Evaluation of impact of pharmacy proximity on HIV viral suppression

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Abstract

Adherence to antiretrovirals is essential to achieve viral suppression in HIV patients. However, disparities still exist in adherence and viral suppression.

This retrospective cohort study examines the association between pharmacy accessibility and adherence for low income HIV patients. Adherence was measured using viral suppression as proxy. Pharmacy accessibility was evaluated in two ways: a) whether a patient used a delivery service pharmacy or traditional physical pharmacy and b) time and distance traveled for patients exclusively using physical pharmacies.

82.5% of patients using delivery pharmacies were virally suppressed compared to 64.4% of patients using exclusively in-store pharmacies (P<0.001). On multivariate analyses, patients utilizing delivery pharmacy had increased likelihood of viral suppression compared to in-store pharmacy patients (OR=3.436). For suppressed and non-suppressed patients traveling to a pharmacy, there were no differences in time or distance traveled.

For low-income HIV patients, home delivery pharmacies may help improve adherence and viral suppression rates.

Introduction

• HIV was once considered a life-threatening disease with poor prognosis, but with the development of antiretroviral (ART) medication, HIV has transformed to a chronic manageable disease.

• With advances in the use of ARTs, disparities in viral suppression still exist; viral suppression among African Americans ranges from 64-76% while viral suppression among Caucasians ranges from 79-86% for instance.

• We observed an association between low-income HIV patients and the lowest rates of viral suppression. We hypothesized that the disparities of suppression rate could be attributed to lack of adherence to medication after patients have been prescribed HIV medication, as attrition rates in other established barriers of care little disparity between income groups.

• Access to pharmacies is a major barrier to adherence for patients. Accessible public transportation routes or home delivery pharmacies have been cited by patients as way to overcome these barriers.

• Early quantitative research has shown that home delivery does not increase rates of viral suppression, though it has improved adherence to diabetes, hypertension, and cholesterol medications.

Aims

• The objective of this study is to determine if pharmacy proximity increases the likelihood of medication adherence and viral suppression

• We evaluated if patients using home delivery pharmacies had higher rates of viral suppression than patients using physical pharmacies

• For patients using physical pharmacies, we evaluated if shorter commutes from home to pharmacy increased the rates of viral suppression

Methods

• Our sample included HIV positive residing in zip codes with median household incomes below $30,000 patients that a) received a prescription for antiretroviral medication b) had clinic visits and c) had HIV lab draws in 2012.

• Chart review determined HIV medication prescription, pharmacy type (delivery or in-store), pharmacy address (in-store only), and HIV RNA values.

• For patients using in-store pharmacies, distance, public transit routes required, and time traveled between a patient’s address and listed pharmacy was calculated using Google Maps.

• Viral suppression for patients was established as HIV RNA values of “not detectable” to 200 copies/ml.

• Analysis was performed to evaluate patients with viral suppression in January-June, July-December, and with sustained viral suppression throughout 2012.

Results

• There was a statistically significant increase in viral suppression rates for patients that used delivery service pharmacies in the half-year 1, half-year 2, and whole year sample group. We noted increased rates of viral suppression for in-store pharmacy users in half-year 2. This could be attributed to non-suppressed patients in half-year 1 being more likely to be suppressed in half-year 2 when using the same pharmacy throughout the year.

• For all time periods, there was no statistically significant difference in viral suppression when examining distance traveled, routes taken, or time taken.

• There was a statistically significant difference in viral suppression when examining pill burden, with a lower average pill burden for virally suppressed patients.

• There were no statistically significant differences in viral suppression due to demographic differences such as zip code of residence, insurance, age, or diagnostic decade

Discussion

• Patients utilizing home delivery pharmacies such as Exact Care and CVS Caremark were more likely to be virally suppressed. For patients traveling to pharmacy, viral suppression rates were not affected by proximity.

• Increasing utilization of delivery services is highly accessible. Home delivery pharmacies rely on preexisting delivery infrastructure via UPS, there is no additional co-pay for use of pharmacies, and some insurers waive co-pay for medications if home delivery is used.

• Delivery pharmacies are not suitable for all patients, as some patients may not have a reliable location to accept packages, be afraid of accidentally disclosing their HIV status due to someone inaccurately accessing their package, or not be present when the package arrives.

• Limitations found in this project revolve around the nature of data collection. We assumed patients traveled from home to pharmacy. We did not have information on whether a patient used a car or public transport, and addresses listed on patient records were for current household, which may differ from address in 2012.

• Future research should analyze patients in other income brackets and other cities to evaluate whether income or specific city transportation infrastructure influence likelihood of viral suppression.