A study on pharmacist antiretroviral stewardship in relation to drug interaction checking within the Genitourinary Medicine and Infectious Diseases (GUIDe) outpatient clinic in St James's Hospital

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BACKGROUND AND AIM

Background: With improvements in antiretroviral (ARV) therapy, patients with human immunodeficiency virus (PLWH) are living longer, therefore requiring management of co-morbid conditions. The overall medication burden for PLWH has increased to treat non- human immunodeficiency virus (HIV) related comorbidities. ARVs are highly susceptible to potential drug-drug interactions (PDDIs) which can result in adverse effects or development of viral resistance, which consequently could limit further ARV treatment options. This illustrates the requirement for antiretroviral stewardship programs (ARVSPs). In an ageing (HIV) cohort with increasing polypharmacy, pharmacists can play a key part in mitigating medication errors with ARVs especially in identifying PDDIs, demonstrating the role they can play in ARVSPs.

Study aim: Assess ARV stewardship in SJH GUIDe clinic in relation to pharmacist-led ARV-PDDI checking.

METHODS

- **Study Design & Setting:** Prospective cohort study conducted over a 12-week period between 4th April and June 2022 in GUIDe outpatient clinic SJH
- **Inclusion Criteria:** HIV positive patients on ARVs attending for HIV and HIV/Hepatitis C outpatient clinics on a Monday, Tuesday, and Wednesday over the data collection period. This included patients triaged via the COVID pathway prior to these clinic visits. Patients aged 18 years or older.
- **Exclusion Criteria**: Patients who did not attend their clinic visits or received medication outside of clinic times. Patients unwilling to provide a medication history. Patients captured on previous visits during the data collection period. Patients for whom the medication history was not completed by the principal investigator.
- **Data Collection:** A data collection form was completed for each patient that fulfilled the criteria. This included study number, age, gender, date attended appointment, risk of acquisition, prescriber, stage of treatment, CD4 count, viral load, details of concomitant medications, interactions identified and details on ARV switches.

PDDI Analysis

- PDDIs were assessed using: Liverpool HIV drug interaction checker, Toronto General Hospital Immunodeficiency Clinic Drug Interaction Checker, Memorial Sloan and Kettering Herbal Interaction Checker, Stockley's Herbal Interaction Checker and summary of products characteristics.
- Interactions identified as moderate-severe were analysed in depth.

Assessment of the Clinical Impact of the Pharmacist-led ARV-PDDI checking

- Interactions classified as moderate-severe were assessed by a peer review panel using a validated scoring tool to grade the potential harm to patients had these interactions not been identified by a pharmacist

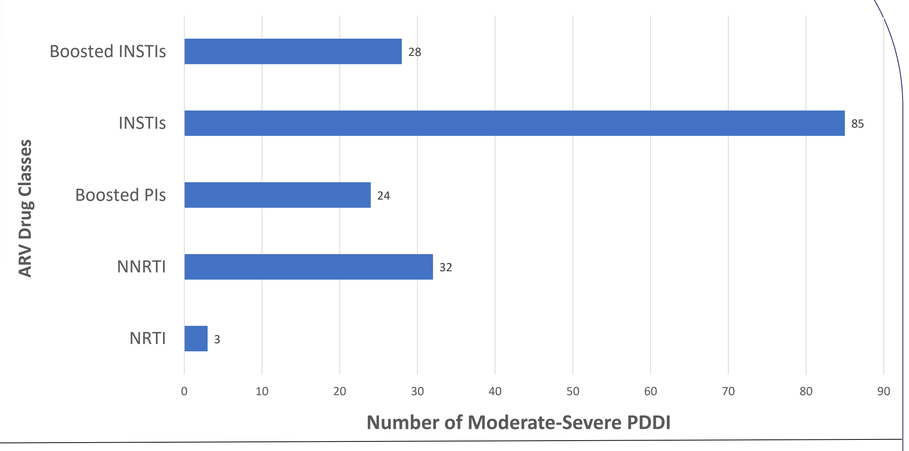
RESULTS

In total, data was gathered from 398 patients. The median age of the study population was 43 years, of which 270 (68%) were <50 years old and 128 (32%) were ≥ 50 years old. Men who have sex with men (MSM) was the highest risk of HIV acquisition within the study population, followed by heterosexual and intravenous drug users (IVDU), respectively. In the cohort <50 years there was a higher frequency of patients not on concomitant medication compared to the ≥ 50 cohort (29.3% vs 8.6%). Polypharmacy was also more predominant in the ≥ 50 cohort (37.5% vs 10.7%). Excessive polypharmacy was seen in 4.3% (n=17/398).

