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ORIGINAL ARTICLE

Clinical and immunological features of common variable immunodeficiency in Mexican patients

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Abstract
Background: Common variable immunodeficiency (CVID) is characterised by hypogammaglobulinaemia and a broad clinical spectrum, mainly showing recurrent bacterial infections accompanied sometimes by increased susceptibility to chronic lung disease, autoimmunity, and neoplastic diseases.
Objectives: To evaluate the clinical and immunological characteristics of patients with CVID in Mexico.
Methods: This is a retrospective analysis of 43 patients with CVID from the Immunology Division of seven different reference centres in Mexico. Patients were diagnosed according to the diagnostic criteria of the European Society for Immunodeficiency Diseases. We collected demographics, clinical and immunological data from each patient and a statistical analysis was performed.

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Results: There were 23 (53.5%) male and 20 (46.5%) female patients. Median age at onset of disease was 13.7 years, and median age at diagnosis was 19 years. Average delay in diagnosis was 12.5 years. The median total serum levels of IgG, IgM, and IgA at diagnosis were 175, 18, and 17.8 mg/dL, respectively. The mean percentage of CD19+ B cells was 8.15%. Sinusitis (83%), pneumonia (83%), gastrointestinal infection (70%), and acute otitis media (49%) were the most common manifestations. Bronchiectasis was present in 51% of the patients, 44% manifested non-infectious chronic diarrhoea, and 70% experienced weight loss. Autoimmunity was present in 23% of the patients; haemolytic anaemia and autoimmune thrombocytopenic purpura were the most common presentations. Allergy was present in 30.2% of patients, with allergic rhinitis and asthma being the most frequent types. Two patients developed malignancy. All the patients received Intravenous immunoglobulin (IVIG) as a fundamental part of the treatment at a mean dose of 408 mg/kg.

Conclusion: This is the first cohort of CVID reported in Mexico We found that infection diseases were the most frequent presentations at onset. Moreover, patients had an average diagnosis delay of twelve years and thus a major prevalence of bronchiectasis. We suggest performing an extended analysis of patients with CVID patients in other Latin American countries.

Introduction

Common variable immunodeficiency (CVID) is a primary immunodeficiency syndrome characterised by hypogammaglobulinaemia and recurrent bacterial infections.[1] It represents the most frequent symptomatic primary immunodeficiency in North America and Europe.[2] Its diagnosis requires a history of recurrent or chronic bacterial infections, a significant reduction of immunoglobulin G (IgG) (>2 standard deviation), a reduction of immunoglobulin A (IgA) or immunoglobulin M (IgM), normal or low counts of B cells, as well as autoimmune, lymphoproliferative and/or granulomatous disease. Other causes of hypogammaglobulinaemia should be excluded as indicators of CVID.[3,4]

The clinical spectrum of CVID is quite broad, and it may onset at any time in life.[5] In CVID patients, increased susceptibility to chronic lung disease and autoimmune, gastrointestinal, neoplastic, and inflammatory disorders have been reported. Bronchiectasis is a particularly common medical problem, leading to recurrent hospitalisations and severe respiratory symptoms.[6] *Streptococcus pneumoniae* and *Haemophilus influenzae* are the most common bacteria affecting the respiratory tract during CVID. *Giardia*, *Salmonella* and *Campylobacter* were commonly isolated from patients with diarrhoea.[7] Standard treatment for CVID requires periodic administration of intravenous immunoglobulin (IVIG). The aim of this study was to describe the clinical and immunological features of CVID in a group of patients in Mexico.

Patients and methods

Patients

The records of 52 active CVID patients from the Immunology Division of seven different reference centres in Mexico were studied. CVID was diagnosed according to the diagnostic criteria of the European Society for Immunodeficiency Diseases (ESID). Information from each CVID subject was collected by means of a structured questionnaire applied by a single physician: demographics, age at onset of symptoms, age at diagnosis, pedigree, clinical manifestations, current infections, autoimmunity, lymphoproliferative disease, allergy and malignancies, lymphocyte subsets and immunoglobulin levels at the first clinical visit, and route and dosage of immunoglobulin.

The protocol was reviewed and approved by the appropriate local Ethics and Research Committees in accordance with the guidelines of the International Conference on Harmonization Good Clinical Practice and the Declaration of Helsinki, to access details of clinical records, and on the publication of patient data on their manuscript for research and divulgation purposes for the scientific community.

Statistical analysis

Results are shown as mean $\pm$ sd (if the variable is normally distributed) and median (interquartile range) for continuous variables. Dichotomous and nominal variables were expressed as frequencies and percentages. All two-sided *P*-values <0.05 were considered to be statistically significant. Data were analysed using the Statistical Package for Social Science (SPSS) for Windows (version 12.00, SPSS Inc., Chicago, IL, USA).

Results

The data from the 52 patients from 7 centres were reviewed in order to ascertain that each individual met the diagnostic criteria for CVID. A total of nine patients were removed for the following reasons: hypogammaglobulinaemia secondary to thymectomy (2), X-linked lymphoproliferative syndrome (2), transient hypogammaglobulinaemia of infancy (2), recessive agammaglobulinaemia (1), ataxia telangiectasia (1), and X-linked agammaglobulinaemia (1).

Demographics

Diagnosis was confirmed for 43 patients; 23 (53.5%) were males, and 20 (46.5%) were females; two patients were sisters. The median age at the onset of disease was 13.7 years