Dose-response Relationship Between Methadone Dose And Adherence To Antiretroviral Therapy Among HIV-positive Persons Who Use Illicit Opioids

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Background

- For HIV-positive individuals who use illicit opioids, engagement in methadone maintenance therapy (MMT) can contribute to improved HIV treatment outcomes.
- There is a growing body of evidence demonstrating improved drug treatment outcomes with high-dose methadone (defined as ≥ 100 mg/day). However, to our knowledge, the role of methadone dosing on adherence to antiretroviral therapy (ART) has not yet been investigated.
- We sought to examine the relationship between methadone dose and ART adherence among a cohort of persons who use illicit opioids.

Methods

- We used data from the ACCESS study, an ongoing prospective observational cohort of HIV-positive persons who use illicit drugs in Vancouver, Canada, a setting with universal no-cost medical care.
- Individuals who were ART-exposed at recruitment, and those who initiated ART during the study period were included in the study. To look at the effect of methadone on adherence, we limited our analysis to 180 day periods where individuals reported taking methadone.
- Our outcome of interest was optimal adherence to ART (≥ 95% adherence), and this was based on pharmacy refill data obtained through a confidential linkage with the BC Centre for Excellence's provincial ART pharmacy.
- We used generalized estimating equations to look at the longitudinal relationship between methadone dose (≥ 100 vs < 100 mg/day) and the likelihood of optimal (≥ 95%) adherence to ART.
- We also included a number of socio-demographic variables, drug use variables and clinical characteristics (i.e., time since ART initiation, time since methadone initiation the effect of ART side-effects on adherence) as possible secondary explanatory variables.

Results

- Between December 2005 and May 2013, 297 ART exposed individuals on methadone were recruited and were followed for an average of 42.1 months.
- At baseline, 133 (44.8%) reported a methadone dose ≥ 100 mg/day (median dose: 145 mg/day; interquartile range [IQR]: 115 – 180), and 142 (47.8%) reported a dose < 100 mg/day (median dose: 60 mg/day; IQR: 40-80). The median methadone dose for all patients in the study at baseline was 90 mg/day (IQR: 60-140).
- In adjusted generalized estimating equation (GEE) analyses, MMT dose ≥ 100 mg/day was independently associated with optimal adherence to ART (adjusted odds ratio [AOR] = 1.38; 95% confidence interval [CI]: 1.08 – 1.77, p = 0.010).

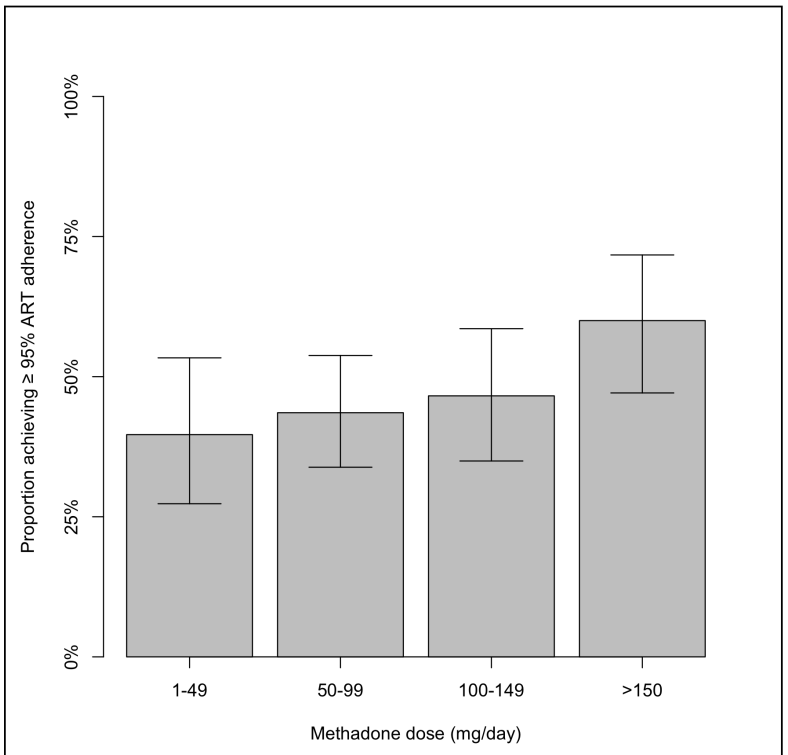

Figure 1. Proportion with 95% confidence intervals of individuals achieving at least 95% adherence to antiretroviral therapy in the previous six months at baseline stratified by methadone dose (n = 297). Cochran-Armitage test for trend: p-value = 0.021

- In a sub-analysis, we observed a dose-response relationship between increasing MMT dose and ART adherence (AOR = 1.06 per 20 mg/day increase, 95% CI: 1.00 – 1.12, p = 0.041).

Conclusions

- Among HIV-positive individuals on methadone maintenance therapy, those receiving higher doses of methadone (≥ 100 mg/day) are more likely to achieve ≥ 95% adherence to antiretroviral than those receiving lower doses.
- Additionally, a significant dose-response relationship between increasing methadone dose and ART adherence was also observed.
- These findings underscore the need to improve access to and delivery of effective methadone doses for HIV positive individuals who use illicit opioids in an effort to engage individuals in structured programs that may facilitate and maximize ART adherence and ultimately improve HIV outcomes.

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