

EPIDEMIOLOGICAL ASPECTS OF DUPUYTREN'S DISEASE IN BRAZIL

ASPECTOS EPIDEMIOLÓGICOS DA DOENÇA DE DUPUYTREN NO BRASIL

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ABSTRACT

Objectives: The purpose of this study is to describe associated factors and epidemiological aspects of Dupuytren's Disease in patients followed up in a Brazilian tertiary public hospital, at the Hand Surgery service. **Methods:** A cross-sectional study was performed from 2014 to 2019. Data collected included: age, gender, ancestry, associated comorbidity presence, phenobarbital, tobacco, and alcohol use, family history of Dupuytren's Disease and associated fibrotic diseases. Then, the patients underwent a clinical examination to identify and characterize the involvement of the fingers. The patients were also assessed in regard to whether they presented Dupuytren's Disease severity factors. **Results:** 140 patients were included, 70.7% men and 29.3% women. Only 42.3% reported being of European ancestry; 20% had first-degree relatives with the disease; 59.3% presented comorbidities, including hypertension, diabetes, chronic heart disease, dyslipidemia, epilepsy, and HIV infection; 15.8% had Ledderhose disease, 7.1% had Peyronie's disease. 31% were smokers, 16.6% were alcoholic, and 37.1% were phenobarbital users; 40% presented with a severe form of DD. **Conclusion:** The population studied was composed of Brazilians, most of whom did not report European ancestry; still, they presented several characteristics similar to those described in literature worldwide. **Level of Evidence II; Prognostic Studies; Investigating the effect of a patient characteristic on the outcome of a disease.**

Keywords: Dupuytren Contracture. Cross-Sectional Studies. Health Profile. Epidemiology.

RESUMO

Objetivo: Descrever fatores associados e aspectos epidemiológicos da Doença de Dupuytren em uma população de pacientes acompanhados em serviço de Cirurgia de Mão de hospital público terciário brasileiro. **Métodos:** Realizou-se um estudo transversal entre os anos de 2014 e 2019. Coletamos dados como idade, gênero, ascendência, comorbidades associadas, doenças fibróticas associadas, uso de fenobarbital, uso de tabaco e álcool e histórico familiar de Doença de Dupuytren. Em seguida, realizamos exame clínico, caracterizando o acometimento dos dedos da mão. Também foi avaliado se os pacientes da amostra apresentavam fatores de gravidade da Doença de Dupuytren. **Resultados:** 140 pacientes foram incluídos, 70,7% eram homens e 29,3% mulheres. Apenas 42,3% dos pacientes relataram ascendência europeia; 20% apresentaram parentes de primeiro grau com a doença; 59,3% apresentaram comorbidades, incluindo hipertensão, diabetes, cardiopatia crônica, dislipidemia e infecção por HIV; 15,8% tinham doença de Ledderhose e 7,1% tinham doença de Peyronie. 31% eram fumantes, 16,6% declararam alcoolismo, 37,1% faziam uso de fenobarbital e 40% apresentaram a forma grave da DD. **Conclusão:** A população estudada foi composta por brasileiros que apesar de, em sua maioria, não relataram ascendência europeia, apresentaram diversas características semelhantes às descritas na literatura mundial. **Nível de Evidência II; Estudos Prognósticos; Investigação do efeito de característica de um paciente sobre o desfecho da doença.**

Descritores: Contratura de Dupuytren. Estudos Transversais. Perfil de Saúde. Epidemiologia.

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INTRODUCTION

Dupuytren's Disease (DD) is a chronic and progressive disease characterized by fibrotic changes in the palmar and digital fascia. Such changes can lead to small nodules on the hand, causing contractures that limit the extension of the fingers and, consequently, cause a significant functional impact.¹

The etiology of the disease remains unknown. Genetic factors are suspected to be involved in pathogenesis, considering their heredity and racial predominance.² The incidence of DD is predominant in men, Caucasians, or Nordic origin, and the age onset is usually above 50 years.³ Diabetes mellitus, hypercholesterolemia, liver disease, epilepsy, alcoholism, and smoking are comorbidities

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The study was conducted at Universidade de São Paulo, Faculty of Medicine, Hospital das Clínicas, Institute of Orthopedics and Traumatology, Hand Surgery Service, HC/FMUSP, São Paulo, SP, Brazil.

