

Multi-Tablet, Single-Tablet, or Long-Acting Antiretroviral Treatment for HIV: A Cross Sectional Study of Patient Preferences in the United States and Spain

Alfredo Soler Carracedo¹, Vitor Oliveira², Jorge Saz³, Ferran Pujol³, Ana Milinkovic¹, Allison Webel²

Background

- Adherence to antiretroviral therapy (ART) underpins the successful treatment of HIV infection.
- New long-acting injectable ART agents have recently been approved by several regulatory agencies, but are not routinely given to people with HIV (PWH).
- In this cross-sectional survey study, PWH in the USA and Spain completed a survey exploring their preference regarding oral versus injectable ART.

Methods

- PWH attending either Barcelona Checkpoint, Spain, or the John T Carey Special Immunology Unit, USA, for their routine HIV care were invited to complete an anonymous, cross-sectional survey.
- The survey contained demographic, adherence, and HIV-related items. Participants choose their preferred ART regimen out of five options: multiple tablets multiple times a day, multiple tablets once a day, one tablet once a day, one IM injection at the clinic once a month, or one IM injection at the clinic every two months.
- In the USA, participants completed the survey in person. In Spain, on-line.
- Chi-square tests were used to determine differences between variables and univariate and multivariate testing were used to examine factors associated with preference.

Results

Participants: 55 (USA) and 141 (Spain); Total N=196

Demographics : 92.8% were male, 78.5% homosexual, 60.7% White, 51.5% 35 to 54 years, and 57% had a Bachelors degree or more.

HIV Characteristics: 63.1% were diagnosed between 2009 to 2020, 94.9% had an undetectable Viral Load, 34.1% had a CD4 count of 401-600 cells/mm³.

ART Regimen: 73.1% take one tablet once a day, 86.9% did not forget to take their ART in the last week, and 69.7% did not in the last month. 87% were happy with their current ART, and 55.2% had received an IM injection.

ART Preference:

- Among participants in the USA, 68.5% preferred an oral ART, in Spain 66.9% preferred IM.
- The most preferred option in the USA was one tablet once a day (44.4%). In Spain it was one IM at the clinic every two months (61.9%).
- In the USA the least preferred options were multiple tablets multiple times a day (5.6%) and one IM at the clinic once a month (5.6%). In Spain it was multiple tablets multiple times a day (0%)

Variables associated with a preference for IM:

- In the USA, having previously received an IM injection was associated with a preference for IM ART (odds ratio (OR) 11.18 in the multivariate analysis, 95% CI=2.01-62.14, $p < .01$).
- In Spain, none of the variables correlated with ART preference when multivariate analysis were performed (p 's $> .05$).
- When participants from both sites were combined, three variables were associated with a preference for IM ART ($p < .05$) in the multivariate analysis:
- Participants who were diagnosed with HIV from 2009 to 2020 were 4.21 fold (95% CI 1.87-9.46, $p < .1$) more likely to prefer IM ART compared to those diagnosed with HIV prior to 2009
- Those unhappy with their current ART regimen were 3.88 fold (95% CI 1.29-11.69, $p = .02$) more willing to take IM ART, compared to those who were happy with their current regimen
- Having previously received an IM injection was associated with 2.41 fold preference for IM ART (95% CI 1.29-4.51, $p < .01$)

Table 1. HIV-related items included in the survey

Variable	Total (n = 196) N (%)	USA (n = 55) N (%)	Spain (n = 141) N (%)	P
Year of HIV diagnosis				< .01
1985 to 1996	39 (20)	25 (45.5)	14 (10)	
1997 to 2009	33 (16.9)	17 (30.9)	16 (11.4)	
2009 to 2020	123 (63.1)	13 (23.6)	110 (78.6)	
Viral load				.02
Undetectable	185 (94.9)	49 (89.1)	136 (97.11)	
CD4+ T cell count				.07
≤400 cells/mm ³	13 (9.8)	9 (16.4)	4 (5.2)	
401-600 cells/mm ³	45 (34.1)	19 (34.5)	26 (33.8)	
601-800 cells/mm ³	33 (25)	9 (16.4)	24 (31.2)	
≥801 cells/mm ³	41 (31.1)	18 (32.7)	23 (29.9)	
Current ART				< .01
1 tablet	128 (73.1)	33 (60)	95 (79.2)	
>1 tablet	47 (26.9)	22 (40)	25 (20.8)	
Forgot to take ART in the last week				.02
None	166 (86.9)	42 (77.8)	124 (90.5)	
Once, twice, or three times	25 (13.1)	12 (22.2)	13 (9.5)	
Forgot to take ART in the last month				.69
None	131 (69.7)	35 (68.6)	96 (70.1)	
Once	30 (16)	7 (13.7)	23 (16.8)	
Twice or more	27 (14.4)	9 (17.6)	18 (13.1)	
Happy with current ART				< .01
Yes	168 (87)	54 (100)	114 (82)	
No	25 (13)	0	25 (18)	
Ever received an IM				.06
Yes	107 (55.2)	24 (44.4)	83 (59.3)	
No	87 (44.8)	30 (55.6)	57 (40.7)	

