Treatment Patterns of Multiple Sclerosis within the High Cost Drug Program in Chile from July 2017 to November 2021

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INTRODUCTION: High Cost Disease Modifying Treatment (DMT) for Multiple Sclerosis (MS) is covered by law as a second line treatment after first-line immunomodulators have failed.[1] This program started in July'17 covering Natalizumab and Fingolimod and by July'19 Ocrelizumab, Alemtuzumab and Cladribine were included.

OBJECTIVE: to describe treatment patterns of MS patients within the High Cost drug program.

METHODS: Anonymized data from the central public entity in charge of healthcare supplies (CENABAST) was analyzed from July'17 to November'21. This data set allowed us to identify when a pwMS first initiated DMT and when a patient's treatment was changed for another DMT

RESULTS: 1355 complete records (93,2% of total MS patients enrolled on the High Cost program) were analyzed. From July'17 to July'19.

1. At first the preferred treatment was Fingolimod, however once other treatments became available, Ocrelizumab was preferred in newly incorporated patients (Table 1).

	N° of patients (%)		
	1st period (July'17 - July'19)	2nd period (July'19 - Nov'21)	Total
Alemtuzumab		49 (5.4)	49 (3.6)
Cladribine		148 (16.4)	148 (10.9)
Fingolimod	350 (77.1)	151 (16.8)	501 (37.0)
Natalizumab	104 (22.9)	47 (5.2)	151 (11.1)
Ocrelizumab		506 (56.2)	506 (37.3)
Total	**454 (100)**	**901 (100)**	**1355 (100)**

Table 1: Distribution of first DMT prescribed in newly incorporated patients.

2. DMT was changed in 13,1% of patients (178 of a total of 1355 patients. These changes were unevenly distributed, 80,3% (N=143) occurred in the 1st period, while only 19,6% (N=35) happened after that (p=0.0001).

3. Alemtuzumab, Cladribine and Ocrelizumab are the therapies with less patient-leakage percent (Table 2)

N° of patients that switch DMT			
	N° switch	total	%
Alemtuzumab	3	63	4.8
Cladribine	9	179	5
Fingolimod	27	521	24.4
Natalizumab	60	174	34.5
Ocrelizumab	4	621	0.6
Total	**103**	**1558**	**100**

** Patients may switch DMTmore than once, every switch is accounted for.*

Table 2: Patient-leakage percent within each DMT
(n° of patients who change treatment / n° of initially treated patients)

4. Patient therapy switch was faster for Alemtuzumab, Natalizumab and Fingolimod, while Cladribine and Ocrelizumab had the lowest rates (p<0.00001) (Fig.1)

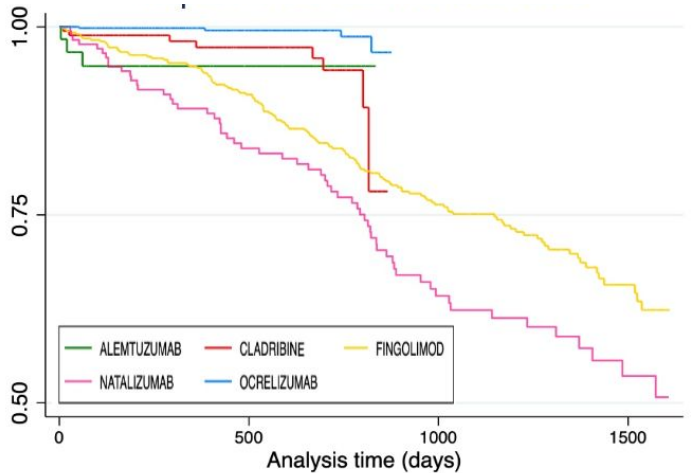

Fig.1: Patient-leakage rate within each DMT. Time from initial DMT to the switch to other treatment.

5. Of all DMT changes, 62.9% flowed towards Ocrelizumab and 16.3%Cladribine (Fig. 2)

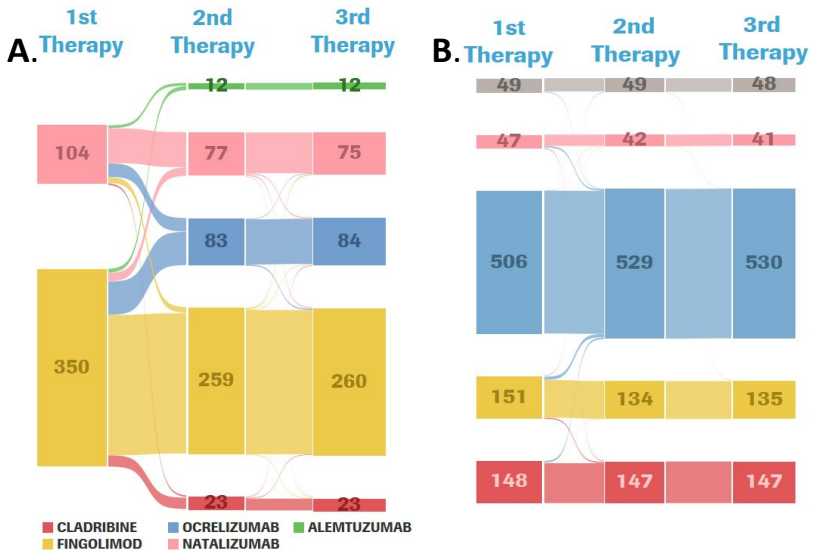

Fig.2: Therapy changes flow. A) 1st period (July'17 - July'19) **B)**2nd period (July'19 - Nov'21)

LIMITATIONS: This data base did not allowed us to differentiate RRMS from PPMS. Although PPMS only treatment option is ocrelizumab, so there would not be a treatment switch from this patients. Although this may underrate the fugue percent of Ocrelizumab, it represents 10% of all patients.[2] The data analyzed has a logistic nature, so we can only describe the treatment patterns, but there is no information as to analyze the reasons for these therapy switches.

CONCLUSIONS: Most patients remained within the same DMT. 13,1% changed therapy, mostly from Fingolimod and Natalizumab towards Ocrelizumab. After July'19 prescribing preferences for new MS patients and therapy switches favors Ocrelizumab over Fingolimod.

1.Ministerio de Salud, Subsecretaría de Salud Pública. (2019). Protocolo 2019 Tratamiento de Segunda Línea Basado en Fingolimod o Natalizumab o Alemtuzumab o Cladribina u Ocrelizumab para personas con Esclerosis Múltiple Recurrente Remitente con falla a tratamiento con inmunomoduladores y Tratamiento con Ocrelizumab para personas con Esclerosis Múltple Primaria Progresiva .
2.Miller, D. H., & Leary, S. M. (2007). Primary-progressive multiple sclerosis. The Lancet. Neurology, 6(10), 903–912. https://doi.org/10.1016/S1474-4422(07)70243-0