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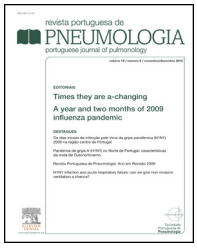

ORIGINAL ARTICLE

Bronchiectasis: A retrospective study of clinical and aetiological investigation in a general respiratory department

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Abstract
Background: Bronchiectasis can result from many diseases, which makes the aetiological investigation a complex process demanding special resources and experience. The aetiological diagnosis has been proven to be useful for the therapeutic approach.
Objective: Evaluate how accurately and extensive the clinical and aetiological research was for adult bronchiectasis patients in pulmonology outpatient service which were not following a pre-existing protocol.
Methods: We retrospectively reviewed the records of 202 adult patients with bronchiectasis, including the examinations performed to explain the aetiology.
Results: The mean age of the patients was 54 ± 15 years, there was a predominance of female (63.9%) and non-smoker (70%) patients. Functional evaluation showed a mild airway obstruction.

The sputum microbiological examination was available for 168 patients (43.1% had 3 or more sputum examinations during one year). Immunoglobulins and α1-antitrypsin were measured in around 50% of the patients. The sweat test and the CF genotyping test were performed in 18% and 17% of the patients, respectively.

The most commonly identified cause was post-infectious (30.3%), mostly tuberculosis (27.2%). No definitive aetiological diagnosis was established in 57.4% of the patients. We achieved a lower aetiological diagnosis if we compare our series with studies in which a diagnostic algorithm was applied prospectively.

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Conclusions: The general characteristics of our patients were similar with other series. Detailed investigation of bronchiectasis is not a standard practice in our outpatient service. These results suggest that the use of a predefined protocol, based on current guidelines, could improve the assessment of these patients and facilitate the achievement of a definitive aetiology.

Introduction

Bronchiectasis (BE) results from a large number of diseases and is associated with high morbidity and significant costs for health-care systems.[1,2]

For many years respiratory infections were the main identifiable cause. However, post-infectious BE has been decreasing mainly in developed countries due to vaccination programmes, antibiotic therapy and better social-hygienic conditions while other congenital or acquired causes have been described now that we have more accurate diagnosis methods.[3]

In recent years, a number of studies have shown that an aetiological diagnosis can change the therapeutic approach in a relevant percentage of patients.[4–6]

Research carried out in units with great experience in BE and with specialized resources may not be typical of the assessment which is carried out in the majority of general respiratory services. There is some evidence that the study and follow-up of patients in specialized centres probably contribute to a larger number of aetiological diagnoses and more appropriate treatment.[5,6]

The local characteristics of BE patients were unknown, namely the level of research, BE aetiologies, functional severity and microbiological characteristics.

The aim of this study was to evaluate how accurate and extensive the clinical and aetiological research was for BE patients followed in the pulmonology outpatient service of a central hospital which did not routinely use a thorough, pre-existing protocol for it.

Materials and methods

A retrospective analysis of the clinical records of adult patients with BE diagnosis who were seen and managed in the pulmonology outpatient service, from January 2008 to January 2009, was carried out. The patients concerned had to be followed-up for at least 1 year.

The diagnosis of BE was established by the characteristic features of the high-resolution computed tomography (HRCT) of the thorax (bronchoarterial ratio $\geq$1, dilated bronchi visible $\leq$1 cm from parietal pleura, cystic changes and a lack of normal bronchial tapering) or the CT, if unequivocal evidence of BE existed.

Patients with CF and interstitial pathology were excluded.

Each pulmonologist involved was totally responsible for the clinical records, the follow-up and aetiological research, without having to comply with any predefined protocol. We arrived at an aetiological diagnosis based on the clinical records and the results of earlier diagnostic tests done by the patient's clinician. There was no subsequent research done to complement our study.

The demographical, clinical, functional, radiological and microbiological data were reviewed. The exams that had been performed to explain the BE aetiology, namely, the sweat test, cystic fibrosis (CF) genotyping, measurement of serum immunoglobulins (Igs), α1-antitrypsin (AAT) and the semen analysis were recorded.

The sweat test was performed by conductivity method and the CF genotyping test screened the 33 most frequent *CFTR* mutations in Portuguese population. In some cases a complete analysis of the *CFTR* gene was performed.

The respiratory function tests were done according to standard international recommendations.[7]

The isolation of the same pathogen in at least 3 sputum samples, for at least one year and with a minimal interval of one month, was considered by the authors as the definition of chronic airway colonization.

Statistical analysis was done with SPSS 19, 2010 software program (Statistical Package for Social Sciences, SPSS Inc., Chicago, IL, USA). Descriptive statistics (mean, standard deviation) were used to summarize the data. The Kolmogorov–Sminorv test was used to analyze the distribution of variables. Variables with a normal distribution were analyzed using the student *t*-test, while in the abnormal ones the Mann–Whitney *U* test was employed. The significance level was set at $p < 0.05$.

The project was approved by the Ethics Committee for Local Health of the CHSJ.

Results

The clinical records of 202 patients with BE diagnosis were reviewed.

The diagnosis was established by HRCT in 94% of the patients and by CT scan in the remaining patients.

The patients' general characteristics are shown in Table 1.

Fertility information was missing for 40 (54.7%) of the male patients. The upper airway symptoms were also rarely mentioned, as well as, occupational exposure to toxic chemicals, family history of BE, non respiratory symptoms and consanguinity data.

Radiology

BE had a bilateral distribution in 89% of the patients. In 6% of the cases only 1 lobe was affected and in 80.4% 4 or more lobes were affected or there were cystic changes in 2 or