Utilization of complementary and integrative health services and opioid therapy by patients receiving Veterans Health Administration pain care

Lisham Ashrafioun[a,b,*], Kelli D. Allen[c,d], Wilfred R. Pigeon[a,b]

[a] Department of Veterans Affairs Center of Excellence for Suicide Prevention, Canandaigua VA Medical Center, United States
[b] Department of Psychiatry, University of Rochester Medical Center, United States
[c] Center for Health Services Research in Primary Care, Durham VA Medical Center, United States
[d] Department of Medicine, Thurston Arthritis Research Center, University of North Carolina, United States

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ABSTRACT

Objectives: The aims of the current study were to characterize veterans who used a complementary and integrative health (CIH) service in the Veterans Health Administration (VHA) and to assess the extent to which using a CIH-related service was associated with receiving an opioid analgesic prescription following the initiation of specialty pain service, a time at which higher intensity care is needed for patients experiencing greater psychiatric and medical complexity.

Design: This study utilized a retrospective cohort design of veterans using specialty pain services. The index visit was defined as the first specialty pain visit in Fiscal Years 2012–2015. Demographics, opioid analgesic prescriptions, psychiatric disorder diagnoses, medical comorbidity, pain severity scores, and pain conditions were extracted from VHA administrative data.

Setting: The cohort was comprised of veterans who had at least one visit with a specialty pain service as identified by a billing code.

Main outcome measures: The main outcome measures were use of a CIH-related service in the 365 days prior to the index visit and opioid analgesic prescription within 365 days after the index visit. Adjusted logistic regression analyses accounted for key covariate and potential confounding variables.

Results: Use of CIH-related services was relatively low across the cohort (1.9%). Veterans who used a CIH-related service in the 365 days prior to the index visit were more likely to be female, be younger, have less medical comorbidity, have less severe pain, and were less likely to have received an opioid prescription in the 365 days prior to the index visit. After accounting for key covariates and potential confounders, veterans who used a CIH-related service were less likely to receive an opioid analgesic prescription in the 365 days following the index visit.

Conclusion: CIH-related services were not commonly used among Veterans initiating specialty pain services. Engaging in CIH-related services prior to specialty pain services is associated with decreased opioid analgesic and non-opioid analgesic prescriptions.

1. Introduction

Chronic pain is a public health problem in the United States costing an estimated $500–635 billion annually with significant disability.[1] Treating chronic pain is complex, and opioid therapy is among the most common ways to manage pain,[2] despite the potential for adverse outcomes and little empirical evidence for the effectiveness of long-term opioid therapy.[3,4] For example, opioid therapy is not only associated with unintentional overdose, suicide, suicide attempts, and substance misuse,[5–8] but recent observational studies indicate that it increases the risk of depression onset and recurrence.[9,10]

Both the Centers of Disease Control and the joint Department of Veterans Affairs/Department of Defense (VA/DoD) released Clinical Practice Guidelines (CPGs) on opioid prescribing for pain.[3,4] The new CPGs recommend offering self-management and other non-pharmacologic approaches as frontline treatments for chronic pain. Additionally, if opioid therapy is provided, it should be offered in conjunction with these nonpharmacologic options. These recommendations are based on "strong" evidence indicating that there is the potential for long-term benefit with few adverse effects of

nonpharmacologic strategies relative to opioid therapy. [3,4]

Complementary and integrative health (CIH) approaches to pain management (e.g., yoga, acupuncture, mindfulness-based intervention) are among the nonpharmacologic approaches noted in the CPGs. Recent studies have supported the use of such techniques to reduce key outcomes including pain intensity, pain interference, and to improve quality of life. [11–13] For example, a recent study found that mindfulness-based stress reduction and cognitive-behavioral therapy for chronic pain significantly improved pain intensity, pain interference, and quality of life post-treatment and at the 52-week follow-up relative to usual care. [12] Another study found that yoga significantly improved pain outcomes to a statistically equivalent level as physical therapy and pain education. [11] Although there is emerging evidence of CIH's utility, additional research is needed to understand if using CIH approaches reduces opioid analgesic prescriptions.

In order for healthcare systems to implement and adhere to opioid prescribing guidelines, they will need a full complement of evidence-based nonpharmacologic pain treatments to offer, and knowledge about whether any such treatments may be used to fully supplant or reduce opioid therapy dose. To help address this, the current study was undertaken in a large cohort of patients receiving Veterans Health Administration (VHA) specialty pain care to elucidate the relationship between engaging in VHA CIH-related service and receiving opioid analgesic prescriptions. We selected initiation of specialty pain services because, according to the VHA stepped care model of pain management, it represents at time at which increased intensity of care is needed and patients typically have more complex medical and psychiatric comorbidity. [14] The complexity of patients' health status has the potential to complicate treatment approaches and increase risk of opioid-related adverse events (e.g., suicide, unintentional overdose). [8,15] A recent study also found that veterans being treated for pain in specialty care receive more opioids compared to veterans with pain treated in primary care. [16] First, we were interested in characterizing the veterans who used VHA CIH services in the 365 days prior to initiating specialty pain services. Second, we were interested in assessing the association of using a CIH-related service with subsequent prescriptions for opioid analgesics in the 365 days following the initiation of specialty pain services (see Fig. 1 for design overview). We hypothesized that use of a CIH-related service would be associated with a decreased likelihood of receiving an opioid following the initiation of specialty pain services.