Table 2. ART Preferences Vary by Geography

ART	Total (n = 196) N (%)	USA (n = 55) N (%)	Spain (n = 141) N (%)
Ways of disposal			
Any number of tablets, multiple times a day	3 (1.6)	3 (5.6)	0
Any number of tablets, once a day	16 (8.3)	10 (18.5)	6 (4.3)
One tablet, once a day	64 (33.2)	24 (44.4)	40 (28.8)
One IM, at the clinic, once a month	10 (5.2)	3 (5.6)	7 (5)
Once IM, at the clinic, once every 2 months	100 (51.8)	14 (25.9)	86 (61.9)
Combined forms			
Oral	83 (43)	37 (68.5)	46 (33.1)
IM	110 (57)	17 (31.5)	93 (66.9)

Figure 1. ART preference

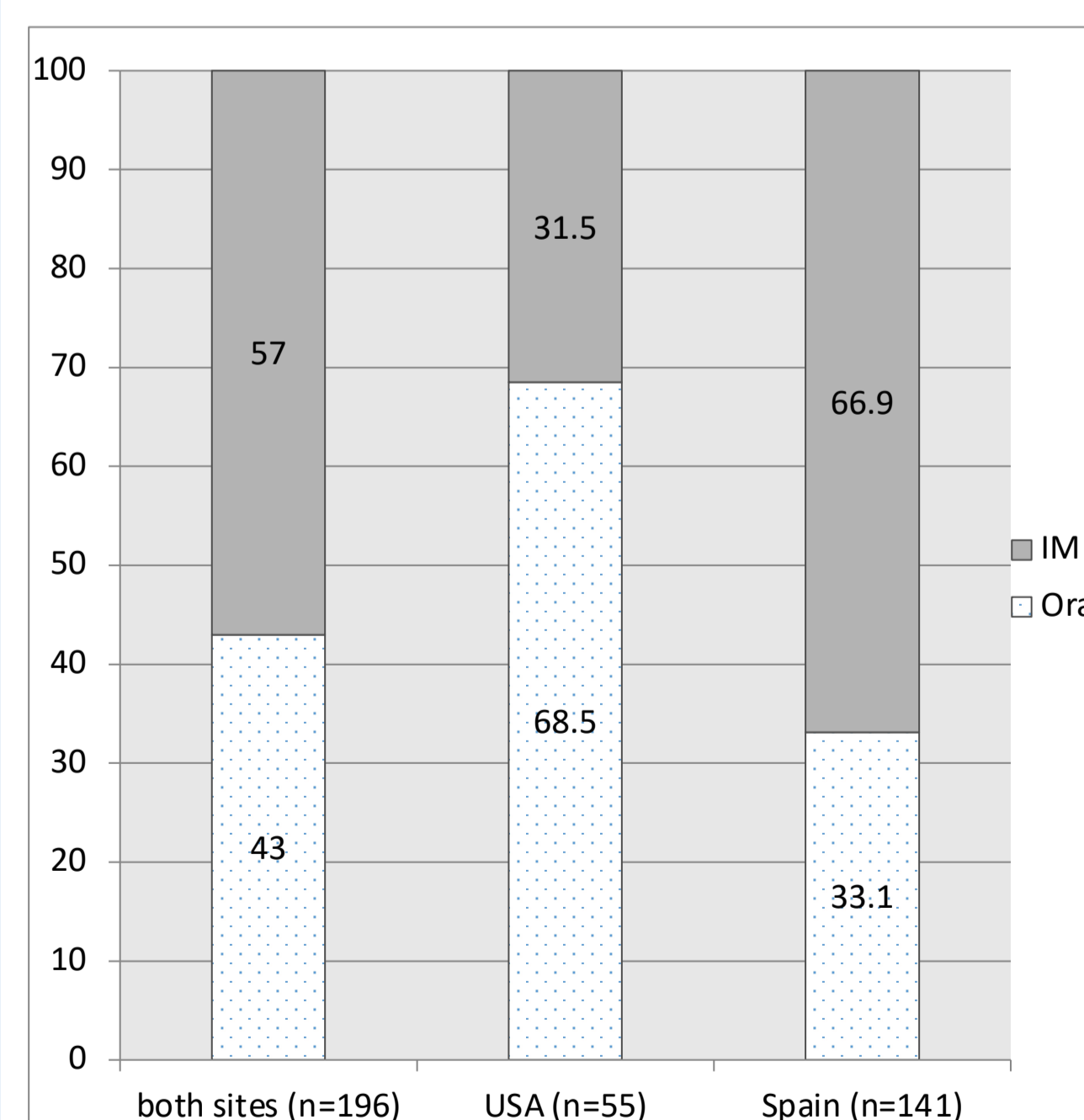


Table 3. Variables associated with a preference for IM ART

Variable	Univariate OR (95% CI)	P	Multivariate OR (95% CI)	P
Year of HIV diagnosis				
1985 - 1996	Reference	< .01	Reference	< .01
1997 - 2008	2.00 (0.77-5.23)		2.13 (0.78-5.85)	
2009 - 2020	3.90 (1.82-8.39)		4.21 (1.87-9.46)	
Happy with current ART				
Yes	Reference	.01	Reference	.02
No	3.42 (1.22-9.54)		3.88 (1.29-11.69)	
Ever received IM				
No	Reference	< .01	Reference	< .01
Yes	2.24 (1.25-4.01)		2.41 (1.29-4.51)	

Conclusions

- The most preferred ART option in the USA was one ART tablet once a day (44.4%) whereas in Spain it was an intramuscular (IM) ART injection once every two months (61.9%).
- Being recently diagnosed with HIV, not being happy with their current ART, and having previously received an IM injection are associated with a preference for IM ART over oral ART.
- Choosing between an oral or long-acting ART is a complex decision, with many factors that must be carefully taken into consideration.