Pharmacist Review of Medications for HIV-Positive people seen in General Practice (PROM-GP)

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Background

As the HIV-positive population ages on effective antiretroviral therapy (ART), increasing co-morbidities, and resultant poly-pharmacy play a role in the complexity of holistic patient care. Polypharmacy is a strong predictor of medication-related adverse effects, drug-drug interactions, and adherence issues. Medication review by a clinical pharmacist with HIV experience within the general practice (GP) setting may lead to effective identification and management of medication-related problems (MRPs). This study aimed to evaluate the effectiveness of a HIV specialist pharmacist providing a single face-to-face patient consultation in high HIV caseload GP clinics. The primary outcome was the number and types of MRPs identified by the pharmacist. Secondary outcomes included the resolution of the MRP at 3-4 month review, adherence assessment and patient satisfaction.

Methods

In this prospective study, eligible patients were prescribed ART, attending one of three Melbourne GP clinics and had at least one risk factor for MRPs :

- Polypharmacy (≥5 medications, incl ART)
- Age ≥50 years
- Recent hospital admission
- Adherence issues
- Using medications for ≥3 medical conditions

Following referral by the practice doctor or nurse, patients were seen in the clinic by the HIV specialist pharmacist, who identified MRPs, assessed medication adherence, and provided medication counselling. Following review, a report was prepared for the doctor (Figure 1).

PROM-GP Medication review and report

Age: 82 years — Date of review 16/6/16

Current medications: — Allergies: NKDA

Antiretrovirals	Other prescribed medications	Over-the-counter, complimentary or herbal meds
Atripla® 1 nocte (emtricitabine 200mg, tenofovir DF 300mg efavirenz 600mg)	Warfarin (Maravan®) 2.5mg daily (INR by Melbourne Pathology) Pantoprazole 40mg daily prn Celestone® cream daily prn	Nature's Own Complete Sleep® 1 prn Calcium/Magnesium 1 daily Curcumin (Turmeric) 1 daily prn

Relevant medical history: DVT/PE, Factor V Leiden heterozygosity, #distal R fib 2013

Test result	Comments	Action
4/3/16 VL <40 CD_4 578 (26%)	Well controlled HIV	
Renal function 20/1/16 SCr 92; eGFR 67mL/min	Pt has been on tenofovir DF since 2010 Weight 67kg Calc CrCl (Cockcroft-Gault)=**52**mL/min	Discuss with GP/ID clinic plan to come off tenofovir DF
BP control 4/4/16 112/82		
Lipids TChol 5.8; HDL 1.3; Trig 2.0 TChol/HDL ratio 4.5	Efavirenz likely increasing lipids – may improve off Atripla®.	Recheck fasting lipids next visit (recommended yearly screen)
Random BSL 5.3 (4/3/16) Hb1Ac 6.1%		
Bone Health Vit D: 72 4/3/16	Guidelines recommend bone screening annually > 60 years On tenofovir, previous # 2013 (R fibula)	Consider completing bone health screen

Adherence assessment:

Morisky scale (self-report for overall medications): High adherence

Antiretroviral self-report adherence: Adherent

Medication Possession Ratio (pharmacy pick-up rate) for antiretrovirals: >100%

Medication Related Problems:

Problem	Comments	Recommendation
Atripla® in an 82 year old with renal impairment and falls risk	Pt on efavirenz since 2005, and tenofovir since 2010, but given falls risk (recent fall in April) and 2013 fibula fracture, efavirenz could be changed to an alternative (eg Integrase inhibitor with less likelihood for interaction with warfarin). Tenofovir alafenamide (TAF) is not likely to be available in an Atripla® equivalent, so perhaps consider TAF/emtricitabine (when available? later this year) with an integrase inhibitor raltegravir or dolutegravir. (Genvoya® would still interact with warfarin, but managable)	Discuss with ID physician and patient: ART switch
Interaction between warfarin and efavirenz	Efavirenz may increase or decrease INR, with case reports of decreased warfarin dosing required. In this pt, warfarin dose has been stable at 2.5-3mg over 12 months. Pt has INRs checked monthly – this interaction is currently well managed, but needs increased monitoring if pt switches off efavirenz.	Continue to monitor INR, with increased monitoring if change in ART
Interaction between curcumin and warfarin	In vitro, curcumin is thought to have antiplatelet effects but inconclusive in humans. Reports of increased INR with warfarin. Use with caution with warfarin. Pt taking since his fall, I advised there would be less bleeding risk if he ceased.	Advised pt to cease curcumin

Figure 1. Example report for GP

MRPs were categorised and assigned risk severity classification using a probability/consequence matrix[1] by the study pharmacist. A multidisciplinary panel (infectious diseases/general medicine physician, senior HIV pharmacist, geriatrics pharmacist) reviewed a 10% random sample of patients to validate the study pharmacist's assessment.
Medical records were reviewed 3-4 months post-consultation to assess MRP resolution. Patients were asked to complete an anonymous survey about their satisfaction with the consultation.