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associated with DD.^{4,5} The literature also shows the use of anti-convulsants, local trauma, manual work activities, and low BMI as correlated factors.⁴

Despite the high prevalence and the documentation of several factors associated with DD in scientific studies, performed mainly in Europe, few studies analyze the epidemiological aspects of this pathology in Latin America and Brazil.⁶

This study aims to describe associated factors and epidemiological aspects of DD in patients followed up in a Brazilian tertiary public hospital, at the Hand Surgery service.

MATERIAL AND METHODS

A cross-sectional study was performed from 2014 to 2019 with patients followed up in a Brazilian Tertiary Public Hospital, at the Hand Surgery Outpatient Service. The inclusion criterion was: adults resident in Brazil previously diagnosed with DD after clinical evaluation performed by a specialist in Hand Surgery.

Although it is a tertiary hospital, at the outpatient service specialized in DD, we treat patients with varying degrees of clinic presentation, from nodules, without contractures to severe contractures. This is mainly because patients arrive at the clinic not only through the referral system. There is also a spontaneous demand, since there is an advertisement on the internet informing that we accept to follow up and treat new patients with DD.

Patients were invited and submitted to individual interviews. Data collected included: age, gender, ancestry, associated comorbidities, phenobarbital, tobacco, and alcohol use, family history of DD, and associated fibrotic diseases (Ledderhose and Peyronie's disease). The patients underwent a clinical examination to identify and characterize the involvement of the fingers. It was also assessed whether the patients presented with DD severity factors (diathesis score).⁷ The occurrence of bilateral palmar disease, family history of DD, association with Ledderhose disease, disease onset under 50 years of age, male gender, and involvement of the thumb or more than two fingers were considered severity criteria.

The data obtained was stored and organized in a table on the RED-Cap platform. Then, a descriptive analysis of the collected variables, including quantitative and qualitative aspects, was performed.

The study was approved by the Ethics Committee of the Hospital under the number 2.071.185, and the patients included signed a Free and Informed Consent Form to participate in the study.

RESULTS

In our study, 140 patients were included, 99 men (70.7%) and 41 women (29.3%), in a 2.4:1 ratio. The mean age was 62.6 years, with a minimum age of 38 years and a maximum age of 85 years. (Figure 1) shows the age distribution curve of patients studied.

The study sample was stratified by age into four groups to complement the analysis. Patients aged up to 50 years were included

in group A, composed of 16 patients, 13 men (81.3%), and three women (18.7%). Those aged between 51 and 60 years were included in group B, composed of 45 patients, 32 men (71.1%), and 13 women (28.9%). Patients aged between 61 and 70 years were included in group C, composed of 46 patients, 30 men (65.3%), and 16 women (34.7%). And those over 70 years were included in group D, composed of 33 patients, 24 men (72.7%), and nine women (27.3%). (Figure 2) shows the gender distribution between these Groups.

When questioned about their ethnicity, 65 patients (50%) declared to be Brazilian, denying any known foreign ancestry. On the other hand, 55 patients (42.3%) reported being of European ancestry. Four patients (3.1%) claimed to be of Asian ancestry and two (1.5%) of African ancestry. Only three patients (2.3%) declared to be unaware of their ancestry. Four patients who were not born in Brazil were included in this study: two of them were born in Portugal, one in Lebanon, and one in Paraguay.

Regarding the family history of DD, 28 patients (20%) reported having first-degree relatives with the disease. Out of the total sample, 83 patients (59.3%) presented with known clinical comorbidities. The following comorbidities were reported: 56 (40%) patients were hypertensive, 27 (19.3%) were diabetic, 16 (11.4%) had a chronic heart disease, 13 (9.3%) had dyslipidemia, 8 (5.7%) had epilepsy, and 1 (0.7%) was HIV-positive.

