



Technical Notes & Surgical Techniques

A novel integrative healing services approach for neurosurgery inpatients: Preliminary experiences and cost calculations



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ABSTRACT

Background: Neurosurgery inpatients are oftentimes critically ill, and face significant stress, post-operative pain, and/or emotional distress. As a result, the use of non-pharmacologic, alternative therapies as adjuncts in surgical care may benefit this patient population. Hospital economics related to integrative services may also provide additional incentive to providing alternative therapies. This study characterizes and evaluates how Integrative Healing Services (IHS) affects patient pain levels and length of stay. We also performed a literature review to examine national trends in inpatient integrative healing.

Methods: An IHS team (e.g. acupuncture, healing touch, music therapy, pet therapy, and counseling) was incorporated into the treatment regimen of neurosurgery inpatients (with > 4 days of stay) with chronic or intractable pain, stress or depression, and/or patients intolerant to or who failed physical or occupational therapy.

Results: 34 charts were retrospectively reviewed, with 17 patients receiving IHS (11 cranial and 6 spine cases), and 17 age and gender matched controls receiving routine care (11 cranial and 6 spine patients). Overall, 71% (12/17) of patients had a reduction in pain medication consumption, with 55% (6/11) of cranial and 100% (6/6) of spine patients reporting a reduction compared to baseline. The average pre-treatment pain-scale score was 5.5 out of 10 across all patients, while the average post-treatment pain-scale score was 3 out of 10 ($p < 0.01$). 59% of patients had improved mobility. The average length of stay in the IHS group was 12.6 days, and 19.6 days in the routine care group (range 4–45) ($p < 0.01$).

Conclusions: IHS intervention may be an effective option for treating pain and decreasing hospital length of stay. National trends support the use of integrative healing and will likely continue to increase as further studies are performed.

1. Introduction

As “pay-per-performance” and “pay-per-reporting” are increasing in popularity in the modern health care era, the socioeconomic value of patient satisfaction is becoming an exceedingly important tool to examine hospital quality. Hospital Consumer Assessment of Healthcare Provider and Systems (HCAHPS) surveys are being used as a method to standardize and compare hospitals across the country so that patients can compare these hospitals on an “apples-to-apples” basis. This survey focuses on nine key topics related to a patient’s hospitalization which

include responsiveness of hospital staff and pain management amongst others [1]. The results of this survey will be tied to Centers for Medicare and Medicaid (CMS) payments to hospitals. Furthermore, pain control, mobility, and length of stay are important variables that significantly impact patient satisfaction and outcomes. One difficulty with focusing on these specific topics is that there are a variety of other factors that can also affect patient satisfaction. Interestingly, studies have shown that introduction of a variety of alternative interventions have improved patients’ experience and subsequent overall HCAHPS scores [2–4]. For instance, a recent study examining inpatient music therapy

Abbreviations: HCAHPS, Hospital Consumer Assessment of Healthcare Provider and Systems; CMS, Centers for Medicare and Medicaid; IHS, Integrative Healing Services; MYMOP, Measure Yourself Medical Outcome Profile

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Table 1
Tabulation of the various integrative health services provided on a weekly basis.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Acupuncture	X		X				
Healing touch		X		X			
Pet/music therapy and counseling	X	X	X	X	X	X	X

demonstrated improved patient perception of hospital quality and also decreased their overall perception of pain [4]. Hospitals and providers are increasingly being graded and reimbursed based on patient satisfaction through a variety of standardized surveys, highlighting the importance of incorporating an integrative health services team in patient care to enhance patient satisfaction.

Inpatients on the neurosurgery service are often the most critically ill patients in the hospital and are admitted for a variety of different illnesses including brain tumors, chronic back pain, and trauma. These patients often have significant stress, pain from surgery, and physical and emotional distress related to their underlying disease process. Because of these underlying issues, patients may have an excellent clinical outcome from surgery but may still be unhappy because of depression, chronic pain or the nature and severity of their underlying disease [5,6]. These issues can manifest themselves as a decreased satisfaction with their hospitalization, increased pain related to surgery, and intolerant of physical therapy. This may also lead to an increased length of stay. As such, the use of non-pharmacologic, alternative therapies as adjuncts in surgical care may play an important role in this patient population.

