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Combining Rapid HIV Testing and a Brief Alcohol Intervention in Young Unhealthy Drinkers in the Emergency Department: A Pilot Study

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INTRODUCTION

Common in young adults, unhealthy alcohol use is associated with increased sexual risk behaviors(1–2) and sexually transmitted infections (STI)(1), including HIV(3). Strategies for delivering brief alcohol interventions, sexual risk reduction counseling, and HIV screening in general medical settings are needed for this population.

An important, yet underutilized setting for reaching young unhealthy drinkers includes the Emergency Department (ED). Unhealthy alcohol use is reported in 30–40% of patients seen in the ED (4), with 8% of ED visits attributable to alcohol (5). Approximately one third of ED visits are by young adults(6) who lack routine healthcare in other settings. Accordingly, EDs are increasingly becoming a site of preventive care (7), including the performance of brief alcohol interventions (8–9). In concert with national guidelines, HIV testing is also being extended to EDs (7) to address the unmet need of routine HIV testing (10).

We conducted this study to determine the feasibility and impact of providing brief alcohol (11) and sexual risk reduction counseling with rapid HIV testing (12) for young unhealthy drinkers in the ED.

MATERIALS AND METHODS

Setting and Participants

Patients were screened at the Yale-New Haven Hospital (YNHH) ED, an urban tertiary care center, from March 2010 through June 2011. Screening for participation and enrollment occurred in block time frames from 5am to 10am during two days per week. Enrolled patients were 18–40 years old; met NIAAA criteria for at-risk drinking, alcohol abuse or dependence in the past 30 days; and engaged in at least one sexual risk behavior in the past 90 days. Patients were excluded if they were non-English speaking; medically or

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psychiatrically unstable; previously diagnosed as HIV positive or unwilling to undergo HIV testing; in police custody; or had less than two sets of contact information available. The study protocol was approved by the Yale University School of Medicine Human Investigation Committee. Participants were compensated with a \$20 gift card upon enrollment and \$30 after study completion.

Counseling Intervention

All patients received brief alcohol and sexual risk reduction counseling with rapid HIV testing, administered primarily by one research assistant (RR) trained to competence. The intervention included a manual-guided counseling session, modeled after the *Brief Negotiation Interview*(11) and *Project RESPECT-2* (12), incorporating principles of motivational interviewing. The rapid HIV test was integrated into the intervention. Specifically, the components of the intervention included: 1) establishing rapport and introducing the link between alcohol consumption, sexual risk behaviors and HIV and performing the rapid HIV test; 2) feedback, by providing information about NIAAA guidelines for alcohol consumption(13) and making connections between the participant's alcohol use and sexual risk behaviors; 3) enhancing motivation to change, by assessing feelings about HIV, using a readiness to change scale and developing discrepancy when indicated; 4) providing results of the rapid HIV test; 5) summarizing HIV risk behaviors, and negotiating and advising goals to decrease alcohol consumption and sexual risk behaviors to decrease HIV risk; and 6) making a written agreement to decrease alcohol consumption and sexual risk behaviors to decrease HIV risk and establishing follow-up. It was designed to take approximately 25 minutes.

Rapid HIV Test

We used the OraQuick® Advance Rapid HIV ½ Antibody Test (Orasure Technologies, Inc., Bethlehem, PA), given its usability and test characteristics (14). Any preliminary positives would have been confirmed with Western Blot. A Clinical Laboratory Improvement Amendments (CLIA) waiver was obtained. The HIV testing was integrated into the counseling intervention (as outlined above).

Telephone Booster

Two weeks following enrollment, patients received a manual-guided telephone booster call, conducted primarily by a trained research nurse (BL). The content of the booster was modeled after the framework of the initial counseling intervention. If the patient had met their goals and decreased their alcohol consumption to low-risk drinking, their behaviors were reinforced and a goal to maintain this behavior was set. If the patient had met their goals, but was still above at-risk drinking limits and/or engaging in sexual risk behaviors, then their changes were reinforced, and efforts were made to establish a new goal for decreasing alcohol consumption and sexual risk behaviors. If the patient had not met their goals for decreasing alcohol consumption or sexual risk behaviors, then their changes were reinforced, and the initial goals were reinforced. If the patient had made no progress in decreasing their alcohol consumption or sexual risk behaviors, barriers were reviewed and new goals were set.

