BACKGROUND

Illicit drug use is a well-known risk factor for food insecurity and poor nutritional status. Drug addiction alters dietary consumption patterns, leading individuals to eat fewer meals, to often skip meals for an entire day, and to rely on food distribution services for subsistence. Studies suggest that the diets of illicit drug users are often calorically insufficient and poor in quality, and may lead to adverse HIV outcomes through nutritional, mental health and behavioral pathways. To our knowledge, no studies have examined whether food insecurity increases risk of excess death in this population.

METHODS

Objective: This study assess the potential relationship between food insecurity and all-cause mortality among HIV+ injection drug users (IDU) initiating antiretroviral therapy (ART) across British Columbia (BC). Study sample: Data for this analysis were obtained from the provincial HIV/AIDS Drug Treatment Program (DTP) administrative database. In BC, antiretrovirals have been distributed free of charge to HIV+ individuals since 1986, and coordinated centrally since 1992 by the BC Centre for Excellence in HIV/AIDS (BC-CfE). Details of the HIV/AIDS DTP have been described elsewhere [6]. Variable selection: The outcome variable was all-cause mortality, collected by physician reports and confirmed through e-linkage to the BC vital statistics registry. The primary explanatory variable was food insecurity, captured cross-sectionally at baseline in 1998/1999, and measured using the Radimer/Cornell scale. Secondary explanatory variables hypothesized to confound the relationship between food insecurity and mortality were selected by literature review. Statistical analysis: Bivariate analyses were performed, applying Pearson’s Chi-Square to categorical variables and Wilcoxon Rank Sum Test for continuous variables. Cox proportional hazard confounder models were constructed to ascertain the potential independent association between food insecurity/hunger and all-cause mortality, controlling for potential confounders.

RESULTS

Baseline characteristics of IDU enrolled in the BC-wide HIV/AIDS DTP, stratified by food security status, are shown in Table 1. Among 254 participants included in the analysis, 181 (71.26%) reported being food insecure, and 108 (42.5%) were hungry. Over the study period (June 21, 1998-Sept 30, 2011), 105 (41.3%) individuals died. Unadjusted and adjusted analyses of factors associated with mortality among IDU are presented in Table 2. In adjusted analyses, controlling for confounders, food insecurity was significantly associated with all-cause mortality (adjusted hazard ratio [AHR] = 1.95, 95% CI: 1.07 – 3.53) (Column 2); hunger was no longer significant (AHR = 1.05, 95% CI: 0.65 – 1.70) (Column 3).

DISCUSSION

This study builds on our existing body of research regarding the relationship between food insecurity and mortality among people living with HIV/AIDS. This study is the first to examine the potential impact of food insecurity and hunger on mortality among HIV-positive IDU. Mortality rates were elevated in this sample of HIV-positive IDU. After 13.3 years of follow-up, individuals who reported being food insecure at baseline were almost twice as likely to die, when controlling for potential confounders. Hunger was associated with increased risk of death in univariate analysis, but the association was no longer significant after controlling for potential confounders in the adjusted analyses. Our results suggest that addressing food insecurity, in addition to other known social and structural barriers to ART adherence and virologic suppression among illicit drug user, such as incarceration, homelessness, and gender-related factors, are of paramount public health importance. Further research is needed to understand the mechanisms by which food insecurity leads to mortality, and to examine the modifying effects of nutritional, mental health and behavioral factors in this relationship.