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A comparison of an opioid abuse screening tool and prescription drug monitoring data in the emergency department

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ABSTRACT

Objectives: This study aimed to: (a) determine the percentage of ED patients receiving prescriptions for opioid pain medications that meet the criteria for "high-risk for abuse potential" on the Screener and Opioid Assessment for Patients with Pain (SOAPP®-R), (b) determine the percentage of patients with high-risk behavior on the state prescription drug monitoring program (PDMP) database, (c) compare the SOAPP-R with data from the PDMP, and (d) determine psychometric properties of SOAPP-R for ED patients

Methods: Convenience sample of ED patients who were being considered for discharge with a prescription for an opioid pain medication. Subjects completed SOAPP-R on an electronic tablet and PDMP data was obtained. Scores on SOAPP-R ≥18 were defined as "at-risk", and PDMP data showing both ≥4 opioid prescriptions and ≥4 providers in 12 months was considered the criterion standard for high-risk behavior.

Results: 82 patients (88.2%) provided consent. 32.9% ($n=27$) were determined to be "at-risk" (score ≥18) by SOAPP-R. 15.9% ($n=13$) subjects met PDMP criteria and 53.9% ($n=7$) of those had SOAPP-R scores ≥18 (sensitivity 54%, specificity 71%, positive predictive value 26%, negative predictive value 89%). The association of an at-risk SOAPP-R score and PDMP high-risk criteria was an adjusted odds ratio of 1.39 (95% confidence interval 0.73–3.68).

Conclusions: In our population, about one-third of patients being considered for discharge with an opioid prescription scored "at-risk" on SOAPP-R and 15.9% met the PDMP high-risk criteria. The high negative predictive value of SOAPP-R indicates it may be a useful screening tool for the ED patient population.

1. Introduction

1.1. Background

Prescription opioid analgesics are used with increasing frequency for patients with pain (Kuehn, 2007). This increased use has unfortunately also exacerbated the problem of opioid medication misuse and diversion, and prescription drug overdoses have become a national epidemic (Okie, 2010; CDC, 2012). In the emergency department (ED), where pain is a common complaint, opioid prescribing has also increased markedly over the past several years (Chang et al., 2014; Mazer-Amirshahi et al., 2014).

Several screening tools have been developed to assess patients for their prescription opioid risk level (high or low risk) for aberrant medication-related behaviors in a specialty pain treatment setting context (Webster and Webster, 2005; Skinner, 1982; Butler et al., 2008). These tools are useful for clinicians in order to gauge patients' risk level for such behaviors before the prescription is written. The Centers for Disease Control and Prevention (CDC) have concluded that: "Health-care providers should only use opioid pain relievers in carefully screened and monitored patients when non-opioid pain reliever treatments are insufficient to manage pain" (CDC, 2011).

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1.2. Importance

One screening tool that is commonly used in the ambulatory care (non-ED) setting is the Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP-R; Butler et al., 2008). This questionnaire was derived and validated in specialty pain clinic patients and is widely used in both pain clinics and primary care practices. Despite the fact that a large percentage of ED visits are for painful conditions and that emergency physicians commonly prescribe opioids (Cantrill et al., 2012; Rupp and Delaney, 2004; Hoppe et al., 2015), screening tools are rarely used in the ED, and SOAPP-R has not been studied for emergency department (ED) patients with acute pain.

The derivation and validation of most screening tools relies on the ability to follow up patients longitudinally to determine if there are defined outcomes. Validation of the SOAPP-R, for example, employed the Aberrant Drug Behavior Index (ADBI; Butler et al., 2008), derived from interview data, physician ratings, and urine toxicology screens, in order to capture evidence of breaking pain treatment agreements, use of illegal drugs or prescription opioids not prescribed to the patient, unapproved dose increases, and early requests for refills (i.e., "losing" medication). A cutoff score of 18 on SOAPP-R showed sensitivity of 81% and specificity of 68% for detecting these behaviors.

In addition to screening instruments, 49 states have created Prescription Drug Monitoring Programs (PDMPs). These tools, implemented on a state by state basis, are online databases that lists patients' prescription histories, including the number of prescribers and pharmacies utilized (Gugelmann and Perrone, 2011; Griggs et al., 2015,b; Weiner et al., 2013a; Perrone and Nelson, 2012). As longitudinal information is typically not available in the ED and some ADBI outcomes are not applicable to the ED setting, we aimed to determine if SOAPP-R was also able to detect the aberrant medication related behavior known as "doctor shopping," or inappropriately seeking prescriptions for controlled substances from multiple prescribers, in ED patients. We explored the extent to which PDMP data might be associated with ED-administered SOAPP-R scores. We applied a previously used definition of high-risk behavior (≥4 opioid prescriptions and ≥4 providers for schedule II–V medications in the prior 12 months) as objective criteria of a high-risk patient (Weiner et al., 2013a,b, 2015b).

1.3. Goals of this investigation

The objectives of this study were to (a) determine the percentage of ED patients receiving prescriptions for opioid pain medications that meet the criteria for "high-risk for abuse potential" on the Screener and Opioid Assessment for Patients with Pain (SOAPP-R), (b) determine the percentage of patients with high-risk behavior on the state PDMP database, (c) compare the SOAPP-R with data from the PDMP for each patient, and (d) the determine psychometric properties of SOAPP-R for the ED patient population.

