



A Multimodal Approach to Pain Management for Patients with Chronic Back Pain: Outcome Measures at 1 Year

Jonathan P. Eskander¹ · Burton D. Beakley² · Si Zhang³ · Jacquelyn Paetzold⁴ · Bharat Sharma⁵ · Alan D. Kaye⁶ · Sanjay Sharma⁷

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Abstract

Purpose of Review The purpose of this study is to evaluate the effectiveness of a multimodal approach to treating chronic low back pain.

Recent Findings Chronic non-cancer-related back pain is often a frustrating and poorly managed problem for patients. It poses a significant public health issue worsened by the widespread use of narcotics. In 2016, the CDC released guidelines with noticeably more strict recommendations on prescription of narcotics for pain.

Summary Veterans at an interventional pain clinic presenting with chronic back pain refractory to medical and to surgical care were enrolled in an 8-week interdisciplinary pain management program. Pain scores were significantly reduced 1 year after completion of the program. Patients in this study benefitted from lower and sustained pain scores, a reduction in emergency room, and urgent care clinic visits, as well as generally high satisfaction with the interdisciplinary program.

Keywords Interdisciplinary pain management · Chronic pain · Low back · Cervical · Pain · Interventional · Intervention · Physical therapy · Yoga · Acupuncture · Multimodal · Cognitive behavioral therapy · Nutrition

Introduction

Chronic non-cancer-related back pain is often a frustrating and difficult problem to manage for many patients. In addition to the ubiquitous nature of pain in healthcare, total pain costs in

the USA are estimated to be over \$200 billion yearly.[1•] Due to the complex nature of pain and a shortage of specialists, pharmacologic treatment has been a controversial but mainstay treatment for many years.[2] As a result, chronic non-cancer-related back pain poses a significant public health issue worsened by the widespread use of narcotics. Interdisciplinary or multimodal pain management strategies are becoming increasingly more common with some data suggesting a positive impact. In a chronic pelvic pain study performed by Kames et al., data suggested a significant decrease in pain following treatment as well as a decrease in anxiety, depression, and a concomitant improvement in psychosocial functioning, including return to work, increased social activities, and improved sexual activity. The outcome suggests that the interdisciplinary pain management approach is effective for the treatment of chronic pelvic pain.[3•] Additionally, chronic pain is associated and may be exacerbated by social factors. In a study by Sturgeon et al., the results highlight the importance of social factors to pain-related distress as well as social functioning as important targets for clinical interventions in chronic pain.[4••]

The interdisciplinary pain management program at the VA hospital is a multimodal, coordinated approach to treating severe chronic back pain. The program accepts

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✉ Jonathan P. Eskander
jeskande@tulane.edu

- ¹ Department of Anesthesiology, Portsmouth Anesthesia Associates, Portsmouth, VA, USA
- ² Department of Anesthesiology, Ochsner Health System, New Orleans, LA, USA
- ³ Department of Anesthesiology, Stamford Health Medical Group, Stamford, CT, USA
- ⁴ Department of Anesthesiology, STAR Anesthesia, P.A., San Antonio, TX, USA
- ⁵ Department of Anesthesiology, Duke University, Durham, NC, USA
- ⁶ Department of Anesthesiology, Louisiana State University Health Sciences Center, New Orleans, LA, USA
- ⁷ Department of Anesthesiology, Southeast Louisiana Veterans Health Care System, New Orleans, LA, USA

patients who have had pharmacological and nonpharmacological therapies and have experienced minimal relief. The intractable painful conditions are further complicated by coexisting mental health problems like depression, post-traumatic stress disorder (PTSD), traumatic brain injury, addiction, and opioid tolerance. This program has treatment regimen benefits from a multidisciplinary approach to chronic pain, based on a biopsychosocial model. This model implements a three-pronged tactic wherein the biological problems are treated using the conventional medical therapies along with psychological therapies as well as a look into the social factors that may be contributing to chronic non-cancer back pain. Patients who enroll in this 8-week interdisciplinary program benefit from a combination of non-opioid pharmacologic treatments combined with interventional pain management; cognitive behavioral therapy; physical therapy; complementary and alternative medicine (CAM) therapies like yoga, electroacupuncture, and hypnosis; nutrition; and more.

Methods

This prospective comparative study addressed the efficacy of a multimodal approach by an interdisciplinary pain management team at a VA hospital in the Southeastern United States. The team consisted of a primary care provider, interventional pain management specialist, clinical psychologist, physical therapist, and a yoga instructor. A total of 32 adult patients (20 men, 12 women) between the ages of 28 and 69 years, taking opiates for chronic back pain for more than 3 months in duration and after failed interventional pain management modalities, were enrolled for the study. All patients agreed to enter an 8-week interdisciplinary pain program primarily consisting of interventional pain management, cognitive behavioral therapy, physical therapy, and yoga. Eleven (34%) patients did not complete the full 8-week program. Number of weeks completed by this cohort ranged from 1 to 7 weeks.

All patients were evaluated before and after the 8-week program and again approximately 1 year later. It should be noted that those who required continued interventional pain management continued visiting the pain clinic every 3–6 months. POQ-VA (Pain Outcomes Questionnaire for Veterans) score and a patient satisfaction survey (five questions assessing overall satisfaction, staff kindness, staff skills, appointment ease, and if the patient would recommend program to others) were used to evaluate patient outcomes. Finally, resource utilization was assessed using the VA electronic medical records to identify unscheduled urgent care clinic, ER, and primary care visits

related to chronic pain prior to the 8-week program and within 1 year after completion of the interdisciplinary pain management program. A Student's *t* test was performed in our statistical analysis.