Regarding the associated fibrotic pathologies, 19 patients (15.8%) had Ledderhose disease, and nine patients (7.1%) had a previous diagnosis of Peyronie's disease.

The questionnaire included an assessment of patients' habits, as well as of chronic use of medications. Forty patients (31%) were smokers, and 21 patients (16.6%) declared alcoholism. Also, 52 patients (37.1%) were Phenobarbital users.

During clinical evaluation, 41 patients (32.6%) presented with involvement of only one hand, while 85 patients (67.4%) presented with bilateral involvement. In the study, the ulnar digits were the most affected. The thumb involvement frequency corresponded to 41 cases (29.2%), while there were 18 cases (12.8%) of index involvement, 60 cases (42.8%) of middle finger involvement, 133 cases (95%) of ring finger involvement, and 111 cases (79.2%) involving the 5th finger.

Regarding the diathesis score, the prevalence of those risk factors was analyzed separately in this study. Bilaterality was observed in 67.4% of cases; positive family history, in 20%; association with Ledderhose disease, in 15.8%; Peyronie's disease, in 7.1%; symptoms onset before 50 years of age, in 11.4%; male gender, in 70.7%; and 1st ray involvement, in 29.2%. Finally, 56 patients (40%) presented with a severe form of DD, characterized by the presence three or more diathesis criteria, 42 patients (30%) presented 2 of those risk factor, 32 patients (22.8%) presented 1 risk factor and 10 patients (7.2%) did not present any risk factors.

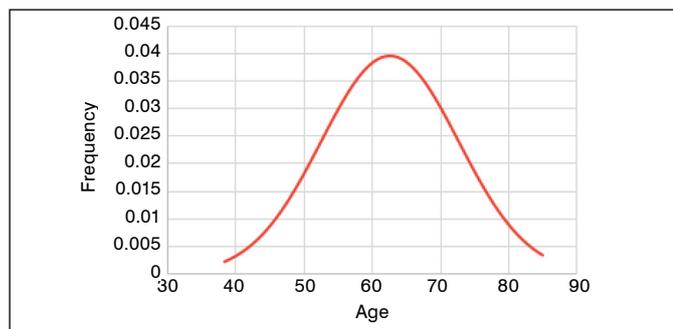


Figure 1. Age distribution of the study sample.

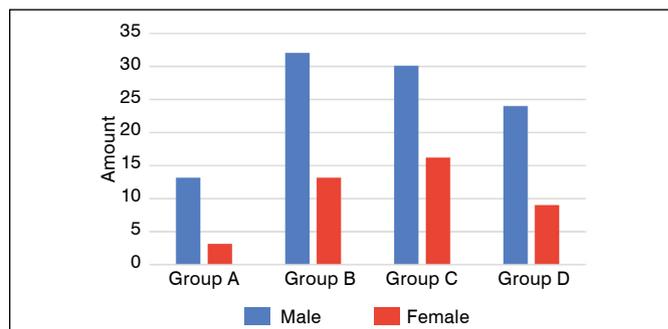


Figure 2. Gender distribution according to the age stratification.

DISCUSSION

The epidemiological aspects of DD have been widely studied by researchers worldwide, mainly in Europe. However, few studies analyze these factors in the Latin American population. Although there are no studies regarding the prevalence of DD in Brazil, the frequency of cases seems to be quite relevant in the outpatient routine. The epidemiology of some diseases has been changing over the years in Brazil due to the intense European immigration, especially in the 20th century, and to the well-known miscegenation that occurred throughout our history. Published studies show that DD is more common in Caucasian men from Northern Europe.³ Although DD etiology remains unknown, case reports of the disease concerning identical twins and the heredity of the disease suggest a genetic cause.⁸ In this study, 47% of the patients are of foreign ancestry, mainly of European origin, also including two European-born patients. It is also observed that 20% of the patients evaluated have first-degree relatives with DD, corroborating data found in the literature on the disease genetic association and relation with European ancestry. In contrast, most of our patients (53%) are of no European ancestry, which may be related to the history of the miscegenation of the Brazilian population.