2. Methods

2.1. Data source and study population

The data used in the current study is part of a larger study examining suicide attempt data among veterans using VHA pain-related services. All data for the current analyses were extracted from the Corporate Data Warehouse (CDW). The CDW is a comprehensive database comprising demographic, clinical, enrollment, and treatment utilization data among individuals using VHA services. CDW was used both to identify the study population and to also extract data on demographics; psychiatric, medical, and pain diagnoses; CIH treatment utilization; opioid and non-opioid analgesic prescriptions; and pain intensity scores. In order to capture veterans engaged in a higher level of care, the cohort was comprised of veterans using services associated with billing code 420 between fiscal years 2012 and 2014. Billing code 420 defines workload for visits related to a range of services that are related to treating pain. In order to limit the sample to those initiating specialty pain care, cases were only included if their first visit was within the study time frame and they did not have a visit associated with billing code 420 in the 365 days prior (N = 242,932). Cases were excluded from the cohort if (a) they were not living throughout the entire study timeframe (n = 5,403), (b) their pain care visit was expressly for administering anesthesia prior to a surgery (n = 5,650), (c) they were not identified as a veteran (n = 73), (d) they did not have a

pain intensity score (n = 6,098), and (e) they were not unique cases (i.e., the same veteran was included in the cohort twice; n = 13,180). This left a total of 212,528 individual patients included in the analyses. [e]

2.2. Variables

2.2.1. CIH treatment utilization

Use of a CIH-related service in the 365 days *prior* to the index visit was identified using the billing code 159. The purpose of examining CIH-related service prior to the index visit was to assess its association with opioid prescriptions following the index. Billing code 159 identifies services that are delivered by a provider delivering CIH services that are sometimes used in conjunction with conventional treatments to treat conditions and promote health. Billing code 159 can be used when CIH services are provided within a stand-alone program (e.g., within a CIH or well-being clinic) or when it is provided within an established program (e.g., within mental health services). [17] CIH services defined under this billing code include a range of services such as acupuncture, mindfulness-based stress reduction, massage therapy, Pilates, animal-assisted therapy, biofeedback, tai chi, etc. We were unable to assess the specific type of CIH service used in the current analyses because this was not initiated until 2017.

2.2.2. Prescription opioids

Receiving a prescription for an opioid analgesic in the 365 days *after* the index visit was the primary dependent variable in the current study. We included medications that the VA identifies as opioid analgesics, which include codeine, hydrocodone, oxycodone, butorphanol, fentanyl, meperidine, methadone (specifically for pain), morphine, and oxymorphone. Receiving an opioid analgesic prescription in the 365 days *prior* to the index visit was included as a covariate.

2.2.3. Non-opioid analgesic prescriptions

To assess if the effects were limited to opioid analgesic prescriptions, we conducted additional logistic regression analyses that assessed non-opioid analgesic prescriptions (i.e., musculoskeletal analgesics, gabapentin, and other non-opioid analgesics) in the 365 days following the index visit. Musculoskeletal analgesics included anti-rheumatic medications (e.g., non-steroidal anti-inflammatories), penicillamine, and skeletal muscle relaxants (e.g., baclofen, chlrozoxazone). Other prescription analgesics included non-opioid medications with acetaminophen, aspirin, choline/magnesium salicylate, clonidine, tramadol, and zionotide. Receiving a prescription for musculoskeletal analgesics, gabapentin, and other analgesics in the 365 days *prior* the index visit were included as covariates in their respective analyses.

2.2.4. Psychiatric disorders

We used International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9CM) codes to identify alcohol use disorders, opioid use disorders, depression, posttraumatic stress disorder, and other anxiety disorders documented in the medical record within the 365 days prior to the index visit. These disorders were selected given their relatively high rate of comorbidity with chronic pain, and their associations with opioid use. [18–20]

2.2.5. Pain

Scores from the 180 days prior to, but not including, the index visit were extracted to calculate mean pain intensity scores in the past 180 days. Pain intensity was measured using the numeric rating scale of current pain from 0 (no pain) to 10 (worst pain imaginable). Arthritis, back pain, and fibromyalgia were identified using ICD-9CM codes.

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[e] Sensitivity analyses were conducted to assess if including the entire cohort in the analyses changed any of the results. There were no changes in any significant or non-significant findings in the sensitivity analyses.