Clinical, Epidemiological, Diagnostic and Therapeutic Profile of Fabry Disease Patients: *a study based on the Brazilian Rare Diseases Network*

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Introduction

Fabry Disease (FD) results from the deficient activity of the enzyme alpha-galactosidase A, causing globotriaosylceramide (Gb3) accumulation and belongs to lysosomal disorders with X-linked inheritance. Although rare, efforts have been made to gather more information on its characteristics, biochemistry, and monitoring, providing new insights.[1]

In Brazil, alpha-agalsidase (Replagal®) was approved by ANVISA in 2020 and was the first enzyme replacement therapy (ERT) for FD to be incorporated into the public health system (SUS). Beta-agalsidase (Fabrazyme®) was approved earlier by ANVISA, in 2009, but its incorporation into SUS occurred only in 2025. Additionally, migalastat (Galafold®), an oral pharmacological chaperone therapy approved by ANVISA in December 2019 for patients with amenable GLA gene variants, has not yet been incorporated into SUS.[2]

Objectives

To characterize the clinical, epidemiological, diagnostic, and therapeutic profile of Brazilian patients with FD.

Methods

This observational, descriptive study was based on the data from the Brazilian Rare Diseases Network and includes 72 FD patients (39 female) from 10 Brazilian centers for rare disorders.

Results

The characterization of the included sample is presented in Figures 1 to 8. These figures illustrate the geographic distribution, gender and ethnic composition, treatment status, diagnostic confirmation methods, sources of treatment funding, family recurrence, and the main clinical manifestations of patients with Fabry disease in Brazil. Together, they provide a comprehensive overview of the clinical, epidemiological, and therapeutic profile of this cohort.

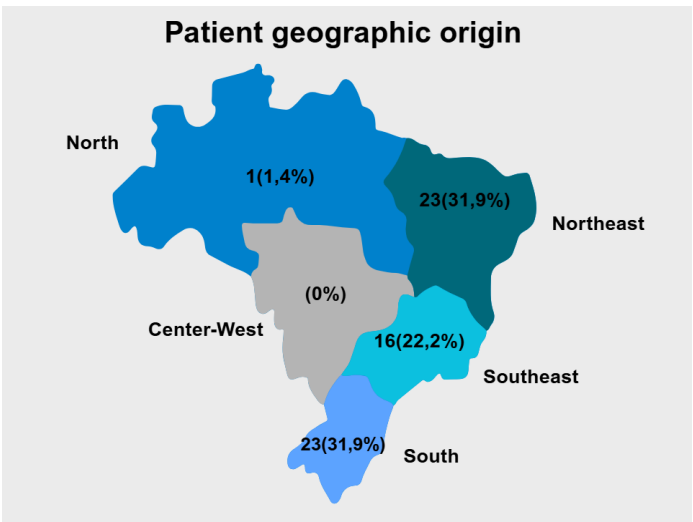

Figure 1: Geographic distribution of patients with FD by region of Brazil.

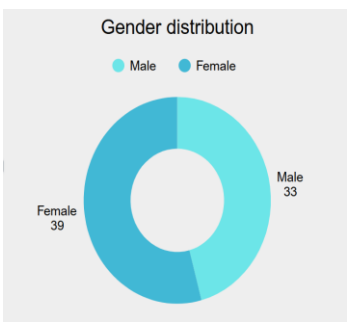

Figure 2: Gender distribution of patients with FD in Brazil.

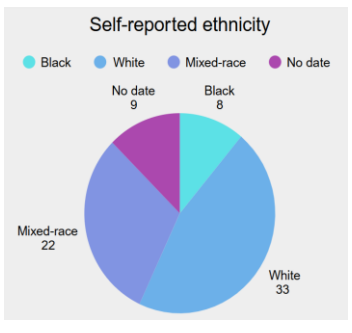

Figure 3: Ethnic distribution of self-reported patients with FD in Brazil.

Results

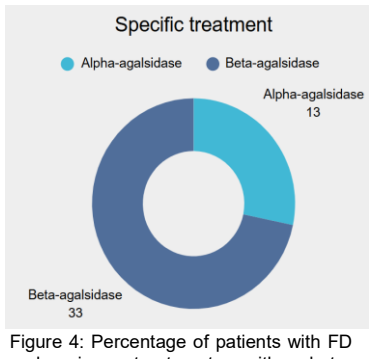

Figure 4: Percentage of patients with FD undergoing treatment with beta-galactosidase and alpha-galactosidase.

