CLINICAL AND EPIDEMIOLOGICAL CHARACTERIZATION OF GLOMERULAR DISEASES IN CHILE: A RETROSPECTIVE MULTICENTER OBSERVATIONAL STUDY.

Valjalo R[1], Villalobos A[2], Ruiz A[3], Segura P[4], Albo M[4], Ávila E[5], Sepúlveda R[5], Fulgeri C[6], Musalem P[7], Müller H[7], Barrero D[8], Cordero C[9], Gutiérrez R[9], Mallea MT[10], Contreras F[11], Caviedes C[11], Añó A[12], Navarro F[13], Hernández MG[14], Hellman E[15], Pais E[16], Reynolds E[17], Mansilla R[18].

[1]Hospital del Salvador, [2]Hospital Barros Luco Trudeau, [3]Clínica Dávila, [4]Hospital Clínico Universidad de Chile, [5]Hospital Clínico Universidad Católica, [6]Complejo Asistencial Padre las Casas, [7]Hospital Higueras de Talcahuano, [8]Hospital Gustavo Fricke, [9]Hospital San Juan de Dios, [10]Hospital Militar de Santiago, [11]Hospital San Borja Arriarán, [12]Hospital del Carmen, [13]Hospital San José, [14]Hospital de Antofagasta, [15]Hospital Van Buren, [16]Hospital Sótero del Río, [17]Hospital Santiago Oriente, [18]Hospital Clínico Magallanes.

INTRODUCTION

Glomerular diseases (GDs) are the leading cause of end-stage chronic kidney disease worldwide. Their prevalence varies between regions, and there are no studies in Chile that have characterize them. Our primary objective is to evaluate the prevalence of glomerular diseases in the country by analyzing histological studies through a collaborative, multicenter effort.

METHODS

This is a retrospective, descriptive, multicenter study involving 18 participating public and private centers. Patients aged over 15 years who underwent percutaneous renal biopsy of native kidney from 1999 to 2022 were included. We collected demographic data, clinical syndrome leading to the renal biopsy, laboratory tests results, and the histological diagnosis. All biopsies were analyzed by renal pathologists, and cases with insufficient histological samples for analysis were excluded. Diagnoses were categorized into primary glomerulopathies, secondary glomerulopathies, hereditary glomerular diseases, tubulointerstitial nephropathies and other nephropathies of indeterminate causes or with low prevalence. Analyzes were conducted using summary measures, and the national frequency of glomerulopathies was compared with international reported series, using the X2 test. A p-value of less than 0.01 was considered statistically significant. This study was approved by the Ethics Committee.

RESULTS

4,217 patients who underwent biopsy were analyzed, excluding 86 cases with insufficient histological samples for diagnosis, resulting in a final cohort of 4,131.

Table 1. Demographic Characteristics, Laboratory Parameters, and Clinical Presentation of Patients

Female sex, no (%)	2350 (56,9%)
Age, median (IQR), y	45,6 (31,9 - 60)
Age group, no (%)	15 - 92
15-29	910 (22,1%)
30-49	1440 (34,9%)
50-69	1376 (33,3%)
>70	402 (9,7%)
Latin ethnicity, no (%) [a]	3119 (93,8%)
Clinical presentation, no (%) [b]	
Nephrotic syndrome	1639 (42,8%)
Alterations in Urinalysis	645 (16,9%)
RPGN	439 (11,5%)
Non-nephrotic range proteinuria	374 (9,8%)
Acute kidney injury	358 (9,4%)
Nephritic syndrome	295 (7,7%)
Isolated hematuria	69 (1,8%)
CKD	6 (0,15%)
Laboratory Parameters, median (IQR)	
Creatinine (mg/dL)	1,5 (0,9-2,9)
Hemoglobin (g/dL)	11,7 (9,7-13,4)
Albumin (g/dL)	3,0 (2,3-3,7)
Proteinuria (mg/g or g/24 h)	3,2 (1,3-6,7)

Data for 3325 [a] and 3825 [b] patients

RESULTS

Fig 1. Proportion of nephropathies in renal biopsies classified by major groups (n=4131)

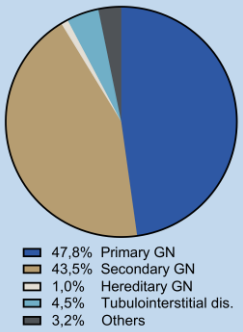


Fig 2. Prevalence of glomerulopathies by specific diagnosis in renal biopsies (n=3943)