The literature points to a higher prevalence of DD in male individuals. In our study, its incidence was 2.4 times higher in men than in women, which is considerably lower than the ratio found in Europe (5.9:1) and higher than the one found in Korea (1.9:1) and in another Brazilian study (1.2:1).^{6,9,10} The mean age of patients was 62.6 years, and a later presentation of the disease onset was observed in women, which is consistent with previous studies.¹¹ A study conducted in Europe also showed that the mean age at diagnosis was 62 years.¹² Regarding comorbidities, it is known that systemic arterial hypertension is not a disease commonly related to DD; however, the association is frequent due to the high mean age of the affected population.⁹ 40% of the patients in our study are hypertensive, but there is not a significant difference to the prevalence of such comorbidity in the Brazilian population, considering the mean age of the sample.¹³ Mansur et al. also reported a high prevalence of arterial hypertension on the Brazilian patients with DD.⁶ Further studies are needed to understand the actual association of systemic arterial hypertension with DD.

Studies show that diabetes mellitus is a risk factor for DD, especially in insulin-dependent patients. Diabetes mellitus can be up to two times more prevalent in patients with DD than in the general population.^{9,12} In the present study, the prevalence of diabetes mellitus was observed in 19.3% of patients. On the other hand, the association of DD with dyslipidemia is described in several articles; however, few link heart disease with DD.⁸ In this study, 11.4% of patients present chronic heart disease, and 9.3% of patients are dyslipidemic. Just like in systemic arterial hypertension, this

association can be understood as due to the advanced age of the population affected by DD. However, a recent study showed an increase in the mortality from cancer, cardiovascular diseases, liver diseases, and diabetes in patients with DD.¹⁴

The prevalence of DD in patients with HIV varies in the literature, reaching 36%. The presence of DD was related to advanced infection and increased activity of free radicals.¹⁵ The mechanisms by which these pathologies imply an increased risk of developing DD are not fully understood yet. Our experience is limited, as the study had only 1 HIV-positive patient.

Several studies correlate DD with epilepsy and the use of anticonvulsants. The present study included patients using phenobarbital due to any neuropsychiatric disease. There was a more significant association of DD with the use of phenobarbital (37.1% of patients) than with epilepsy (5.7% of patients). It corroborates research results that concluded that DD is associated with the use of anticonvulsants and not directly with epilepsy.⁸ This correlation is still controversial, requiring further studies.

Alcoholism and smoking being risk factors for DD are also controversial in the literature. Some studies associate both habits with DD,¹⁶ but there is a significant variation depending on the population studied.^{17,18} In the present study, 31% of patients included were smokers, and 16.6% were self-declared alcoholics.

DD typically presents some criteria that are predictors of greater severity and risk of recurrence,⁷ known as diathesis score. The following criteria define the diathesis score: bilateral involvement, family history of DD, knuckle pads (Garrod's nodules), association with other fibrotic diseases (such as Ledderhose disease), symptoms onset before 50 years of age, male gender, multiple fingers involvement (more than two fingers),¹⁹ and 1st ray involvement.²⁰ Out of the total patients included, 40% presented with the severe form of DD according to the diathesis score parameter – it shows a population with many severity criteria. However, there may be sampling bias, since the public hospital at issue is a tertiary reference service in the context of the local health system.

CONCLUSION

Although many factors are still controversial, DD has a broad clinical spectrum and several remarkable epidemiological aspects that are widely known. However, there is little data in the literature on DD in the South American population.

In the present study, we presented a sample of 140 patients seen during six years of attendance at a specialized outpatient service. Many characteristics were similar to those found in the literature worldwide, despite having a distinct sample population composed mostly of Brazilians who do not report European ancestry.

For a better understanding of DD and its local epidemiological aspects, further studies in Latin American populations are required.

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