Data Collection

Baseline data included demographics and clinical history, including chief complaint leading to their ED visit, and the Alcohol use Disorders Identification Test (AUDIT) (15). We collected data about alcohol consumption over the past 14 days and sexual practices over the past 90 days face-to-face at baseline and by telephone at eight weeks post-intervention, using the Time Line Follow Back(16) and an adapted version of the HIV Risk Behavior

Scale (HRBS)(17) (which incorporated an item about mixing sexual activity and alcohol by asking *In the past 90 days, when having sex did you use alcohol?*). We asked patients to describe why they “came to the hospital today?” If their answer included the word “alcohol,” “intoxication” or “drunk” their visit was categorized as having an alcohol-related chief complaint.

Outcomes

The primary aim included determining feasibility of the study as indicated by enrollment and retention. To assess the impact of the intervention, we determined change in alcohol consumption, specifically the number of standard drinks per week and number of binge episodes over time. Sexual risk behavior outcomes included condom use, number of sex partners, frequency of having sex with sexual partners that had other partners, frequency of sex with new partners, frequency of sex while intoxicated, a diagnosis of a sexually transmitted infection, and number of episodes of anal sex.

Data Analysis

Univariate analyses for changes in alcohol consumption and sexual risk behaviors were determined using paired t-test for continuous variables; McNemar or Chi-square test for dichotomous variables; and Wilcoxon signed rank test for categorical variables. We assessed if the effect of the intervention varied by gender and constructed multivariate models, using logistic regression, to determine the factors independently associated with at-risk alcohol and condom use at follow-up.

RESULTS

Among the 479 patients screened, 125 were eligible. The primary reasons for ineligibility included: not unhealthy drinker (n=273); not sexually active (n=122); and unwilling to undergo a rapid HIV test (n=26). An additional 40 of the 125 (32%) patients declined to participate. The enrolled patients (n=85) were predominantly male (61.2%), mean age 26.3yo (SD 6.5), single (82.4%), racially/ethnically diverse (white (58.8%), black (30.6%), Hispanic (9.4%), with post- high school education (56.5%), health insurance (77.6%), and a regular doctor (55.3%) (Table 1). The majority demonstrated hazardous drinking (mean AUDIT 14.2 (SD 7.1), 80.0% with AUDIT 8+) and alcohol-related chief complaints were common (27.1%). Other chief complaints were varied and included conditions which may be alcohol-related (e.g. abdominal pain, loss of consciousness, and assault) and some less likely to be alcohol-related (e.g. cellulitis and sickle cell crisis). The five most common chief complaints were reported by more than two-thirds of our participants (Table 1). Sixty-four patients (75%) were reached for a telephone booster call, with follow-up data collection available for 70/85 (82%) participants. The median duration of the intervention, including interruptions for clinical care, was 42 minutes (SD 18, range 18 – 127 minutes). Patients who completed follow-up data collection were demographically similar to those who did not. All patients were found to be HIV negative by testing. In comparison to baseline, at follow-up, patients significantly decreased alcohol consumption and decreased sexual risk behaviors (Table 2). While women reported a higher rate of alcohol use before sex than men did, they also had a greater change in their alcohol consumption before sex after the intervention (80% vs. 44%) compared to men (54% vs. 32%) (p=0.021 for gender interaction with change in alcohol consumption). No other differences in outcomes based on gender were found.

In multivariate analysis, an alcohol-related chief complaint (OR 0.22, 95% CI 0.06, 0.84) and being married (compared to being single) (OR 0.08, 95% CI 0.08, 0.80) were associated with significantly decreased odds of at-risk alcohol consumption at follow-up; in contrast,

at-risk alcohol consumption at baseline; female gender; higher level of education; and being separated/divorced (compared to being single) were not significantly associated with at-risk alcohol consumption at follow-up. Condom use at follow-up was associated with at-risk alcohol consumption at baseline (OR 5.39, 95% CI 1.38, 21.06); but was not associated with change in mean number of weekly drinks at baseline to follow-up; female gender; higher education; non-single status; or alcohol-related chief complaint.

DISCUSSION

We found that conducting brief alcohol and sexual risk reduction counseling with rapid HIV testing in the ED is feasible and associated with reductions in alcohol use and sexual risk behaviors among young unhealthy drinkers. None of our participants were diagnosed with HIV. These findings extend the existing literature as the first data to demonstrate the feasibility of combining a brief counseling intervention for alcohol consumption and sexual risk behaviors with rapid HIV testing in the ED setting specifically for young unhealthy drinkers.

