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A Survey of Complementary and Alternative Medicine (CAM) Awareness Among Neurosurgeons in Washington State

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Abstract

Objectives: Use of complementary and alternative medicine (CAM) by the U.S. population increased significantly in the past 2 decades. To maximize a patient's recovery from a neurosurgical procedure, it is critical that neurosurgeons be aware of the benefits and potential adverse complications of CAM therapies. The survey's purpose was to assess the current patterns of CAM utilization by neurosurgery patients and neurosurgeon knowledge of CAM therapies among Washington State Association of Neurological Surgeons (WSANS) members.
Methods: Members of the WSANS were surveyed in 2005. The survey was sent via e-mail and the data were anonymously collected using an online survey tool, Catalyst WebQ.
Results: The majority of responses (79%) stated that their neurosurgery practice was $\geq$75% adults. Acupuncture, herbs, massage therapy, prayer, and yoga were the most common CAM treatments patients used or discussed with their neurosurgeon. Fifty percent (50%) of neurosurgeons discussed the use of acupuncture among their colleagues. Concerning prayer and spirituality, 38% of the surveyed neurosurgeons stated that $\geq$25% of their patients have disclosed that they pray for their health; 42% stated that spirituality and prayer may affect neurosurgery outcome; and 38% stated that they pray for their patients. Overall, 63% of surveyed neurosurgeons stated that CAM treatments have a role in neurosurgery.
Conclusions: The use of CAM may influence neurosurgical care; and the role of spirituality and prayer should be further explored. Because CAM utilization is ubiquitous, open discussion and familiarity with CAM treatments are becoming increasingly important in the field of neurosurgery.

Introduction

The use of complementary and alternative medicine (CAM) by the U.S. population is significant. A large-scale survey of over 30,000 adults conducted in 2002 found that 36% of adult Americans used some form of CAM in the past 12 months, excluding prayer and multivitamins as CAM modalities.[1] When prayer was included in the definition, 62% of adults had used CAM in the last 12 months. Other studies quote utilization of CAM ranging from 42% to 75% of the population.[2] In fact, Eisenberg and colleagues estimated in a 1997 survey that the total number of visits to CAM practitioners exceeded total visits to U.S. primary care physicians.[2] A comparison of overall CAM use between the 1997 survey conducted by Eisenberg and the 2002 survey conducted by Barnes showed that approximately 1 in 3 Americans used CAM within the past 12 months.[3]

Given the ubiquity of CAM use, we were interested in determining the attitudes and utilization of CAM among patients in the field of neurosurgery, especially pediatric neurosurgery. We are currently unaware of literature regarding CAM use in these specialties; however, several epidemiologic

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studies suggest a trend of increasing CAM use in pediatrics and surgery patients.

Neuhouser et al. surveyed 75 parents of pediatric patients with cancer and found that 73% used at least one CAM modality, 21% consulted an alternative medicine provider, and 28% used high-dose dietary supplements such as vitamins C or E, and 35% used herbal preparations.[4] In reviewing the complementary medicine program at New York–Presbyterian Medical Center, which integrates CAM therapies into the care of surgical patients with cardiovascular disease, Oz and colleagues noted that approximately 50% of patients use CAM when healthy. If excluding vitamins and prayer, 45% of patients use CAM therapies perioperatively, with herbal and chiropractic treatments being the most popular.[5,6]

The purpose of this survey was to assess the current patterns of CAM utilization by neurosurgery patients and neurosurgeon knowledge of CAM therapies among members of the Washington State Association of Neurological Surgeons (WSANS).

Methods

Members of the WSANS were sent an eight-question survey in July 2005 (Table 1). The survey was sent via email and the data was anonymously collected using an online survey tool created by the University of Washington, Catalyst WebQ (http://catalyst.washington.edu/web_tools/webq.html). The University of Washington School of Medicine Institutional Review Board approved the study protocol.

Results

Of the 63 WSANS members sent the e-mail survey, 24 responded (response rate 38%). Among the neurosurgeons who responded to the survey, 79% stated that their neurosurgery practice was ≥75% adults and 4% reported that ≥75% of their practice was pediatric.

