Patient and Physician Preferences Regarding the Benefits of Treatment for HIV

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INTRODUCTION

- The range of antiretroviral drugs available has increased considerably over the past 10 years.
- In addition to the clinical management of HIV the key goals of therapy are focused on maintaining patient quality of life and adherence whilst minimising side effects (Nachega et al, 2011).
- National treatment guidelines recognize the importance of understanding the preferences of patients regarding treatment in order to optimize adherence (NICE, 2009).
- To maximise adherence prescribing physicians should consider the preferences of patients regarding the profiles of HIV therapies.
- Stated preference surveys such as discrete choice experiments (DCE) can provide very sensitive methods for understanding the preferences of patients and physicians regarding different aspects of treatments.

OBJECTIVE

- The present study was designed to elicit patient and physician preferences for HIV treatment options using a stated preference survey.

METHODS

Surveys

- Two matched stated preference surveys were designed for patients and physicians respectively.
- The surveys considered different treatment attributes for HIV therapies (Table 1). These were identified through literature review, patient interviews (n=5) and physician interviews (n=4). Patients had been diagnosed with HIV between 3 and 24 years ago and were all on treatment. Physicians were HIV specialists and saw on average 120 patients a month.
- Treatment attributes were combined into hypothetical treatment profiles (using an orthogonal design) and presented in pairs. Participants were asked to indicate which they preferred (Figure 1).
- The surveys were delivered online and included a sociodemographic/clinical history form and a measure of quality of life (EQ-5D-5L).
- The surveys were piloted with HIV patients (n=5) and physicians (n=2) to assess comprehensibility. These pilot participants were located across the UK and ranged in years of HIV experience from 1 to 25 years.

Table 1: Attributes and descriptions of levels

Attribute		Description (with 3 levels)
Treatment benefit		85%, 75%, or 65% chance undetectable viral load at 1 year
Side effects	Rash	Treatment has a 1%, 5%, or 10% risk of rash during first year
	Kidney stones	In the next 5 years 0, 10 per 1,000, or 37 per 1,000 patients will develop kidney stones as a result of this treatment
	Jaundice	Treatment has a 1%, 5%, or 10% risk of jaundice during first year
	Diarrhoea	Treatment has a 5%, 10%, or 17% risk of diarrhoea during first year
	Psychological effects	Treatment has a 10%, 25%, or 50% risk during first year
	Cardiovascular disease	In the next 10 years 0, 6 per 1,000, or 40 per 1,000 patients will suffer a heart attack as a result of this treatment
Proven long term safety		Product safety has been established over 10, 5, or 3 years

Figure 1. An example DCE choice set

	Treatment A	Treatment B
Treatment benefit (viral load)	75% undetectable viral load	85% undetectable viral load
Risk of rash during 1st year	1% or 1 in 100	5% or 1 in 20
Risk of kidney stones within 5 years	10 in 1,000 people have kidney stones	37 in 1,000 people have kidney stones
Risk of jaundice during 1st year	10% or 1 in 10	1% or 1 in 100
Risk of diarrhoea during 1st year	10% or 1 in 10	17% or 1 in 6
Risk of psychological effects during 1st year (sleep disturbance, dizziness, depression or memory loss)	10% or 1 in 10	25% or 1 in 4
Risk of heart attack within 10 years	No increased risk	6 in 1,000 people have heart attack
Long term safety information available for usage up to	Five years	Three years
Which do you prefer?	A ☐	B ☐

Sample

- HIV patients (n=200) and physicians (n=125) in the UK were recruited through a specialist recruitment agency.
- Participants were screened and provided consent online.
- Physicians were excluded if they were not practising in the NHS and had not treated more than 20 patients with HIV in the last year. Patients were excluded if they were not resident in the UK and had not received treatment for HIV.
- On completion of the survey participants received a small reimbursement for their time.
- The study protocol and all case-report forms were approved by an Independent Institutional Review Board.

Statistical analysis

- Conditional logit models estimated the influence of each attribute on participants' choices.
- All attributes were included to evaluate choice responses after conditioning them on the attributes of the other treatment alternatives available within the choice set.

RESULTS

Demographics and clinical data

- The majority of patients were treated in London (64%) and 9% in another large urban centre. The average time since diagnosis was 11 years, with a range of 1 to 26 years (Tables 2 and 3).
- A third of physicians practiced in the London area (29%) and14% in another large urban area. Most physicians prescribed Efavirenz (83%). Atripla was the next main treatment prescribed at 6% (Table 4).