Linking alcohol consumption and sexual risk behaviors may uniquely foster motivation for behavior change. Our strategy was an individual-level in-person intervention, which incorporated motivational interviewing techniques and provided normative feedback. These components appear to be important aspects of interventions effective at reducing alcohol-related problems among college students (18), who were well represented in our study. In addition, our intervention culminated in a risk-reduction agreement, a potentially critical component of effective interventions (19). Previous evaluations of the impact of brief interventions in the ED have been mixed (20). Our findings raise the possibility that targeting multiple risk behaviors may be more effective than targeting alcohol consumption alone. Moreover, we successfully coupled several preventive services together in one intervention. Although we did not identify any new HIV infections, rapid HIV testing in the ED was highly feasible and our experience was similar to that of other urban EDs (21–23). In our gender analysis, women demonstrated a greater reduction in their alcohol use before sex, which is encouraging given the mixed data of the effectiveness of brief interventions for women (24).

Our study has limitations. As an uncontrolled study, we cannot assess whether the impact was due to the intervention, the ED visit itself, or an effect of time as even the control groups in previous intervention studies demonstrate decreases in alcohol consumption and alcohol-related consequences (20). Assessment reactivity could account for our results. The study was conducted at a single site limiting the generalizability of our findings. In addition, as we only screened patients for our study during certain hours, this may limit the generalizability of our feasibility findings. We deliberately chose to recruit for the study during times in which we anticipated a high prevalence of patients with unhealthy drinking, namely following night shifts. Whether patients recruited during other ED shifts would experience similar effects from the intervention is unknown, although our other trials have demonstrated efficacy of the BNI for alcohol in patients recruited across a variety of ED shifts(25). Our sample included a young adult sample, potentially limiting the applicability to other age groups. We relied on self-reported data, however, self-reported data for drinking measures are reliable and telephone interviews parallel information from face-to-face (26). We were unable to assess whether our findings persisted over time (20) or extensively examine how they varied by different subgroups, which might be expected (20). Finally, the duration of our intervention was longer than originally designed, which may account for the efficacy. A briefer intervention may not generate the same impact.

This pilot study is the first to demonstrate feasibility of integrating a brief counseling intervention for alcohol consumption and sexual risk behaviors with rapid HIV testing for young unhealthy drinkers in the ED. If efficacy is found in larger controlled studies, this intervention may allow young at-risk populations to receive important preventive services, which they may not have access to otherwise.

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Table 1

Demographic and Clinical Characteristics

Characteristic	Overall (N=85)
Male gender, % (n)	61.2% (52)
Age, mean (sd)	26.3 (6.5)
Marital status, % (n)	
Married	8.2% (7)
Separated / Divorced	9.4% (8)
Single	82.4% (70)
Race, % (n)	
White	58.8% (50)
Black	30.6% (26)
Hispanic	9.4% (8)
Education, % (n)	
Less than high school	12.9% (11)
Completed high school	30.6% (26)
Post high school	56.5% (48)
Have health insurance, % (n)	77.6% (66)
Have regular doctor, % (n)	55.3% (47)
AUDIT score	
Mean score (sd)	14.2 (7.1)
% Hazardous Drinking (AUDIT 8+), % (n)	80.0% (68)
% Alcohol Dependence (AUDIT 20+), % (n)	26% (22)
Chief Complaint	
Alcohol-related chief complaint	29.4% (25)
Pain (abdominal pain, chest pain)	10.6% (9)
Mental-health related chief complaint	10.6% (9)
Altered mental status	9.4% (8)
Detoxification (including alcohol, benzodiazepines and not specified)	8.2% (7)

Table 2

Outcomes: Risk Behaviors (n=70)

Risk Behaviors	Baseline	Follow-Up	p value
<i>Alcohol Consumption</i>			
Average number drinks per week, mean (sd)	23.6 (25.3)	9.8 (16.1)	.003
<i>Binge drinking</i>			
Average number of binges/week, mean (sd)	2.02 (1.8)	0.86 (1.6)	.012
Have binge during the last 2 weeks, % (n)	91.4% (64)	45.7% (32)	<.0001
<i>Sexual Risk Behaviors</i>			
Number of partners, % (n)			.001
None	0% (0)	15.7% (11)	
1	62.9% (44)	61.4% (43)	
2+	37.1% (26)	22.9% (16)	
How often to use condom, % (n)			.007
Every time	22.9% (16)	45.7% (32)	
Not every time	77.1% (54)	54.3% (38)	
Have sex with partners that have other partners, % (n)			<.0001
Yes	50.0% (35)	22.9% (16)	
Have new sex partners, % (n)	37.1% (26)	26.1% (18)	.143
Use alcohol when having sex, % (n)	65.7% (46)	36.4% (24)	<.0001
Diagnosed with sexually transmitted infection, % (n)	10.0% (7)	4.5% (3)	.286