For patients with severe postoperative pain, the neurosurgery service has the ability to consult the acute pain service, which delivers excellent pain control using a variety of medication therapies and Social Work for assistance with social issues they may be dealing with [7,8]. Unfortunately, there are few other options currently available to treat the other major issues these patients may be facing with regards to their emotional and physical well-being. The authors created an Integrative Healing Services (IHS) team of providers that included acupuncture, healing touch, music therapy, pet therapy, and counseling to address some of these issues. IHS can not only improve pain management, but can simultaneously reduce side effects and increase safety by avoiding adverse reactions associated with reliance on opioid medications for pain management. The IHS team focused on inpatient neurosurgery patients with significant pain, depression, and increased length of stays. We aimed to assess the utility of this IHS approach, and report our institutional experience in patient's clinical outcome following the implementation of IHS into routine clinical care, which may ultimately serve as a model for all hospital services.

2. Materials and methods

A multidisciplinary team of integrative healing professionals was assembled to treat patients on the neurosurgery service with post-surgical pain, stress or depression, and/or patients who were intolerant to or failed physical or occupational therapy from June 2016 to February 2017. IHS was only offered to neurosurgery inpatients during this study period. All patients included in this study had extended hospital stays lasting four days or longer, and were resistant to traditional medical or physical therapeutic interventions (e.g. routine pain medications such as opioids and muscle relaxants were insufficient for pain control). All patients were adults over 18 years of age, and had Glasgow Outcome Scale scores of 4 or higher (i.e. all patients had moderate disability but were independent and able to work in a sheltered setting). Patients were identified daily during neurosurgery morning huddle. The huddle team includes a neurosurgery attending, resident, case manager, and physical/occupational therapy representative and this was performed as part of daily patient care. Since IHS intervention was incorporated

into the treatment plan of each patient as part of their clinical care, patient consent was not required. IRB approval was obtained to retrospectively review the charts of patients included in this study in order to extract relevant data.

The team-members consisted of acupuncture, healing touch, music therapy, pet therapy, and counseling. The IHS team consists of members from the departments of Integrative Medicine, Center for Stress and Health, Pain Management, Music, and Psychiatry, as well as the Family Health Center. A schedule for each service through the week was created (Table 1). Patients completed a baseline Measure Yourself Medical Outcome Profile (MYMOP) questionnaire before and after undergoing treatment by the IHS. The MYMOP questionnaire is a well validated assay for comparing pre/post-treatment symptom control from a variety of interventions [9]. Data abstraction was completed by one of the authors who was not part of the IHS team. Data was gathered from physical and occupational therapy notes before and after offering the service.

In total, 17 patients received IHS intervention, and the charts of these patients were retrospectively reviewed. An additional 17 patients meeting the same selection criteria as the experimental group who received routine care after the study period were included as controls. The 17 control patients were age and gender matched, and matched the experimental group with respect to pathology type, surgery location (e.g. cranial or spinal) and type, and preoperative narcotic use. Chaplain services were available to all patients during the study period.

The cost of the integrative healing services was estimated based on each service cost to the number of patients who received IHS intervention (17 patients), Acupuncture professional service costs 100 US dollars per hour and healing professional service costs 60 US dollars per hour. Music therapy and pet therapy had no cost and were performed by members approved by department of volunteer health services. Counseling was offered by the hospital social services.

The charts of patients receiving IHS intervention and age-matched patients receiving routine care were retrospectively examined. Demographic and clinical variables (e.g. pain medication consumption, pain scores, mobility, independence level, and level of assistance with physiotherapy) were extracted before and after IHS intervention until the date of discharge. The primary outcome variables consisted of pain medication consumption, patient reported subjective pain levels, mobility, level of assistance, independence from physical therapy (PT), and increased PT participation. Pain medication consumption was assessed by retrospectively examining the prescribed pain medications and quantifying the type of pain medication and the dose. Verbal reports were obtained from patients regarding their subjective pain based on the Wong-Baker Faces Pain Rating Scale. Mobility was assessed by retrospective examination of the patient's ability to ambulate without assistance. Independence from PT and increased PT participation were determined via retrospective examination of the PT chart notes. Statistical analysis was conducted with a paired samples *t*-test to determine whether specific clinical outcome variables significantly differed between the routine care and IHS groups, as well as IHS subgroups. An independent samples *t*-test was used to determine if there was a difference in the mean demographic and primary outcome variables between routine care and IHS groups, as well as between IHS subgroups. Statistical analysis was performed using PASW Statistics 18.0 software (SPSS Inc., Chicago, IL). A *p* value of < 0.05 was considered statistically significant.

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