FINDINGS OF A PHARMACIST CARE PLAN PROGRAM FOR PEOPLE LIVING WITH HIV/AIDS SEEN AT A GENERAL PRACTICE CLINIC

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Background

- The average age of people living with HIV (PLWHA) in Australia is increasing due to improved survival and increasing age at time of diagnosis[1]
- In Australia, the proportion of people with HIV over the age of 55 years is estimated to have increased from 2.7% in 1985 to 11.2% in 2000 and 25.7% in 2010, with a projected further increase to 44.3% by 2020[2]
- In large overseas cohorts, increasing age has resulted the rise in co-medication prescribed.[3] The combination of polypharmacy and ART can significantly increase the chance of drug-drug interactions and potential adverse outcomes for patients[4].

Melbourne Sexual Health Centre (MSHC) Pharmacy is the busiest antiretroviral therapy (ART)-dispensing pharmacy in Australia, providing ART to over 2500 PLWHA. Co-medications are often not dispensed at the sexual health centre and patients are not always able to provide this information in the busy pharmacy environment, thus performing a comprehensive clinical pharmacy review at the centre is not always possible.

Working with clinicians at the Centre Clinic, pharmacists at MSHC developed a care plan program, providing a clinical pharmacist review and written report detailing medication adherence and potential pharmaceutical concerns.

Aims

To report the findings of a pharmacist care plan program for people living with HIV/AIDS (PLWHA) seen at a high HIV caseload General Practice (GP) clinic.

Methods

A pharmacist care plan system for PLWHA currently taking antiretroviral therapy (ART) was implemented between Melbourne Sexual Health Centre Pharmacy and Centre Clinic, a high HIV caseload GP clinic. With patient consent, a complete medication list and relevant blood results were sent to the pharmacy. In response, HIV specialist pharmacists performed a comprehensive clinical pharmacy review, without a patient interview, and sent the resulting care plan to the clinic.

GP clinic faxes a medication list and relevant blood results to MSHC Pharmacy

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Pharmacist (without patient interview) provides a comprehensive clinical pharmacy review →
- Summary of medications
- Clinically significant drug interactions
- Adherence estimation

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A 1-2 page proforma developed to standardise reports

Care plan example

Melbourne Sexual Health Centre
A part of Alfred Health

TheAlfred

MELBOURNE SEXUAL HEALTH CENTRE PHARMACY
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CARE PLAN REPORT
Referred By : Dr GP
Date : 22/10/2013 Pharmacist review : Kate Mackie

Patient/UR : Mr Anonymous Example
DOB (Age 79)

Serum Creatinine : 98 **eGFR** : 68ml/min (17/7/13), stable since 2011
Virological Results : undetectable HIV

Allergies : Penicillins, Zolpidem (Stilnox)

Medical History: Hypertension, dyslipidaemia, genital herpes, osteoporosis

Current Medications:

Antiretrovirals (Drug, dose)	Metabolism	Comments
Kivexa (abacavir/lamivudine) 1 daily	-	Non-CYP
Kaletra (lopinavir/ritonavir) 4 tabs daily	Lopinavir: Metabolised by CYP3A	Inhibitor of CYP 3A
	Ritonavir: Metabolised by CYP3A4 and 2D6	Potent inhibitor of CYP3A4 and 2D6. Inhibits and induces CYP2C19, 2C9 Induces CYP1A2 and glucuronidation.
Other medications (Drug, dose)		
Rosuvastatin (10mg at night)	Minimal hepatic metabolism (10%) CYP 2C9, 2C19 [1,2,4]	Kaletra may increase rosuvastatin levels 2-fold. Case report of rhabdomyolysis when changed pravastatin to rosuvastatin. Max recommended dose 10mg rosuvastatin daily. [2]
Valaciclovir (500mg BD)	Non-CYP	Nil interaction anticipated
Caltrate & Cholecalciferol (VitD) 1 daily		Nil interaction anticipated
Alendronate 70mg 1 tablet weekly		Take alendronate 30minutes prior to all other meds
Amlodipine 5mg 1 morning	CYP 3A	Use only low doses (5mg max) when combined with Ritonavir boosted PIs, due to increased amlodipine levels. Also both calcium channel blockers and Kaletra can increase PR interval.

