Rate and predictors of Integrase Inhibitor-uptake at Melbourne Sexual Health Centre

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Background

Integrase strand transfer inhibitors (INSTIs) are well tolerated and highly efficacious antiretroviral agents. They are endorsed in international guidelines as initial antiretroviral therapy (ART), and are often utilised for regimen simplification in treatment-experienced patients.

A sharp increase in INSTI use was observed by pharmacists at Melbourne Sexual Health Centre (MSHC), along with drug-related problems (DRPs) unique to INSTIs, such as interactions with complementary medicines.

Aim

This study examines and describes the

- rate and predictors of INSTI-uptake at MSHC
- reasons for switching therapy, from other ART and between INSTIs
- incidence and nature of pharmacist-identified DRPs at time of switch

Methods

MSHC patients prescribed ART between 1st January 2013 and 31st December 2015 were identified from clinic and pharmacy records, and demographic and medical data was collected.

The rate of INSTI-uptake was described using a Kaplan-Meier curve, and logistical regression was used to identify predictors associated with INSTI-uptake using STATA©. For patients who transitioned to INSTIs from another ART regimen, reasons for switching, prior regimen, and changes in pill burden were collected.

Incidence of pharmacist-identified DRPs at INSTI initiation was obtained from the pharmacy's interventions database.

Results

A total of 1403 patients taking ART were identified from 1591 clinic attendees. Patients were more likely to be male, Australian or New Zealand-born, and the average age was 41 years (Table 1).

Table 1: Demographics of patients on antiretroviral therapy at MSHC

Age (years)		Medicare eligibility, n (%)	
Mean (SD)	41 (12)	Yes	1285 (91.5)
Range	18-84	No	118 (8.5)
Male, n (%)	1255 (89.5)	HLA B57, n (%)	
Female	144 (10.2)	Positive	7 (0.5)
Transgender/Other	4 (0.3)	Negative	1396 (99.5)
Continents of origin, n (%)		eGFR (mL/min)	
Australia/NZ	810 (57)	Mean (SD)	102.4 (18.5)
Asia	241 (17)	Number of MSHC clinic visits during the study period	
Europe	139 (10)	Mean (SD)	11.7 (6.6)
Africa	84 (6)	Median	11
Other	76 (5)	Range	1-42
Unknown	53 (4)		

INSTIs were prescribed to 597 patients including existing INSTI users, treatment-naïve patients and patients switching from other ART (Fig 1).

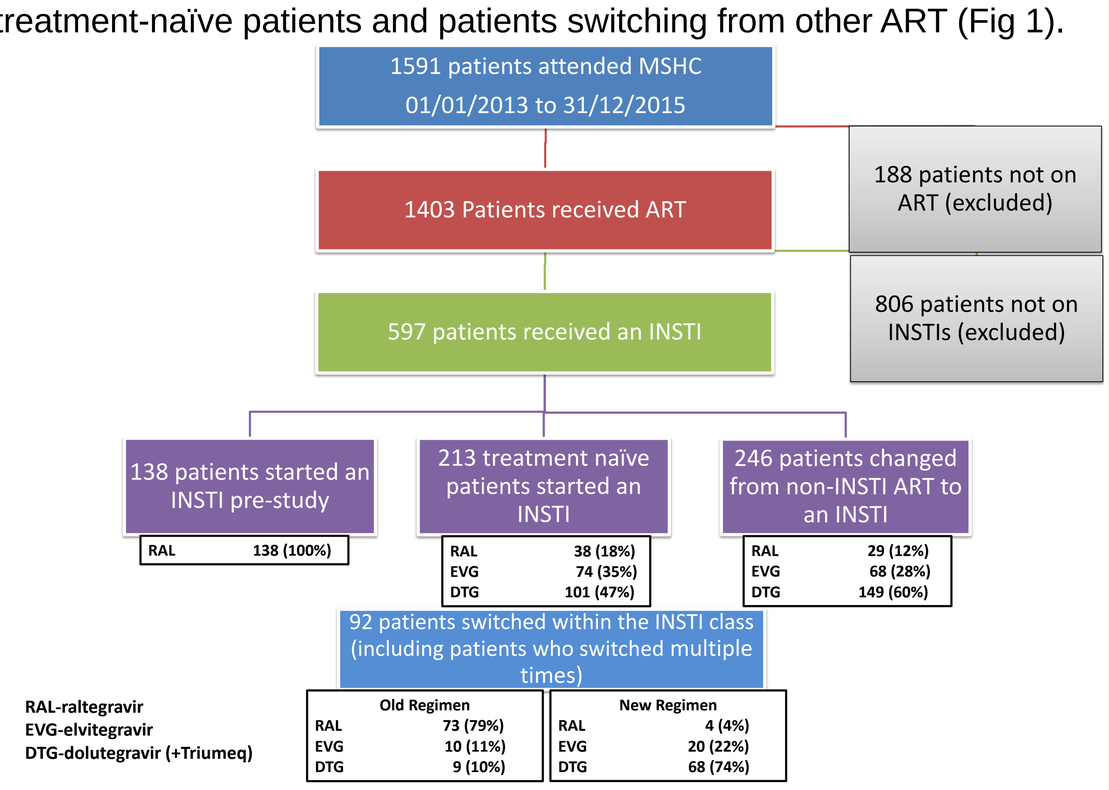

Figure 1: Breakdown of patients prescribed INSTIs during the study period

Results cont

The rate of INSTI-uptake increased over the study period, from 3.4% per year when only raltegravir was available, to 18.7% per year from April 2014 when dolutegravir and elvitegravir became available (Fig 2).

