A Promising Step in Fighting the Opioid Epidemic, Care Plan Implementation for those Presenting to the Emergency Department

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ABSTRACT

Background: The opioid epidemic has both financial implications and ethical confounders affecting emergency departments across the country. Additionally, patients presenting to the emergency department (ED) seeking opioid administration and prescriptions can be both disruptive and time intensive.

Objective: To determine long-term effectiveness of ED care plans designed to improve medical care for ED opioid-seeking patients with chronic painful conditions. Methods: A retrospective, cohort observational study.

Location: a suburban teaching hospital with an annual census of 90,000 patients. The number of ED visits were tallied one year prior (control), and for five consecutive years following initiation. The primary outcome was the number of yearly ED visits in subjects meeting criteria.

Statistics: Two-tailed Wilcoxon signed-rank test with significance of p<0.05, two tailed. Results: One hundred and twenty patients were enrolled. Twelve were excluded, leaving 108 patients for analysis. Mean yearly ED visits prior to care plan initiation were 7.6 (95% CI 11.9-3.3). Following care plan initiation, mean visits were: one year, 2.3 (95% CI 4.3-0.3); two years, 1.3 (95% CI 2.7-0.0); three years, 1.1(95% CI 3.1-0.0); four years, 0.8 (95% CI 2.1-0.0); five years, 0.6 (95% CI 1.7-0.0). The five-year total mean reduction in visits was 7.0 (95% CI 8.1-6.2) (p=0.0001). Conclusions: ED care plans are an effective long-term method to reduce visits in patients with chronic painful conditions who present seeking opioid treatment.

Keywords: Opioid, Emergency Medicine, Care plans, epidemic.

I. INTRODUCTION

Opioid use and abuse have reached a national crisis, to the point where the Center for Disease Control has labeled it an epidemic [1]. The CDC estimates that since 1999, the amount of prescription opioids sold within the US has quadrupled, despite no increase in the number of patients with painful conditions. With this increase, the CDC has also noted that in the past decade heroin use has doubled, and deaths due to opioid overdose have quadrupled reaching 33,000 in 2015[1]. Almost 80% of those who use heroin for the first time have used an oral opioid pain reliever previously [2]. A study of over 40,000 Americans adult patients in the National Epidemiologic Survey on Alcohol and Related Conditions showed a lifetime prevalence of drug use disorder of 10.3% and a drug dependence rate of 2.6 [3].

One of the sequelae of opioid abuse is the increase in ED visits, which in turn worsens the burden on already overcrowded and under-staffed EDs. A prior study by our group showed that ED care plans are an effective means of reducing ED visits in a group of patients with presentations of chronic pain displaying drug-seeking behavior over the short-term [4]. There is a paucity of literature regarding long-term effectiveness of ED care plans on reducing the number of visits in this patient group. This study intends to expand our understanding by assessing long-term effects of such a care plan.

It is our hypothesis, that an effective care plan, developed by both the ED and the patient’s primary care physician would improve long-term care in patients with chronic...
painful conditions and reduce subsequent ED visits for similar complaints.

II. METHODS

This study utilized a retrospective, cohort observational analysis of adult patients at a suburban, teaching hospital with an annual census of 90,000 patients. A care plan was instituted by concerned staff members who encountered patients with a chronic painful condition displaying drug-seeking behavior, or a presentation that included multiple ED visits in which opioids were administered, requested or prescribed. Suspected patients underwent a review by both a nursing administrator and the director of the ED. If the patient met criteria, the patients’ primary care physician was contacted. If an agreement was reached, a care plan was initiated. Patients were then sent a certified letter regarding their care plan. Care plans were stored alphabetically in a central storage area, divided into three sub-groupings based on last name (A-F, G-P, P-Z). The first 40 patients in each group were included for analysis. Care plans focused on evidence-based management of chronic pain. In addition, the plans encouraged patients to return to the ED for concerning questions or changing symptomatology, and assured patients that they would be evaluated for any new disease process. If the workup was “negative,” care plans were initiated specifically forbidding opioid administration. Upon arrival to the ED and after screening, patients were advised about their specific care plan and could receive a copy upon request.