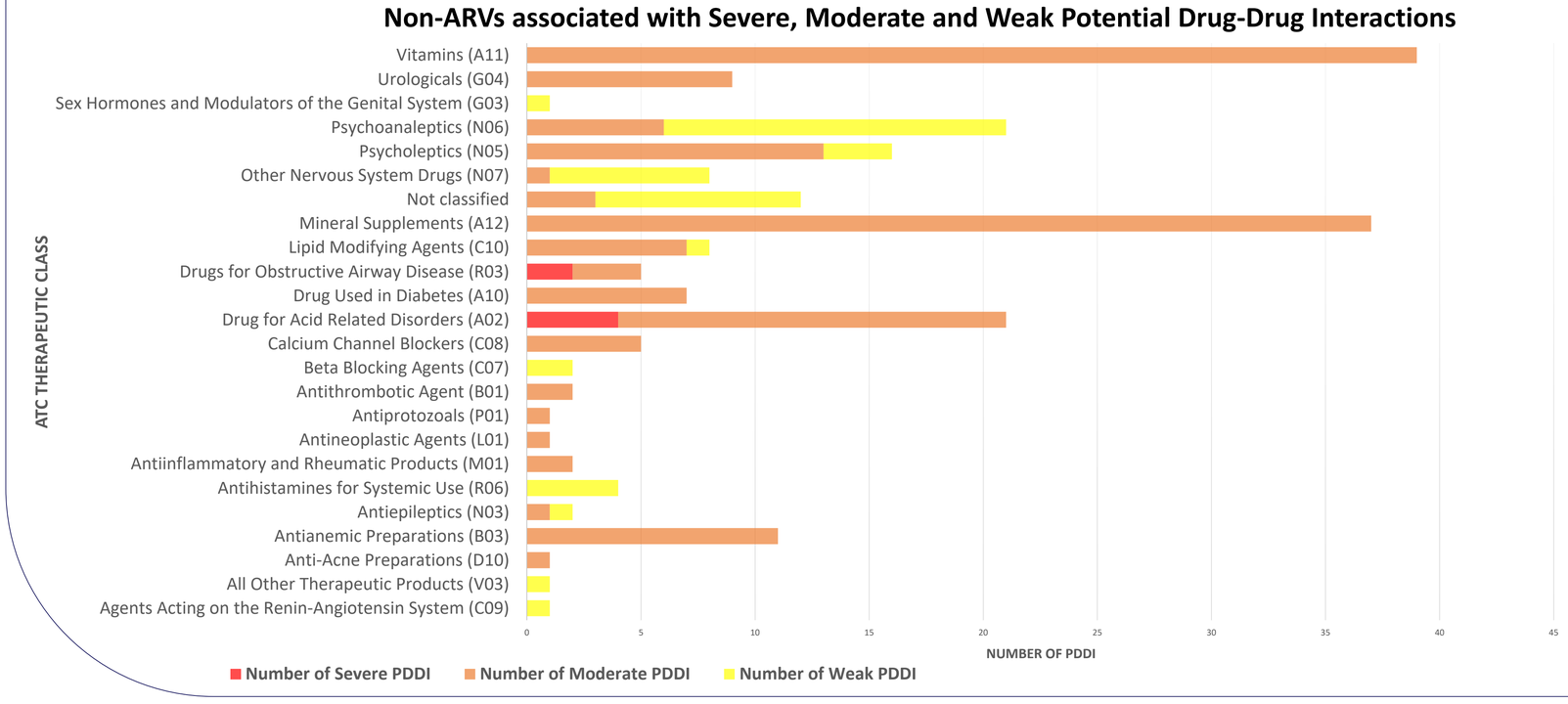
Polypharmacy and Frequency of PDDIs

	Age <50 years (n= 270)	Age ≥ 50 years (n=128)	Total Study Population (n=398)
Number of people with polypharmacy (≥5 total medications), n (%)	29 (10.7)	48 (37.5)	77 (19)
Number of patients with ≥2 PDDI, n (%)	20 (7.4)	22 (17.2)	42 (10.6)
Type of PDDI			
Severe, n (%)	3 (1.1)	3 (2.3)	6 (1.5)
Moderate, n (%)	87 (32.2)	79 (61.7)	166 (41.7)
Weak, n (%)	32 (11.9)	13 (10.2)	45 (11.3)

ARV Regimens associated with Moderate-Severe PDDI



Non-ARVs associated with Severe, Moderate and Weak Potential Drug-Drug Interactions



Management Strategy of the Moderate-Severe Potential Drug-Drug Interactions

Management Strategy	Number of moderate-severe interactions n=172	%
Administration advice	105	61
Dosage review of concomitant medication	7	4
Monitoring	51	29.7
Avoid co-administration of ARV and concomitant medication	9	17.3

Assessment of Clinical Impact of the Pharmacist-led ARV-PDDI Checking

From the VAS scoring tool used by the peer review panel, moderate risk of harm (93%, n=70/75) was the most predominant VAS grading, followed by severe (4%, n=3/75) and mild (3%, n=2/75). A median score of five was the most common grading score assigned to the risk associated with the PDDIs, 29.4% (n=5).

CONCLUSIONS

With an ageing cohort of HIV patients, these results highlight that polypharmacy and older age increase the risk of PDDIs, emphasising the requirement of having risk reduction strategies in place. In the era of increased INSTI use, their association with PDDIs has also increased. PDDIs associated with INSTI use has resulted in a shift in type of PDDIs identified in PLWH, implicating mainly non-prescribed medication. This further demonstrates the importance of extensive medication histories including over-the-counter (OTC) medicines and herbal supplements. Medication histories and drug-interactions checking are well-established roles of pharmacists, therefore further supporting the key part pharmacists can play in ARVSPs.

RECOMMENDATIONS

More is still required to be done to reduce the stigma associated with HIV in Ireland. A large number of patients are not comfortable in disclosing their HIV status to their GP and in an era with an ageing HIV population with co-morbid conditions this will make managing their comorbidities increasingly difficult during transitions of care. A further study could assess demographics of PLWH who prefer not to disclose their HIV status

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