Co-Medication in an Infectious Diseases Clinic: The Rate of Co-Medication Omissions and the Significance of Interactions between Co-Medications and Antiretrovirals

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Introduction

Drug interactions are prevalent among HIV-infected patients, potentially leading to increased or decreased plasma concentrations of ARVs (antiretrovirals) or co-medication (non-ARV medication). This may result in drug toxicity, therapeutic failure and/ or viral resistance.[1,2]

HIV-infected patients are at higher risk of drug interactions given the multiple ARV agents required for treatment and possible concomitant co-morbidities including cardiovascular, metabolic, psychiatric, co-infection, drug/ alcohol dependence and renal/ hepatic dysfunction.[1,3]

Most HIV-infected patients are now expected to be over fifty, implying yet greater medicines use and further interactions.[3,4] Interaction incidence is estimated to be as high as 63% with 24% of interactions occurring between ARVs while 76% occur between ARVs and co-medication.[1] Some consider drug interactions largely unavoidable in this patient cohort.[5]

Aim and Objectives

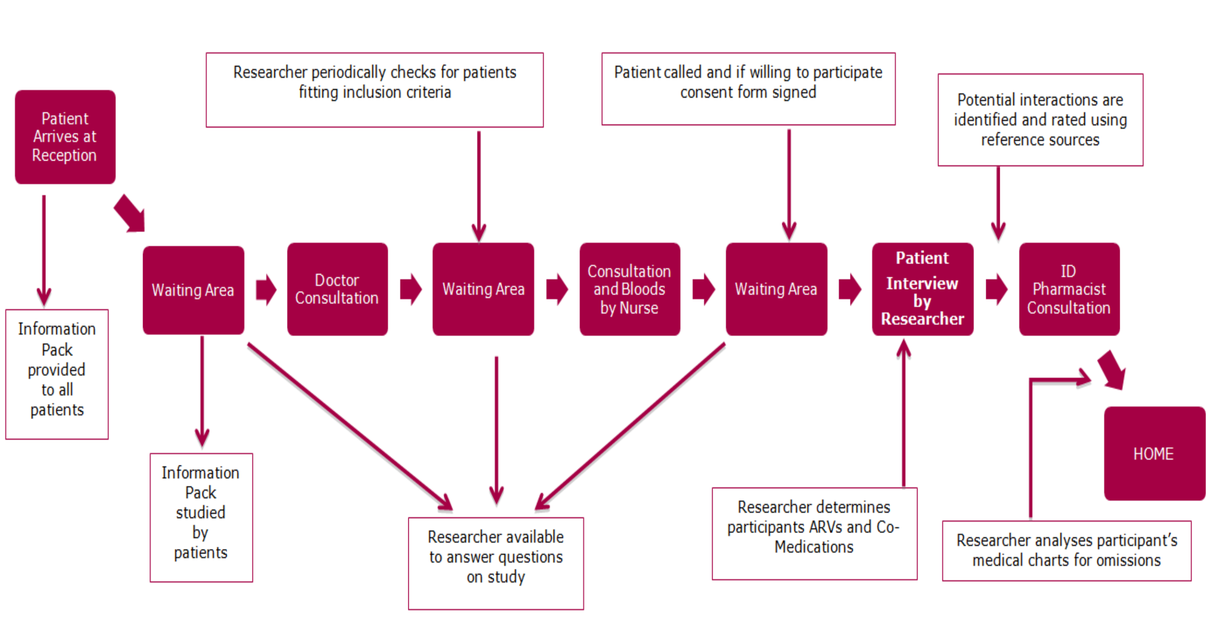
The aim of this research was to ascertain the accuracy of co-medication recording and to determine the significance of drug interactions between ARVs and co-medication in the ID (Infectious Diseases) clinic of Beaumont Hospital, Dublin.

1. To identify and rate potential interactions between ARVs and co-medication.
2. To identify medicines with highest propensity for omissions and interactions.
3. To examine relationships of factors (gender, age, CD4, number of co-medications) on omissions and interactions.

Methods

1. Patients over 18 on at least one ARV (for HIV) attending the ID clinic over eight weeks were eligible for inclusion.
2. Face to face interviews were conducted with 92 participants and co-medications analysed for potential interactions.
3. Co-medication recording was determined by examining participants' medical charts. (see Fig.1)
4. Data was analysed using descriptive and non-parametric statistics in SPSS. Mann-Whitney U ($p<0.05$), Spearman's ($p<0.05$) and Kruskal Wallis test ($p<0.05$) were used to determine the number of omissions, interactions and severity.

Fig. 1 – Workflow of Clinic Study Day



This figure describes the workflow of the study day from clinic arrival to departure.

Results

1. There were 179 omissions and 114 interactions identified.
2. The majority of identified interactions were classified minor while 36.8%, 1.8% and 2.6% were classified "Moderate", "Major" and "Contraindicated" respectively.
3. In total 72.5% of co-medications were omitted (only 7.1% of ARVs were omitted).
4. CNS drugs were the most commonly omitted (29.6%) and most likely to lead to an interaction (48.2%).
5. Interaction incidence was 46.2% with 41.2% of interactions considered high risk (Moderate/ Major/ Contraindicated).
6. 41.9% of co-medication omissions led to an interaction with 16.8% leading to a high risk interaction.
7. GPs accounted for 49.4% of co-medication prescriptions while ID doctors accounted for only 8.1%.
8. Number of co-medications was a significant factor for omissions and interactions.*
9. Age influenced interactions** but not independently.***

*(Spearman's: $p<0.01$); **(Spearman's: $p<0.01$); ***(Multiple Regression: $p>0.1$)

Discussion

1. Rates of co-medication omissions and interactions were alarming, but comparable with other studies.[6,7]
2. High risk interactions being overlooked (16.8%) have serious consequences for patients in relation to both patient safety and associated health care costs.[2,5]
3. The increased prevalence of CNS drugs among this cohort has also been noted by other commentators, possibly attributed to increased psychiatric or substance misuse issues.[2]
4. As co-medications are prescribed mostly by non-ID practitioners, communication between prescribers is key in achieving complete medication histories and preventing drug interactions.
5. Polypharmacy was identified as the main factor influencing omissions and interactions thus highlighting the importance of medicines rationalisation in this patient group.

Conclusions

1. The importance of obtaining complete medication histories in HIV-infected patients is clear in avoiding unwanted drug interactions.
2. Polypharmacy is a key issue for both omissions and interactions.
3. Recommendations to reduce both co-medication omissions and drug interactions included pharmacist led medicine reconciliation and prescriber education.

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