Table 2. Patient demographics

		Total (N=200)
Mean age, in yrs (SD)		45.0 (9.7)
Gender	Male	67 %
Ethnicity	White	62 %
	Black	35 %
	Other	3 %
Employment	Employed	46 %
	Seeking work	13 %
	Sick leave/disabled	22 %
	Other	19%
Sexual orientation	Heterosexual	45 %
	Homosexual	46 %
	Other	9 %
Quality of life	EQ-5D-5L	0.614 (SD=0.303)

Table 3: Patient clinical data

		Total (N=200)
Mean time since diagnosis, in yrs (SD, range)		10.8 (6.1, 1-26)
Most recent CD4 count	Not known	4 %
	< 200 cells/mm3	8 %
	200 to 400 cells/mm3	22 %
	> 400 cells/mm3	66 %
Viral load	Detectable	15 %
	Non-detectable	83 %
	Not known	2 %
Time since started medication	< 1 year	5 %
	1 to 3 years	17 %
	4 to 6 years	26 %
	7 to 10 years	26 %
	> 10 years	25 %
	Stopped taking medication	1 %
Number of times changed HIV medication combinations	Never	22 %
	Once	27 %
	Twice	19 %
	Three +	32 %

Table 4: Physician clinical data

		Total (N=125)
Practice location	London	29 %
	Other area of country	52 %
	Other large urban center	14 %
	Scotland	2 %
	Wales	3 %
Treatments prescribed	Efavirenz	83 %
	Atripla	6 %
	Lopinavir	2 %
	Darunavir	2 %
	Atazanavir	2 %
	Truvada	1 %
	Combivir	1 %
	Kivexa	1 %
	Tenofovir	1 %
	Other	1 %

Discrete choice experiment results

- Table 5 presents the importance of each treatment attribute for patients and physicians (as an odds ratio).
- In the patient survey all of the identified attributes included in the survey were significant predictors of choice indicating that they were important to the participants.
- In the physician survey 2 of the identified attributes included in the survey were not significant predictors of choice: risk of rash and risk of diarrhoea

Patients:

- Treatment effectiveness and long-term safety profile were the most important factors for patients when making treatment choices.
- For every 1% increase in the chance of undetectable viral load after 1 year the odds of choosing that treatment increased by 3%.
- Those with detectable viral load had lower utility values (mean=0.483) than patients with non-detectable viral load (mean=0.641) ($p<0.01$).
- Patients valued the avoidance of all side effects which were included in the discrete choice questions. They placed more importance on the avoidance of daily side effects such as rash, diarrhoea and jaundice.

Physicians:

- Placed greater importance on the effectiveness of treatment in terms of viral load than patients did.
- For every 1% increase in the chance of undetectable viral load after 1 year the chance of preferring that treatment increased by 11%.
- Physicians' choices were not affected by risk of rash or diarrhoea.

Table 5: Patient and physician stated preference results (OR= odds ratio)

		Patients (n=189)	Physicians (n=125)
Attribute	**Unit**	**OR**	**OR**
Treatment benefit	1%	1.030** (1.023-1.037)	1.110** (1.093-1.126)
Risk of rash	1%	0.992* (0.986-0.999)	*0.992* (0.983-1.002)
Risk of kidney stones	1%	0.991** (0.989-0.994)	0.988** (0.985-0.992)
Risk of jaundice	1%	0.990** (0.982-0.997)	0.982** (0.972-0.992)
Risk of diarrhoea	1%	0.991** (0.985-0.996)	*1.000* (0.993-1.007)
Risk of psychological effects	1%	0.978** (0.974-0.982)	0.971** (0.966-0.977)
Risk of heart attack	1%	0.977** (0.973-0.980)	0.972** (0.967-0.977)
Long term safety profile	Years of data	1.061** (1.042-1.080)	1.061** (1.040-1.082)

*p<0.005, **p<0.01. Eleven patients were excluded from the analysis because they failed a test of logical consistency. Italics indicates non significant.

DISCUSSION

- The stated preference data showed that all identified treatment attributes included in the survey were important to patients.
- Patients valued the avoidance of certain side-effects including rash, diarrhoea and jaundice which were all of equal importance.
- Patient and physician groups shared some similarities. Both groups indicated their strongest preferences were related to treatment effectiveness and long term safety. The avoidance of risk of heart attack and psychological effects were rated highly by both patients and physicians.
- Important differences were also observed between the two groups. Whereas patients valued the avoidance of included side-effects, physicians placed very little importance on the avoidance of rash and diarrhoea. Physicians placed more weight on treatment effectiveness compared with patients.
- Considering the perspective of patients when making treatment decisions may result in improved adherence and better treatment outcomes in HIV.

Limitations

- The recruitment of participants through a commercial recruitment agency allowed us to access a wide range of participants but limited the background data we could collect.
- Some potentially important treatment attributes may have been excluded; but this was necessary to minimise burden.
- It is not possible to directly compare the relative importance of different attributes as they are on a different underlying scale.

REFERENCES

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