Results

The results of this investigation suggest that enrolled patients benefitted from lower and sustained pain scores as well as generally high satisfaction with the interdisciplinary program (Tables 1 and 2). All POQ pain scores and satisfaction survey scores ranged from 0 to 10. The mean pain score prior to the 8-week program was 7.31 ± 1.47 , immediately after the 8-week program, the mean pain score was 4.7 ± 2.33 , and finally after the 1-year program, the mean pain score was 6.16 ± 1.93 (Table 2). Using R-statistical software package, a Student's *t* test reveals a *p* value of 0.008 for POQ pain score reduction immediately after the 8-week program. One year later, the mean POQ pain scores decreased from the baseline mean with a calculated *p* value of 0.01. This data suggests that at 1 year after the interdisciplinary program intervention, veterans with chronic pain experience sustained a reduction in the perception of pain. A larger patient size may be needed to comment further on improved functionality per the POQ criteria. The mean overall satisfaction score given to the 8-week program was 7.28 out of 10. All 32 patients enrolled stated that they would recommend the interdisciplinary program to a friend. Refer to Table 1 for the POQ score component breakdown. Of note, the only component of the POQ survey to demonstrate statistical significance was the pain score. Furthermore, resource utilization was drastically reduced from 19 unscheduled visits prior to the start of the 8-week program to only one unscheduled visit for chronic pain within 1 year after completion of the program. Potentially, this could lead to a reduced number of healthcare dollars spent on chronic pain in the USA. An economic analysis has not been performed as part of this study.

Discussion

At our institution, accredited by the Commission on Accreditation of Rehabilitation Facilities (CARF), patients with chronic pain who failed pharmacologic and interventional pain management are candidates for the interdisciplinary pain program. Initially, a nurse administers the VA's POQ. These are a set of questions that translate to a score and a percentile. The percentile compares to the patient with the rest of the nation's VA

Table 1 Pain scores

<i>n</i> = 32 Mean pain score at initial clinic visit	62.5% Men Mean pain score after interdisciplinary program	37.5% Women Mean pain score 1 year later	<i>p</i> value
7.3125 ± 1.467	4.7 ± 2.326 (<i>p</i> value = 0.008459)	6.142857 ± 1.929 (<i>p</i> value = 0.01301)	
	Mobility after interdisciplinary pain program 26.75	Mobility 1 year later 23.79	0.5705
	ADL after interdisciplinary pain program 15	ADL 1 year later 14.52	0.9261
	Vitality after interdisciplinary pain program 19.5	Vitality 1 year later 18.84	0.7357
	Negative effect after interdisciplinary pain program 30.75	Negative Affect 1 year later 25.66667	0.2492
	Fear after interdisciplinary pain program 13.5	Fear 1 year later 12.375	0.5587
	Total POQ score after interdisciplinary pain program 99	Total POQ score 1 year later 100.2917	0.9348

population. The higher the score or the percentile, the higher the impairment. A downward trend is desirable and certain areas of impairment that are not improving are identified and approached. According to Clark et al., the VHA or VA’s POQ results provided strong support for clinical use when used to evaluate treatment effectiveness for veterans with chronic non-cancer pain.[5••]

After meeting with pain management specialists, patients are referred to a pain psychologist and physical therapist for evaluation at the same sitting. If deemed appropriate, then the patient enrolls in the 8-week program after discussing with him or her regarding

willingness and accessibility to the program. This is an 8-week program with a commitment to come 2 days a week. The goals are focused on not just reduction in pain but to make the patients more functional while reducing their suffering. Conventional medical therapies like medication recommendations are made to the primary care provider. The patient also receives interventional pain treatments if necessary. The interdisciplinary pain program is based on psychological behavioral therapies, education, pain coping classes, and physical therapies customized to the patient’s needs, as well as pharmacologic and interventional pain management.

Table 2 Interdisciplinary pain clinic satisfaction results

Interdisciplinary pain clinic patient satisfaction scale (0–10)				
Overall satisfaction	Staff kindness	Staff skills	Ease of appointments	Would you recommend?
Year 1 7.44	8.47	8.82	7.42	8.16
Year 2 8.06	9.22	9.3	6.96	8.72
Year 3 8	9.1	8.5	6.8	8.5
Year 4 7	7.3	8.6	6.7	7.9
Year 5 (<i>n</i> = 14) 7.285714286	8.071428571	7.5	5.785714286	7.357142857

Goals are set at the beginning of the therapy and the patient is educated about realistic expectations. Patients are taught how to assume responsibility for their own care and change from a passive to an active role. Family members and caregivers are involved as their support is also of vital importance. At the end of the therapy, outcome measures like POQ and patient satisfaction survey are given and compared to the baseline scores. Patients are taught lifestyle changes skills like home exercises and behavioral therapies as well as accepting a healthy diet to continue at home. Follow-up in the clinic is done depending on the needs of the veteran which could be anywhere from 3 to 6 months.

Conclusion

The POQ questionnaire demonstrated a significantly significant reduction in pain scores and a reduction in emergency room and urgent care clinic visits. Additionally, patients demonstrated a high level of satisfaction with the interdisciplinary pain program versus traditional methods of pain management.

Compliance with Ethical Standards

Conflict of Interest Jonathan P. Eskander, Burton D. Beakley, Si Zhang, Jacquelyn Paetzold, Bharat Sharma, Alan D. Kaye, and Sanjay Sharma declare no conflict of interest. Dr. Kaye discloses that he is on the Speakers Bureau for Depomed, Inc. and Merck.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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Papers of particular interest, published recently, have been highlighted as:

- Of importance
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