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Original article

Association between demyelinating disease and autoimmune rheumatic disease in a pediatric population☆

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ABSTRACT

Introduction: Multiple sclerosis (MS) and neuromyelitis optica (NMO) are demyelinating diseases of the central nervous system. Autoimmunity in patients with demyelinating disease and in their families has been broadly investigated and discussed. Recent studies show a higher incidence of rheumatic autoimmune diseases among adult patients with MS or NMO and their families, but there are no studies in the pediatric population.
Objective: To evaluate an association of MS and NMO with autoimmune rheumatic diseases in pediatric patients.
Method: 22 patients younger than 21 years old with MS or NMO diagnosed before the age of 18 years were evaluated regarding epidemiological data, clinical presentation, association with autoimmune diseases, family history of autoimmune diseases, laboratory findings, imaging studies and presence of auto-antibodies.
Results: Among the patients studied, there was a prevalence of females (68.1%). The mean age of symptoms onset was 8 years and 9 months and the mean current age was 16 years and 4 months. Two patients (9%) had a history of associated autoimmune rheumatic disease: one case of juvenile dermatomyositis in a patient with NMO and another of systemic lupus erythematosus in a patient with MS. Three patients (13%) had a family history of autoimmunity in first-degree relatives. Antinuclear antibody was found positive in 80% of patients with NMO and 52% of patients with MS. About 15% of antinuclear antibody-positive patients were diagnosed with rheumatologic autoimmune diseases.
Conclusion: Among patients with demyelinating diseases diagnosed in childhood included in this study there was a high frequency of antinuclear antibody positivity but a lower association with rheumatologic autoimmune diseases than that observed in studies conducted in adults.

☆ This is a study conducted with the joint collaboration of the Pediatric Rheumatology and Demyelinating Diseases divisions, Universidade Federal de São Paulo, São Paulo, SP, Brazil.

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Associação entre doença desmielinizante e doença reumática autoimune em uma população pediátrica

Palavras-chave:
Doenças autoimunes
Doenças reumáticas
Doenças desmielinizantes
Infância

RESUMO

Introdução: Esclerose Múltipla (EM) e Neuromielite Óptica (NMO) são doenças desmielinizantes do sistema nervoso central. A autoimunidade entre pacientes com doenças desmielinizantes e seus familiares tem sido amplamente investigada e discutida. Estudos recentes demonstram maior incidência de doenças reumáticas autoimunes entre pacientes adultos com EM e NMO e seus familiares, mas não há estudos na população pediátrica.
Objetivo: Avaliar a associação de EM e NMO com doenças reumáticas autoimunes em pacientes pediátricos.
Método: Foram incluídos 22 pacientes menores de 21 anos com diagnóstico de EM ou NMO antes dos 18 anos de idade e avaliados dados epidemiológicos, clínicos, associação com doenças autoimunes, história familiar de doenças autoimunes, exames laboratoriais, exames de imagem e presença de auto-anticorpos.
Resultados: Entre os pacientes estudados, houve prevalência do sexo feminino (68,1%). A média de idade de início dos sintomas foi de 8 anos e 9 meses e a média de idade dos pacientes na avaliação foi 16 anos e 4 meses. Dois pacientes (9%) apresentaram doença reumática autoimune associada, sendo um caso de dermatomiosite juvenil em paciente com NMO e outro de lúpus eritematoso sistêmico juvenil em paciente com EM. Três pacientes (13%) apresentaram história familiar de autoimunidade em parentes de primeiro grau. Anticorpo antinuclear (ANA) positivo foi encontrado em 80% dos pacientes com NMO e em 52% dos pacientes com EM. Cerca de 15% dos pacientes com ANA positivo apresentaram diagnóstico definitivo de doença autoimune reumática associada.
Conclusão: Entre os pacientes com doenças desmielinizantes diagnosticadas durante a infância incluídos nesta pesquisa houve uma alta frequência de ANA positivo, mas uma menor taxa de associação com doenças reumáticas autoimunes que a encontrada em trabalhos conduzidos em adultos.

Introduction

The term *demyelinating disorder* refers to a group of diseases that have in common the loss of the myelin sheath, with a relative axonal preservation. Among the various categories, we highlight those of inflammatory origin, in particular, multiple sclerosis (MS), the most disabling neurological disease in young adults, and neuromyelitis optica (NMO). Clinical and pathological aspects of these conditions lead one to believe that these are inflammatory autoimmune diseases, which lead to a progressive deterioration of multiple body functions.[1–4]

MS may involve any part of the CNS at different times of its progression. The most common early symptoms are paresis of one or more members, pyramidal signs (spasticity, hyperreflexia, Babinski sign, and clonus), ataxia, dysarthria, paresthesias, fecal or urinary incontinence or retention, or sexual dysfunction.[5]

NMO, or Devic disease, is characterized by the production of antibodies against the blood–brain barrier. The first symptoms occur between the 3rd and 4th decades of life, in the form of optic neuritis and/or myelitis with longitudinal extension. Optic neuritis is manifested with an acute bilateral loss of visual acuity, with partial recovery. Myelitis is characterized by bilateral motor symptoms, with significant loss of strength, sensory changes and partial recovery after outbreaks.[6]

The autoimmunity that surrounds patients with demyelinating disease and their family members has been widely investigated and discussed. Recent studies show that patients with MS and NMO, as well as their families, are at greater risk of presenting, at some point, an associated diagnosis of an autoimmune rheumatic disease. However, none of these studies was directed to the pediatric population.[7,8]

The aim of this study was to evaluate the association of MS or NMO with autoimmune rheumatic diseases in a pediatric population and their first-degree relatives.

Patients and methods

In this retrospective cross-sectional study we included all patients with a current age up to 21 years, diagnosed with MS according to McDonald criteria, or with NMO according to the 2006 revised criteria, monitored in Demyelinating Disease Unit of the Department of Neurology and Neurosurgery, and in the Pediatric Rheumatology Unit of the Department of Pediatrics, Unifesp/EPM. The diagnosis of juvenile systemic lupus erythematosus (JSLE) and juvenile dermatomyositis (JDM) was established in accordance with published criteria.[6,9–11] All patients were under the age of 18 at diagnosis of demyelinating disease or autoimmune rheumatic disease.

The following information was collected from the clinical records: demographics, current age, age at the onset of

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