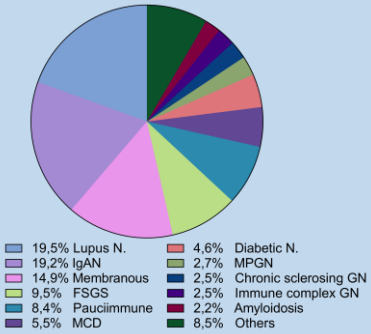


Table 2. Demographic and Laboratory Characteristics of the Most Frequent Glomerular Diseases

	IgAN	Membranous	FSGS	MCD	Lupus N.	Pauci-imm GN
Number of patients, no	756	586	375	218	770	330
Female sex, no (%)	398 (52,6%)	233 (39,8%)	181 (48,3%)	106 (48,6%)	657 (85,3%)	213 (64,5%)
Age, y [a]	39 (31,6-52)	52 (40-62,8)	46,3 (32-58,5)	43,4 (28,6-59,6)	30,6 (23,8-40,7)	60,6 (52-69)
Latin ethnicity, no (%) [b]	96,6%	91,3%	93,3%	95,7%	94,3%	93,2%
Hypertension, no (%) [c]	54,3%	48,3%	52,1%	26,4%	41,4%	60,7%
Creatinine, mg/dL [a]	1,7 (1,1-3)	1,34 (0,73-1,5)	1,8 (0,9-2,3)	0,9 (0,7-1,5)	0,94 (0,7-1,6)	3,2 (2,1-5,8)
Hemoglobin, g/dL [a]	12,2 (10,6-13,8)	13 (11,4-14,4)	12,6 ± 2,5	13,4 (12,2-14,5)	10,9 (9,3-12,5)	9,1 (8-10,9)
Albumin, g/dL [a]	3,7 (3,1-4,1)	2,3 (1,9-2,9)	3 (2-3,9)	2,1 (1,7-2,6)	2,9 (2,2-3,5)	3,3 (2,8-3,7)
Proteinuria, mg/g | g/24 h [a]	2 (1-4)	6,2 (3,7-10,9)	4,7 (1,8-9,1)	7 (3,9-13)	2,9 (1,3-5,7)	1,5 (0,8-2,7)
ANA ≥ 1/160 (%) [d]	17,5%	20,7%	18,6%	20%	91,2%	35,3%
Hypocomplementemia (%) [e]	8,7%	9,2%	4,3%	4%	84,2%	14%
Positive ANCA (%) [f]	7,1%	5,2%	5%	0,9%	6,1%	86,1%

[a] Median (IQR). Data for 3325[b], 2508[c], 2771[d], 2818[e] and 2176[f] patients

Fig 3. Frequency of primary glomerulopathies according to specific diagnosis.

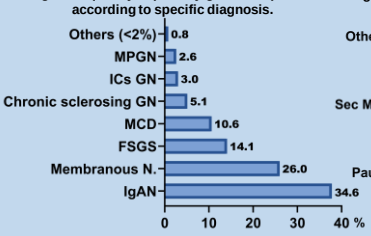


Fig 4. Frequency of secondary glomerulopathies according to specific diagnosis.

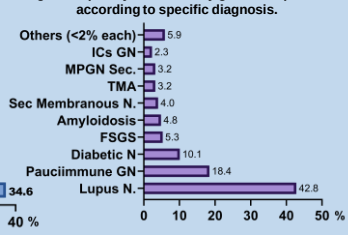


Fig 5. Clinical Presentation of the Most Frequent Glomerulopathies

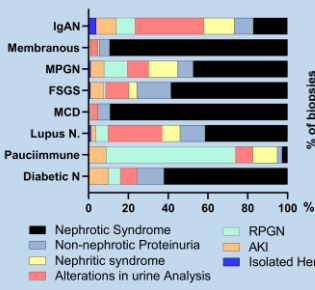
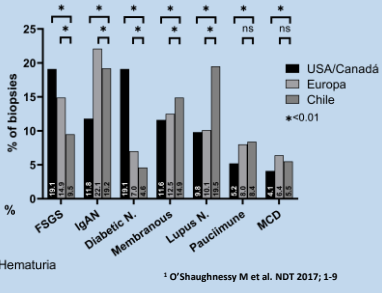


Fig 6. Comparison of Frequency by Regions[1] According to Type of Glomerular Disease



[1] O'Shaughnessy M et al. NDT 2017; 1-9

DISCUSSION

The most prevalent glomerular diseases identified in the biopsy studies were lupus nephritis, IgA nephropathy, membranous nephropathy, FSGS, and pauci-immune glomerulonephritis. Compared to international reports, the notable high prevalence of lupus nephritis and membranous nephropathy warrants further investigation into potential causative factors within the population studied.

GLOHI project

Correspondence: rvaljalo@gmail.com

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