Background

- Co-prescription of benzodiazepines and opioids, which are prescribed primarily for anxiety and pain, respectively, are associated with various health harms.
- Even when prescribed appropriately, research studies have demonstrated that drug-drug interactions with the combination of these medications can result in high rates of morbidity, including respiratory depression, coma, and mortality.
- People living with HIV (PLHIV) are often prescribed these medications given the intersections between HIV/AIDS, mental health, pain, and addiction, making them particularly vulnerable to these harms.
- While studies have examined the use of opioids on hospitalization rates, little is known about the effect of benzodiazepine and opioid co-prescription on this outcome.

Objective

- The objective of this study was to examine whether co-prescription of benzodiazepines and opioids was associated with higher hospitalization rates among PLHIV in British Columbia (BC), Canada.

Methods

- The STOP HIV/AIDS in BC cohort is a provincial-level linkage of a series of surveillance, laboratory, and health administrative databases of all identified PLHIV in BC.
- We included individuals following the first dispensation of HAART.
- Co-prescription of benzodiazepines and opioids was defined as an overlapping prescription of at least one day of both medications: we categorized the main explanatory measure into four categories: 1) co-prescription of both medications; 2) benzodiazepine only; 3) opioid only; and 4) neither medication.
- We excluded methadone and buprenorphine as opioids of interest.
- Bivariant and multivariable generalized estimating equation regression models with Poisson distribution were constructed to determine the relationship between co-prescription of benzodiazepines and opioids on all-cause hospitalization rates.

Results

- Between 1996 and 2014, 9,512 individuals were included in the study (Table 1); 1,776 (18.7%) were female and the median age at ART initiation was 40 years (Q1-Q3: 33-47 years).

Results cont’d

- At baseline, 2,909 (30.6%) individuals were hospitalized.
- Indicated in Table 2, bivariable analyses indicated a positive relationship between prescription of benzodiazepines and/or opioids and hospitalization rates compared to not being prescribed either medication: co-prescription of both medications (rate ratio [RR] = 2.64; 95% confidence interval [CI]: 2.39 – 2.91); benzodiazepine only (RR = 1.79; 95% CI: 1.67 – 1.92); and opioid only (RR = 2.83; 95% CI: 2.65 – 3.03).
- In a multivariable model adjusted for various demographic and clinical confounders (Table 2), there remained a positive association between the prescription of benzodiazepines and opioids and hospitalization rates compared to not being prescribed either medication: co-prescription of both medications (adjusted rate ratio [ARR] = 1.81; 95% confidence interval [CI]: 1.63 – 2.02); benzodiazepine only (ARR = 1.40; 95%CI: 1.31 – 1.51); and opioid only (ARR = 1.96; 95%CI: 1.83 – 2.11).

Discussion

- In this study, we found that PLHIV who were co-prescribed benzodiazepines and opioids had higher hospital utilization rates, which consequently exacerbates the burden on the healthcare system.
- The findings should be interpreted with caution – in particular, co-prescription of these medications is not necessarily always inappropriate.
- However, these findings demonstrate the need for systems- and policy-level interventions to monitor and tease out inappropriate prescribing practices in this setting.

Acknowledgements

We thank the participants who make up the Seek and Treat for Optimal Prevention in HIV/AIDS cohort and the physicians, nurses, social workers and volunteers who support them. This study was funded by the BC Ministry of Health-funded ‘Seek and treat for optimal prevention of HIV & AIDS’ pilot project, as well as an Avant-Garde Award (No.1DP1DA036307-01) from the National Institute of Drug Abuse (NIDA), at the US National Institutes of Health (NIH). The authors have no conflicts of interest to declare.