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Impact of adaptive functioning on readmission to alcohol detoxification among Alaska Native People

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ABSTRACT

Background: This study examined predictors associated with readmission to detoxification in a sample of adult Alaska Native patients admitted to inpatient alcohol detoxification. Even though Alaska Native people diagnosed with alcoholism have been identified as frequent utilizers of the health care system and at elevated risk of death, little is known about factors associated with readmission to detoxification for this group.
Methods: We sought to predict readmission using a retrospective cohort study. The sample included 383 adult Alaska Native patients admitted to an inpatient detoxification unit and diagnosed with alcohol withdrawal during 2006 and 2007. Cox proportional hazard modeling was used to estimate unadjusted and adjusted associations with time to readmission within one year.
Results: Forty-two percent of the patients were readmitted within one year. Global Assessment Functioning (GAF; Axis V in the multi-axial diagnostic system of the Diagnostic and Statistical Manual of Mental Disorders [DSM IV]) score measured at the time of intake was associated with readmission. A one point increase in the GAF score (HR = .96, 95% CL = .94, .99, P = .002) was associated with a four percent decrease in readmission. The results also indicated that the GAF mediated the relationship between readmission and: employment and housing status.
Conclusions: The GAF measures both illness severity and adaptive functioning, is part of standard behavioral health assessments, and is easy to score. Readmission rates potentially could be decreased by creating clinical protocols that account for differences in adaptive functioning and illness severity during detoxification treatment and aftercare.

1. Introduction

Detoxification represents the initial step in patient preparation for long-term treatment or rehabilitation (Hayashida, 1998). It is intended to manage acute intoxication and withdrawal and is distinct from substance abuse treatment (Miller and Kipnis, 2006). The Center for Substance Abuse Treatment defined detoxification as having three objectives: evaluation, stabilization and advocation of patient entry into substance abuse treatment (Miller and Kipnis, 2006).

Although detoxification is the first step in long-term substance abuse treatment, few studies have focused specifically on factors associated with readmission to detoxification. Known predictors of substance abuse treatment outcomes have not predicted accurately detoxification outcomes. For example, sociodemographics (gender, age, living situation, ethnic background), psychopathology, and coping style – which often are associated with substance abuse treatment outcomes – have not been associated with detoxification treatment outcomes (Franken and Hendriks, 1999).

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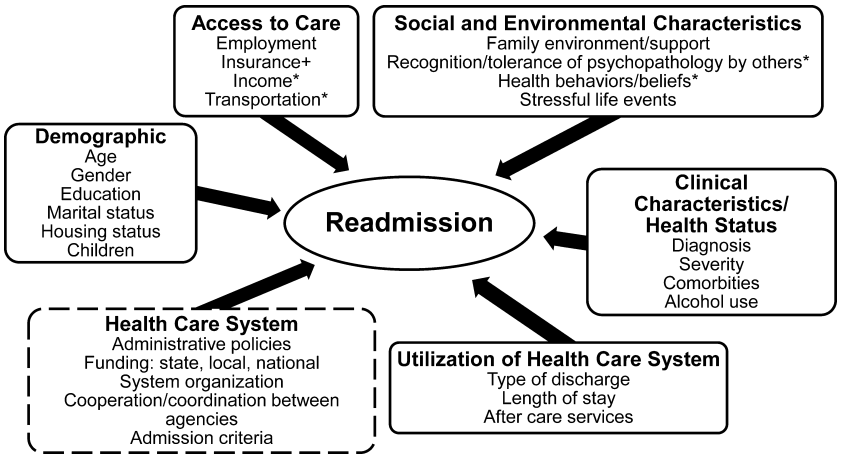

Fig. 1. Conceptual model of readmission to detoxification. The conceptual model used to guide the study of readmission to detoxification has six distinct components. The Health Care System component within the dashed box was not studied as data were not available to measure these constructs. Similarly, those elements with an asterisk (*) were not studied due to unavailability of data. Insurance (+) was not studied as these services were funded by the Indian Health Service without regard to insurance status.

1.1. Review of literature

Rates of readmission to detoxification programs differ by time since discharge. Short term readmission rates range from 4% to 52% between one and six months post-discharge (Annis and Liban, 1979; Carrier et al., 2011; Li et al., 2008). Rates of readmission within one year range from 34% to 48% (Callaghan, 2003; Li et al., 2008; Mark et al., 2006; Ponzer et al., 2002). Longer term readmission (>2 years and ≤4 years) rates range from 32% to 61% (Booth and Blow, 1993; Callaghan et al., 2006; Ponzer et al., 2002; Tomasson and Vaglum, 1998).