Subsequent ED visits were determined utilizing the patient search feature of the electronic medical record for the year prior to the date of care plan initialization (control), and subsequent 5 years following initiation (intervention arm). Patients were excluded who met the following criteria: unclaimed certified letter, incomplete data, or non-drug-seeking care plans. Tabulated demographic and baseline characteristics were analyzed in Microsoft Excel by blinded study personnel. Statistical analysis utilized two-tailed Wilcoxon signed-rank test with a significance of p<0.05. This study was approved by the IRB.

III. RESULTS

One hundred and twenty patients (N=120) were included in the initial study population. Of those, the following were excluded: unclaimed letter (N=2), incomplete data (N=4), and non-drug seeking care plans (N=6). Thus, one hundred and eight patients were included in the analysis. The mean age of patients was 39.7 years (IQR 25-55 years) and male gender comprised 53% (N=58). Four patients were < 21 years of age.

Eight hundred and twenty-five individual ED visits occurred in total for all patients (N=108) in the year prior to care plan initiation. For the subsequent years following initiation, the total number of ED return visits was 250 for year one, 143 for year two, 112 for year three, 85 for year four and 62 for year five.

Mean yearly ED visits prior to care plan initiation were 7.6 (95% CI 11.9-3.3). Following care plan initiation, mean visits were: one year, 2.3 (95% CI 4.3-0.3); two years, 1.3 (95% CI 2.7-0.0); three years, 1.1 (95% CI 3.1-0.0); four years, 0.8 (95% CI 2.1-0.0); five years, 0.6 (95% CI 1.7-0.0). The five-year total mean reduction in visits was 7.0 (95% CI 8.1-6.2) (p=0.0001). The mean reduction of visits 1 year following implementation was 5.3 (95% CI 6.1-4.3) (p=0.0001) and between years one and two was 1.2 (95% CI 2.14-0.27) (p=0.0002). An insignificant reduction in visits occurred from two to three (0.2) (p=0.08), three to four (0.2) (p=0.82), and four to five years (0.2) (p=0.29).

IV. DISCUSSION

As the opioid epidemic worsens, there has been an effort from both governmental agencies, as well as hospital systems to help combat opioid abuse and overdose. The CDC and federal government have implemented guidelines for providers who prescribe opioids. These include emphasizing nonpharmacologic and nonopioid therapy as preferred for chronic pain, establishing realistic treatment goals and opioid therapy utilized only if clinically meaningful improvement outweighs risk. When used, the risks and benefits of opioid use must be discussed with the patient and providers should prescribe the lowest effective dose. Further, short acting opioids are preferred, and providers should review the prescription drug monitoring program data on these patients [6].

Prior research by our group has shown that customized treatment care plans are an effective way to reduce ED visits in patients with chronic pain syndromes with suspected drug seeking behavior within the first couple years of implementation [4]. Our current study reports on longer term outcome. Our results show that over a five-year period the decrease in ED visits continues throughout the time period, although the most significant effects are within the first couple years of implementation. Although, our studies do not look at rates of opioid overdose, their use may have a role in combating the opioid crisis.

The American College of Emergency Physicians recommends avoiding routine prescribing of opiate medications for chronic non-cancer pain management. With regards to acute low back pain, the current ACEP guidelines recommend other modalities of pain control as first line and opioids being reserved for severe pain or refractory pain. Another recommendation is that opioids should not be routinely prescribed for an acute exacerbation of chronic noncancer pain. However, if opioid medication is still warranted, the recommendation is for a short course (<1
week) [6]. A study by Hauser et al. evaluated the CDC opioid prescription guidelines in the United States, and similar guidelines in Canada, Australia, and Germany. Their conclusion was that governmental opioid prescribing guidelines could reduce opioid abuse and deaths [7].

There have been both state and federal efforts to combat the opioid epidemic in the United States. Soelberg et al. discussed the CDC guidelines implemented for opioid prescription and debates the role of the DEA to prosecute pill mills and physicians for illegal prescribing [8]. The FDA has the ability to regulate and approve safer formulations, as well as the authority to cease the manufacturing of a drug. At the state level, there is the ability to educate prescribers and make licensure dependent upon registering and using prescription drug monitoring programs (PDMP). While many states have implemented PDMPs, the requirements for use vary, and there are limitations on interstate sharing of this information.