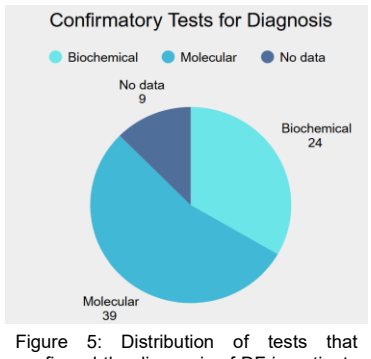

Figure 5: Distribution of tests that confirmed the diagnosis of DF in patients in Brazil.

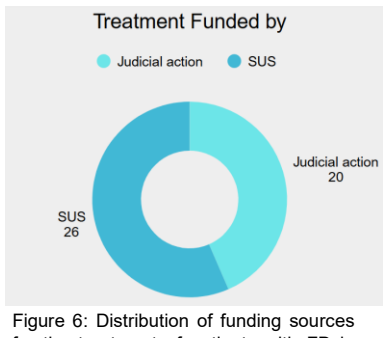

Figure 6: Distribution of funding sources for the treatment of patients with FD in Brazil.

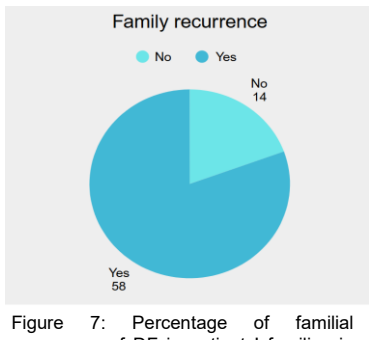

Figure 7: Percentage of familial recurrence of DF in patients' families in Brazil.

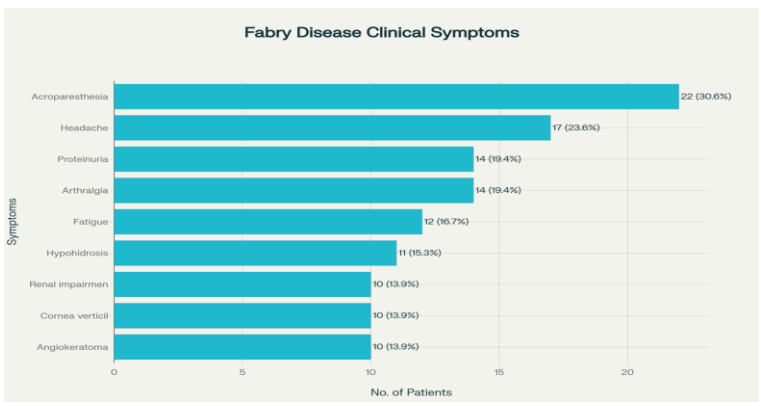

Figure 8: Distribution of clinical symptoms and signs in patients with FD in Brazil at the time of diagnosis.

Discussion

The cohort illustrates the clinical and genetic heterogeneity of Fabry disease in Brazil, with patients presenting a wide spectrum of symptoms, ranging from acroparesthesia and hypohidrosis to renal involvement and angiokeratomas. DNA diagnosis was used more frequently used than biochemical testing, highlighting the role of genetic screening and family cascade studies in identifying affected individuals. The geographic and ethnic diversity observed suggests potential influences on disease recognition, diagnostic timing, and phenotypic expression. Overall, these findings provide insight into how Fabry disease manifests in a diverse population and underscore the complexity of its clinical evaluation.

Conclusion

The characterization of this Brazilian FD cohort highlights the wide geographic distribution, ethnic diversity, high rate of familial recurrence, and predominance of molecular diagnosis. Although most patients receive specific treatment, the data reinforce the importance of public policies aimed at expanding access to early diagnosis and equitable treatment for FD patients in Brazil.

References

1. HOFFMANN, Björn. *Fabry disease: recent advances in pathology, diagnosis, treatment and monitoring*. Orphanet Journal of Rare Diseases, v. 4, art. 21, 2009
2. BRASIL. Ministério da Saúde. *Comissão Nacional de Incorporação de Tecnologias no SUS – Conitec aprova terapia para pacientes com doença de Fabry no SUS*. PPTA Saúde, 29 jan. 2024

ACKNOWLEDGMENTS: InRaras; Rede Nacional de Doenças Raras; MS DECIT/CNPq