cérebro (Inscer), Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Avenida Ipiranga 6690 (sala 220), Porto Alegre, Rio Grande do Sul 90610-000, Brazil. E-mail: lcpmarrone@gmail.com.

1052-3057/\$ - see front matter

© 2016 National Stroke Association. Published by Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.jstrokecerebrovasdis.2016.03.042>

Introduction

Posterior reversible encephalopathy syndrome (PRES) is a clinical–radiologic entity characterized by headaches, altered mental status, seizures, and visual disturbance, accompanied by white matter vasogenic edema predominantly affecting mainly the posterior occipital and parietal lobes of the brain.¹ However, new studies have revealed that only a few cases may in fact predominate in the posterior regions.^{2,3}

Many factors can act as a trigger of this syndrome, including uncontrolled arterial hypertension, abnormal renal function, immunosuppressive therapy, and pre-eclampsia.^{1,4}

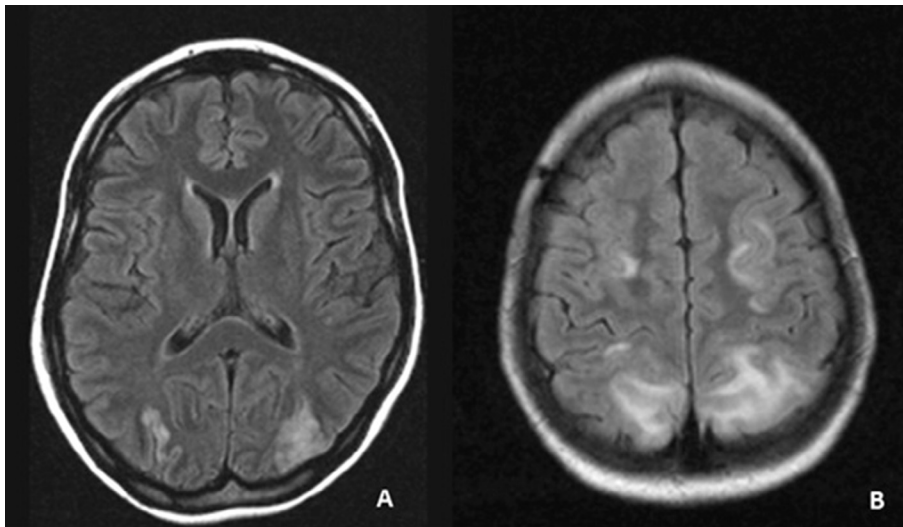


Figure 1. Brain magnetic resonance imaging (fluid-attenuated inversion recovery): (A) PRES showing in posterior circulation. (B) PRES showing in anterior and posterior circulations. Abbreviation: PRES, posterior reversible encephalopathy syndrome.

Other etiologies already described include autoimmune diseases,⁵ allogeneic bone marrow and solid organ transplantation,^{6,7} neoplasia and chemotherapy treatment,^{8,9} and systemic infections,¹⁰ among others.

The pathophysiology of PRES remains unclear. Two pathophysiological mechanisms have been proposed regarding cerebral autoregulation: cerebral vasospasm, which results in cytotoxic edema,^{11,12} and unrestrained vasodilatation, leading to vasogenic edema and endothelial damage.^{7,13,14}

The most characteristic imaging pattern in PRES is the presence of edema involving the white matter of the posterior portions of both cerebral hemispheres, especially at the parieto-occipital regions, in a relatively symmetric pattern, that spares the calcarine and paramedian parts of the occipital lobes^{1,5,13,14} (Fig 1). However, other structures such as the brain stem, cerebellum, and frontal and temporal lobes may also be involved, and although the abnormality primarily affects the subcortical white matter, the cortex and the basal ganglia may also be affected.^{7,14,15}

The majority of the articles published about PRES are case reports or small series; few papers explore the differences between some subgroups of this disorder. In this study, we aim to further investigate the relationship of radiological patterns and clinical presentation in PRES.

Methods

From February 2009 to December 2015, there were 59 patients with PRES who were admitted to Hospital São Lucas-PUCRS in the Neurologic Service or other services. All patients were submitted to a brain magnetic resonance imaging (MRI) and detailed neurological evaluation. PRES diagnosis was confirmed by typical radiological appearance of MRI, clinical syndrome, and recognized etiological factors. Of the 59 patients, 5 were excluded for being younger than 12 years old to try to better define the clinical characteristics of adult patients. No other exclusion criteria were used.

The following data were evaluated: age, sex, previous diseases, the neurologic manifestations, the highest blood pressure in the first 48 hours of presentation, the highest creatinine level until 2 weeks of presentation, and the neuroimaging alterations in brain MRI.

A neurologist or neuroanatomist with more than 40 years of experience (A.C.H.M.), who had no contact with the patient's clinical data, analyzed all the brain MRIs to delimitate the anatomical distribution of the lesions: (1) exclusively in posterior zones (vertebrobasilar vascular territory); and (2) anterior (carotid vascular territory) plus posterior zones or exclusively anterior zones. We also divided the patients presented with systolic blood pressure higher and lower than 180 mmHg.

The highest blood pressure was measured during the 48 hours before the neurologic manifestation and the highest creatinine was analyzed during a mean period of 2 weeks before the neurologic manifestation.

We analyzed our data using the Statistical Package for the Social Science version 19.0 (SPSS/IBM–Chicago, IL). We applied Pearson's chi-square test to analyze the categorical data. Mann–Whitney *U*-test was applied for comparison of data with nonparametric distribution in continuous data. A *P* value <.05 was considered significant. We did not perform correction for multiple variables or multivariate regression. All of the procedures and protocols executed in this study were approved by the Institutional Ethics Committee from Pontifícia Universidade Católica do Rio Grande do Sul.

Results

Forty-five patients were female and 9 patients were male, with a mean age of 28.5 years old (range: 13–74 years). Most common etiologies comprised disorders related to pregnancy (57.4%), followed by hypertensive crisis (11.1%), autoimmune disorders (11.1%), and others.

Download English Version:

<https://daneshyari.com/en/article/5874916>

Download Persian Version:

<https://daneshyari.com/article/5874916>

[Daneshyari.com](https://daneshyari.com)