A study by Pauly et al. showed that states without a PDMP saw an associated rise in risk of opioid-related poisoning (RxORP) of 9.51% over a 10-year period. The study concluded that states with more monitoring and more frequent data reporting show a stronger protective effect [9]. Another study by Young et al. found that opioid overdose rivaled auto accidents as a leading cause of accidental death. It looked at the implementation of a PDMP and how it affected opioid prescription patterns. Their data supports that PDMP reduces the amount of sub-optimal opioid prescribing. Conversely, the study also showed that the use of a PDMP takes additional time from other tasks to log into the system, and sort through multiple prescriptions and dates [10]. The use of a PDMP along with a customized treatment care plan has not been studied. It is unclear if a PDMP could further assist in managing patients with opioid seeking behavior.

A literature search reveals a few past studies that have looked at the implementation of ED care plans aimed at addressing drug seeking behavior. Pillow et al. discussed the reduction in ED visits and admission from the top 50 chronic frequent visitors with utilization of care plans with 22% of these cases involving substance abuse. While there was reduction in visits, there was no change in admissions [11]. A study by Murphy et al. reported on a randomized controlled trial of an ED care-coordination program to reduce prescription opioid related visits. They performed an economic evaluation over a 12-month period. A citywide web-based information exchange system was utilized to track people with 5 or more visits/year. Most of the study subjects involved noncancer pain or drug-seeking behavior. They demonstrated a statistically significant 34% reduction in ED visits and 80% decrease in opioid prescription in the intervention arm. Cost analysis of this ED care-coordination program demonstrated a benefit starting four months after implementing the intervention. This cost benefit was sustained and continued to rise throughout the intervention period [12]. Our findings are similar to Murphy’s report. In fact, our more robust, 70% decline in ED visits, might contribute to an even greater financial benefit.

Another study that supports the use of care plans to treat chronic pain was reported by Downes et al. They showed that the implementation of a chronic pain protocol and development of electronic records to monitor provider adherence to the protocol led to a decrease in the number of chronic pain patients receiving long-term opioid therapy [13]. The majority of physician’s report pronounced ambivalence concerning controlled drug prescribing; their desire to relieve pain and discomfort versus the fear of creating addiction and being investigated by law enforcement. Our care plans demonstrate a potentially economical way for physicians to curtail ED visits in those with chronic pain syndromes. An additional issue with the use of care plans is the ethics of using “habitual patient files.” Geiderman, et al. documented the informal use of patient care files and promoted the development of standards for their use. These files of so called “frequent fliers” have never been demonstrated to be effective in reducing ED use in those with drug seeking behavior [14]. However, this early work served as a template to add individualized care plans for these patients.

Individualized ED care plan for patients with chronic painful conditions who display drug-seeking behavior appears to be effective in managing these cases. This study provides evidence that the care plans reduce ED utilization over a five-year period in this patient population. Use of ED care plans may play a role in combating the national opioid crisis. Further research needs to be done to see if care plans decrease episodes of opioid overdose.

V. LIMITATIONS AND FUTURE QUESTIONS

There are some limitations to this study that need to be addressed. It is unclear if ED care plans decrease opioid use, overdose, and death. This study was not designed to look at these outcomes. Additional research should address these important questions.

An additional limitation of the study is whether use of the ED care plans simply divert patients from one ED to go to another. Our study did not address this issue. However, a multi-center study of a local network of hospitals would be able to assess whether this phenomenon occurs.

Lastly, prior studies demonstrate the difficulty in identifying patients at high risk for drug abuse and inclusion for ED care plan development. Studies by Grover et al and Wiener et al demonstrated some characteristics of drug seeking behavior that appear to correlate with drug abuse [15-17]. However, clinical characteristics only appear to correlate with low to moderate frequency. Our study utilized a combination of frequent ED use and clinician perceived drug-seeking behavior. Our study may have missed a number of patients that have drug abuse and may have benefitted from an ED care plan. Further studies need to assess identification of ED drug abuse patients and patients that would most benefit from ED based care plans.

VI. CONCLUSION

Emergency Department care plans may be an effective long-term method to reduce ED visits in patient’s displaying drug-seeking behavior and chronic pain syndromes.
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