2. Material and methods

2.1. Study design and setting

This was a cross-sectional, prospective, convenience sample study of patients aged 18 and older who presented to the ED of a single urban academic Level 1 trauma center with approximately 42,000 annual visits. The study was conducted from May–August, 2013. The protocol was approved by the Institutional Review Board.

2.2. Selection of participants

Patients were identified by a trained researcher (LCH or SGW) who identified on the electronic tracking system (Medhost EDIS, Medhost, Inc., Plano TX) that the patient had a painful condition. The researcher then asked the treating clinician if they were planning on discharging the patient with an opioid prescription for the purpose of treating pain and planning on looking up the patient's PDMP profile prior to prescribing. If the answer was "yes," the researcher approached the patient, briefly described the study, and, if the patient verbally consented to participate, handed them the tablet computer with the survey program open. Consent was acknowledged electronically, and a welcome screen informed patients that their responses would not be shared with their treating physician, and thus, not affect medications prescribed to them.

During the time of the study, physicians were encouraged by state policy to look up the patient's PDMP profile prior to prescribing, and it is therefore possible that the patient was subsequently not given an opioid depending on how the clinician interpreted the PDMP profile. Regardless, the intended subjects of this study were those patients for whom the clinician was considering prescription of an opioid, which are the most appropriate patients to screen for abuse potential prior to writing a prescription.

Patients were excluded from enrollment if the opioid was not being prescribed for the treatment of acute or chronic pain as reported by the treating clinician (e.g., codeine given in a cough suppression formulation or buprenorphine or methadone for maintenance of a drug treatment program). Additionally, patients were excluded who were not fluent in English based on the research assistant's impression when asking about informed consent, were unable to provide informed consent, could not use the screening tool on the electronic tablet device for any reason, had dementia/mental impairment, were a prisoner, or were an employee or student at the institution.

2.3. Methods of measurement

The SOAPP-R (found in Supplementary material 1) is a 24-question screening tool with each question composed of a stem followed by a prompt to select one of five responses, each with an associated number of points: never (0 points), seldom (1 point), sometimes (2 points), often (3 points) and very often (4 points). Therefore, the range of total points possible is 0–96. Scores of 18 points or higher are considered to be positive, and scores in this range have been identified as predicting aberrant medication-related behavior within six months after initial testing in pain clinic patients (11, 12). In this study, SOAPP-R was programmed and administered on a 7-inch Android tablet. Details of the electronic implementation of the survey, including patient satisfaction and time required to complete the tool, are described in detail elsewhere (Weiner et al., 2015a).

In Massachusetts, the PDMP reports the number of schedule II–V prescriptions, prescribers and pharmacies 12 months prior to the current date. After the patient completed the screening tool, the attending physician accessed the patient's records in the PDMP. The total number of all schedule II–V medications, total number of opioids specifically, number of prescribers used for all schedule II–V medications and number of pharmacies used to fill these medications in the previous 12 months were recorded directly on the tablet.

2.4. Primary data analysis

Our preliminary research based on PDMP data demonstrated that, at the study site ED, approximately 35% of patients aged 18–65 with complaints of back pain, headache or dental pain exhibited high-risk drug-related behavior (≥4 opioid prescriptions and ≥4 providers for schedule II–V medications in a 12-month period) (Weiner et al., 2013a,b). We therefore estimated that 30% (±10%) of patients who completed the SOAPP-R would score as "at-risk" (score ≥18). The necessary sample size to obtain that margin of error with a 95% CI was 81. All data were analyzed using JMP 8.0 and SAS 9.2 (both from SAS Institute, Inc., Cary, NC).

Descriptive analyses of the study population and exploration of the psychometric performance of the SOAPP-R were first conducted. Cronbach's alpha and item-total correlations were performed to assess the internal consistency of the SOAPP-R. We calculated sensitivity, specificity, positive and negative predictive values of the SOAPP-R, taking the PDMP criteria listed above as the definition of high-risk behavior. In addition, we conducted receiver operator curve (ROC) analyses to determine the area under the curve for the SOAPP-R score, setting the PDMP criteria as the outcome. We conducted unadjusted and adjusted ROC analyses, and considered PDMP criteria of ≥4 opioid prescriptions and ≥4 providers for schedule II–V medications in a 12-month period as well as ≥5 opioid prescriptions and ≥5 providers for schedule II–V medications in a 12-month period as an additional possibility. Regressions were adjusted for demographic differences on age, gender, race (black, white, Asian or other) and ethnicity (Latino or not). We considered definitions for classifying the accuracy of a diagnostic test based on traditional academic scoring, as: .90–1 = excellent (A), .80–.90 = good (B), .70–.80 = fair (C), .60–.70 = poor (D), and .50–.60 = fail (F).

3. Results

Ninety-three patients were approached for inclusion and 82 (88.2%) provided consent and completed the study. Patient characteristics are shown in Table 1. Mean number of total schedule