Various predictors of readmission to detoxification have been reported and differ depending upon length of study. Predictors of short-term readmission (≤6 months) include discharged against medical advice (Li et al., 2008), homeless, urban residence, and fee-for-service Medicaid (Carrier et al., 2011). Three studies focused on readmission within one year (Callaghan, 2003; Li et al., 2008; Mark et al., 2006). Among Canadian Aboriginals previous history of detoxification and residential instability predicted readmission (Callaghan, 2003). In the second study, state of residence, gender, race, Medicaid eligibility, an index inpatient detoxification admission and follow-up treatment predicted readmission (Mark et al., 2006). In the most recent study, hepatitis C, polydrug use and those with a preferred primary substance of alcohol were more likely to be readmitted within one year (Li et al., 2008).

Factors predicting longer term readmission include agoraphobia/panic disorder, (Tomasson and Vaglum, 1998), unemployment, homelessness, failing to complete treatment (i.e., discharge nursing assessment indicated the patient did not complete their detoxification based on substances they used and recommended length of treatment, including the treating physician's recommendation for length of stay), Aboriginal ethnicity, and alcohol as primary drug (Callaghan et al., 2006). Evidence suggests indicators of severe alcohol use also increases risk of readmission including heavy drinking, polysubstance use, a combination of sensation-seeking behavior with low platelet monoamine oxidase levels (Ponzer et al., 2002) and seizures (Booth and Blow, 1993; Worner, 1996). On the other hand, clinical case-management was associated with an increased use of rehabilitation services and a decrease in detoxification readmissions (McLellan et al., 2005).

1.2. Conceptual model of readmission/background

Fig. 1 displays the conceptual model that guided this study of readmission to alcohol detoxification. Concepts proposed in other models (Arbaje et al., 2008; Hasan et al., 2010; Solomon and Doll, 1979) were incorporated; however, our approach is based primarily on Sullivan's (1989) work. The conceptual model has 6 components (demographic, access to care, social and environmental characteristics, clinical characteristics/health status, utilization of the health care system, and the health care system) each theorized as equally impacting readmission to detoxification. Constructs associated with each component of the conceptual model are listed within each box (see Fig. 1 and cited models for more details). Although we recognize the importance of the health care system for readmission, we were unable to study these indicators due to data limitations.

Alaska Native people comprise 14% (US Census Bureau, 2014) of the population in Alaska, yet they account for 47% of substance abuse treatment admissions (SAMHSA, 2012). Alcohol abuse is the 3rd leading cause of death for Alaska Native people aged 25–44; the death rate is 47 per 100,000 compared to 2 per 100,000 for US Caucasians (Day et al., 2011). Alaska Native people diagnosed with alcoholism are high utilizers (15+ visits in 1 year) of ambulatory services and at increased risk of death (Nighswander, 1984). Although service utilization by Alaska Native people diagnosed with alcohol dependence has been studied, to date no one has examined readmission to detoxification. Accordingly, we considered predictors of readmission to detoxification and hypothesized that unstable housing, a secondary drug diagnosis, not entering treatment after detoxification and withdrawal severity measured by seizures/delirium tremens and the GAF (global assessment functioning) would significantly increase the risk of readmission to detoxification. Based upon our conceptual model of readmission, we also explored the contribution of other key variables to readmission.

2. Methods

2.1. Study setting and design

Patients included in this study were treated in a tribally owned and managed 6 bed detoxification unit in Southcentral Alaska that served almost exclusively Alaska Native people and was funded by the Indian Health Service (IHS) and a small grant from the State of Alaska. The unit was part of comprehensive substance abuse treatment services that spanned a continuum of care including outreach, screening, assessment, brief intervention, detoxification, outpatient treatment, intermediate residential treatment and continuing care. The unit had one part-time physician's assistant with medical doctor oversight, one registered nurse supervisor, one registered nurse, one licensed practical nurse or certified medical assistant or certified nursing assistant, one part-time pharmacist, one Bachelor of Arts counselor certified in substance abuse counseling and supervised by a Masters of Arts clinical supervisor. All staff received routine training and supervision on procedures for collection

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