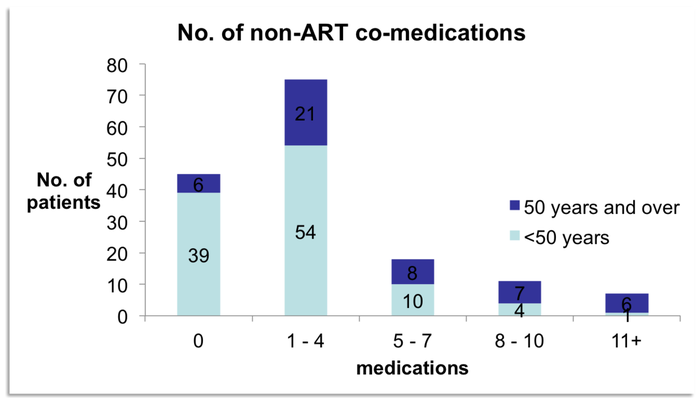
Comments/Recommendations:
- **Patient is on maximum recommended dose of rosuvastatin when used in combination with Kaletra.**
- **Patient is on maximum recommended amlodipine dose when combined with Kaletra.**
- **Based on pharmacy antiretroviral dispensing records, patient appears to have good adherence**

References:
1. Liverpool www.HIV-druginteractions.org 2. Toronto www.hivclinic.ca/main/drugs_interact_files
3. MIMS online (via Clinicians Health Channel) 4. Micromedex online (via Clinicians Health Channel)

The de-identified findings of the care plans were collated and summarised. Statistical analysis was performed using a chi-squared test

Results

- 156 pharmacist care plans were completed. The median age was 44.5 years (range 18-78), and 48 (28.2%) patients were aged over 50 years.
- 99 (63.5%) patients were taking five or more medications (polypharmacy), including their ART.
- Significant drug interactions were identified in 62 (39.7%) patients, including 31 patients (19.9%) with two or more interactions.
- 85% of patients aged over 50 were taking five or more medications; 33 (68.8%) had at least one drug interaction reported and 18 (37.5%) had two or more.



Patients with Pharmacy Care Plans	N= 156	Patients aged ≥50yrs 48 (28.2%)	P-value
Patients with ≥5 medications incl ART (polypharmacy)	100 (64.1%)	41 (85%)	< 0.01
Patients with interaction/s identified	62 (39.7%)	33 (68.8%)	<0.01
Patients with ≥2 interactions identified	31 (19.9%)	18 (37.5%)	< 0.01

drugs	Interaction + potential clinical problem	suggestion
Diltiazem with protease inhibitor	Diltiazem levels increased by up to 4-fold. Changes to blood pressure and heart rate	Avoid if practical, or use lowest dose possible and monitor closely
Fluticasone with protease inhibitor	Increased corticosteroid levels - possibility of Cushing's symptoms	Beclomethasone is safest corticosteroid with PIs
Sildenafil with protease inhibitor	Sildenafil concentrations increased by up to 11-fold	Use a low dose, with caution and infrequently
Colchicine and ritonavir	colchicine levels increased by 2-fold	Use a lower dose for short duration only
Simvastatin (10mg) and nevirapine	Nevirapine may reduce levels of simvastatin	simvastatin likely ineffective as such a low dose. Increase dose or use alternative

Adherence was assessed for 136 (87%) of patients. Of these, 89% had at least good adherence reported (>90% of doses collected)

Limitations

- GP Medication list may not be current; an interview with the patient would provide more accurate information, and lead to a more effective report
- No data was gathered assessing the consequences of the pharmacist's recommendations
- Drug interactions were not graded by their severity or risk (however those thought to be of low clinical significance were excluded)

Conclusions

The collated findings of the pharmacist care plans demonstrate a high rate of polypharmacy and drug-drug interactions in older PLWHA. Further work is needed to evaluate the impact of HIV specialist pharmacist care plan recommendations on medication management. Expansion of this well-received program to other high HIV caseload GP clinics would support prescribers and patients across the continuum of care and optimise clinical outcomes for PLWHA.

References

1. National Centre in HIV Epidemiology and Clinical Research (NCHECR). (2009). *HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia: Annual Surveillance Report, 2009*, NCHECR, University of New South Wales, Sydney
2. Jansson, J., Wilson, D., Watson, J. (2011). *Mapping HIV outcomes: geographical and clinical forecasts of numbers of people living with HIV in Australia*. National Association of People living with HIV/AIDS, National Centre in HIV Epidemiology and Clinical Research, University of New South Wales, Sydney.
3. Marzolini C, Back D, Weber R, Furrer H, Cavassini M, Calmy A, et al. **Ageing with HIV: medication use and risk for potential drug-drug interactions**. *J Antimicrob Chemother* 2011; 66:2107–2111.
4. Nachega, Jean B, Hsu, Alice J; Uthman, Olalekan A; Spinewine, Anne; Pham, Paul A. **Antiretroviral therapy adherence and drug–drug interactions in the aging HIV population.** *AIDS* 2012, 26 (Suppl 1):S39–S53

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