Results

Between February and August 2016, 100 patients participated in a face-to-face consultation with the pharmacist (Table 1).

Table 1: Patient demographics

	n=100
Age, median (IQR) years	58 (51, 65)
Male, %	98
Virologically suppressed (<20copies/mL), %	96
Mean CD_4 (cells/µL)	643
Time since HIV diagnosis, median (IQR) years	22 (15, 26)
Number of non-ART medications, median (range)	7 (0-16)

Results

For the 100 patients reviewed, 542 MRPs were identified; 48% were classified as moderate or high risk (Figure 2, Table 2).

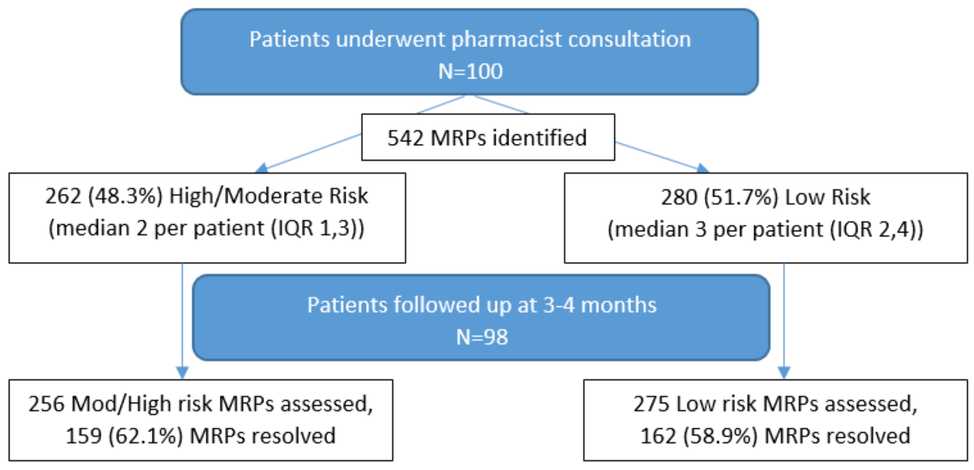

Figure 2: Risk classification and resolution for MRPs identified at pharmacist review

Table 2: MRP Category and Risk Classification

MRP category^	High/Moderate risk	Low risk	Total	% of total MRPs
Drug interactions	60	67	127	23.4
Over or Under dose	28	15	43	7.9
Undertreated~	33	16	49	9.0
Monitoring*	47	113	160	29.5
Education/information	27	37	64	11.8
Toxicity	27	6	33	6.1
All other categories#	40	26	66	12.2
Total	**262 (48.3%)**	**280 (51.7%)**	**542**	

^ MRP Category: MRPs were categorised according to "D.O.C.U.M.E.N.T." criteria described by Pharmaceutical Society of Australia and adapted by the Society of Hospital Pharmacists Australia [1]
~ "Undertreated" included un-/undertreated conditions or preventative therapy recommended
* "Monitoring" included additional laboratory or non-laboratory monitoring recommended
# Other categories included: Compliance, Duplication and More appropriate drug available

Univariate and multivariate analysis revealed no statistically significant associations between patient-related factors (age, ART regimen, co-medications, seeing other specialists, years since diagnosis) and either presence of high risk MRPs or number of moderate/high risk MRPs.

Ninety eight percent of patients were followed up at 3-4 months; with an overall resolution of 60% of all MRPs, and 62% of moderate/high MRPs. Anecdotally, some reasons for non-resolution of MRPs included: patient choice, multiple concurrent issues/more pressing clinical concerns and 3-4 months being an inadequate time for resolution.

The panel reviewed 15 randomly selected patients (89 MRPs). In 73% of MRPs, the panel either agreed with the study pharmacists risk classification of MRP or rated it one risk level higher than the study pharmacist (Kappa = 0.46).

Ninety seven percent of surveyed patients (74 of 76 responders) reported satisfaction with the consultation, and 83% would like a pharmacist available in clinic in the future.

Conclusion

This study is the first to integrate a HIV specialist pharmacist into a high HIV caseload GP setting, performing medication management reviews for HIV-positive people. Targeting complex patients with at least one MRP risk factor, the intervention identified a median of two MRPs of clinical significance (high or moderate risk) and three low risk MRPs per patient. This is higher than other Pharmacist-in-GP-clinic studies in HIV-negative settings.[2] Sixty two percent (62%) of high/moderate risk MRPs were resolved at 3-4 month follow-up review.

This work is ongoing with plans to recruit a further 400 patients, as part of a larger national multi-site study. Ideally, the future direction of this work is to expand the number of clinics and specialists pharmacists involved.

References

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