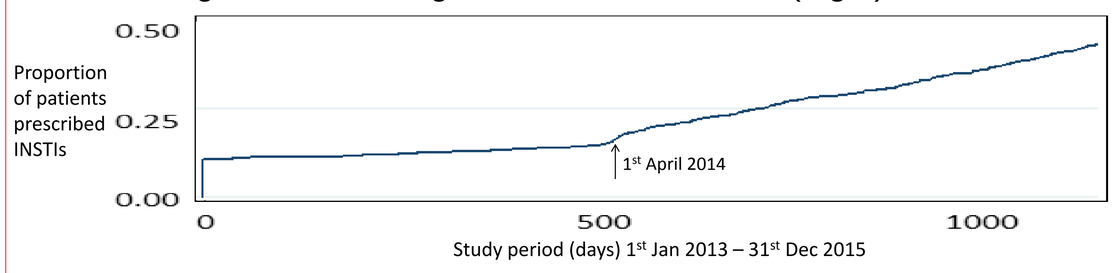

Figure 2: Kaplan-Meier curve demonstrating INSTI-uptake in MSHC clinic patients, n=1403

Logistical regression demonstrated that significant predictors of INSTI uptake were older age, and greater clinic attendance (Table 2). Other covariates including gender, HLA-B57, eGFR, country of birth and Medicare eligibility were not statistically significant predictors of uptake.

Table 2: Statistically significant predictors of INSTI uptake

Covariate	Odds ratio (95% CI)	p value
Age	1.017 (1.007 - 1.0027)	0.001
No. of clinic consults during study period	1.053 (1.034 - 1.073)	<0.0001

Reasons for switching to INSTIs from other ART included adverse effects, regimen simplification, co-morbidities and toxicity, while reasons for switching between INSTIs included simplification and adherence (Fig 3).

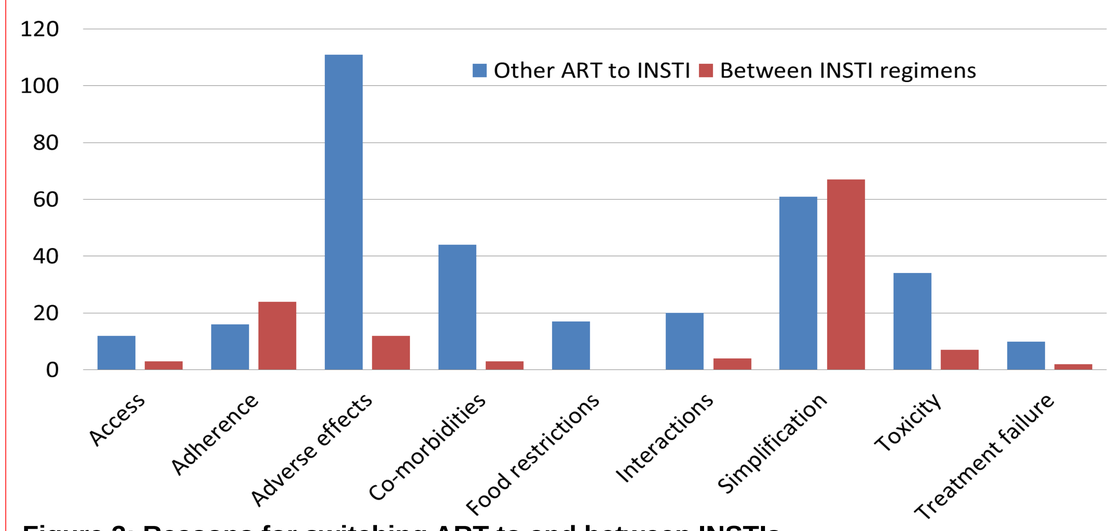

Figure 3: Reasons for switching ART to and between INSTIs

Switching to and between INSTIs reduced pill burden, particularly in patients switching within the class (Table 3).

Table 3: Changes to pill burden following change in ART regimen

	Other ART* to INSTI (n=246)	Between INSTIs (n= 92)	p
Median pill count: pre, post (range)	2, 1 (1 –7)	3, 2 (1 –8)	
Pill burden change after switch, n(%)			
Increased	56 (23)	11 (12)	0.03
Decreased	113 (46)	76 (83)	0.0001
No change	77 (31)	5 (5)	0.0001

**Most common prior ART: Atripla®(25%), Truvada®/boosted atazanavir (19%), Eviplera® (15%)*

Pharmacists identified DRPs including drug interactions with concomitant medications, and advised on methods to reduce their impact. Advice on complimentary medicines and regimen selection was common (Table 4).

Table 4: Drug-Related Problems (DRPs) identified at time of switching to/between INSTIs

Drug-Related Problem, n (%)	Swap to an INSTI (n=247)	Swap between INSTIs (n=92)
Potential drug interaction/s	40 (19)	16 (17)
Complimentary medicines advice	26 (13)	9 (10)
Assistance with regimen selection	11 (5)	4 (4)
Adverse drug reactions	2 (0.8)	3 (3)

Conclusions

INSTI-uptake increased with drug availability in both treatment-naïve and experienced patients. Reasons for switching included side effects, co-morbidities and toxicity, as well as regimen simplification or to improve adherence. Pharmacists are well placed to identify and assist with drug-related issues and decision making when switching ART regimens.

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