When asked which CAM therapies their patients used or discussed with them, 75% of responding neurosurgeons reported discussing acupuncture and massage therapy, while more than 50% reported discussing yoga, prayer, and herbs with their patients (Table 2). The most common CAM treatment discussed among neurosurgeon colleagues was acupuncture, with half of respondents reporting this discussion (Table 3).

In our study, 38% of the responding neurosurgeons stated that ≥25% of their patients have disclosed to them that they pray for their health (Table 4); 42% stated that spirituality and prayer may affect neurosurgery outcome (Table 5); and 38% stated that they pray for their patients (Table 6). Overall, 63% of responding neurosurgeons stated that CAM treatments have a role in neurosurgery (Table 7).

Discussion

Findings

Our findings are consistent with past epidemiologic surveys in that CAM utilization is prevalent in the U.S. population and certain modalities of CAM such as acupuncture

Table 1. Complementary and Alternative Medicine Survey

1) What percentage of your neurosurgery practice is adults? (please circle)
0–25% 25–50% 50–75% 75–100%

2) What percentage of your neurosurgery practice is pediatrics? (please circle)
0–25% 25–50% 50–75% 75–100%

3) Have your patients discussed with you and/or used complementary and alternative medical treatments including (if yes, please check all treatments that apply; if no, please leave blank):

Acupuncture	Energy healing	Massage therapy	Prayer
Aromatherapy	Guided imagery	Magnetic therapy	Relaxation techniques
Ayurveda	Herbs	Meditation	Spiritual practices
Biofeedback	Homeopathy	Megavitamins	Yoga
Distant healing	Hypnosis	Music therapy	Other

4) Have other physicians spoken with you about complementary and alternative medical treatments including (if yes, please check all treatments that apply; if no, please leave blank):

Acupuncture	Energy healing	Massage therapy	Prayer
Aromatherapy	Guided imagery	Magnetic therapy	Relaxation techniques
Ayurveda	Herbs	Meditation	Spiritual practices
Biofeedback	Homeopathy	Megavitamins	Yoga
Distant healing	Hypnosis	Music therapy	Other

5) What percentage of your patients and/or their families have disclosed to you that they pray for the patient's health (please circle)?
0–25% 25–50% 50–75% 75–100%

6) Do you think spirituality and prayer may affect neurosurgery outcome (please circle)?
Yes No Don't know

7) Do you pray for your patients (please circle)?
Yes No

8) Do you think complementary and alternative medical treatments have a role in neurosurgery (please circle)?
Yes No

Table 2. CAM Therapies Reported by Neurosurgeons to be Used or Discussed by Patients

Question 3: Have Your Patients Discussed with You and/or Used Complementary and Alternative Medical Treatments Including (If Yes, Please Check All Treatments that Apply; If No, Please Leave Blank):

CAM therapy	*Number of responses* (n)	*Percentage of responses (4 neurosurgeons did not respond)* (n/20)	(n/24)
Acupuncture	18	90.00%	75.00%
Aromatherapy	2	10.00%	8.33%
Ayurveda	3	15.00%	12.50%
Biofeedback	9	45.00%	37.50%
Distant healing	1	5.00%	4.17%
Energy healing	2	10.00%	8.33%
Guided imagery	4	20.00%	16.67%
Herbs	12	60.00%	50.00%
Homeopathy	8	40.00%	33.33%
Hypnosis	5	25.00%	20.83%
Massage therapy	18	90.00%	75.00%
Magnetic therapy	11	55.00%	45.83%
Meditation	6	30.00%	25.00%
Megavitamins	4	20.00%	16.67%
Music therapy	3	15.00%	12.50%
Prayer	13	65.00%	54.17%
Relaxation techniques	7	35.00%	29.17%
Spiritual practices	5	25.00%	20.83%
Yoga	13	65.00%	54.17%
Other	7	35.00%	29.17%
No response given	4	20.00%	16.67%

CAM, complementary and alternative medicine.

Table 3. Complementary and Alternative Medicine (CAM) Therapies Reported by Neurosurgeons to be Discussed with Other Physicians

Question 4: Have Other Physicians Spoken with You About Complementary and Alternative Medical Treatments Including (If Yes, Please Check All Treatments that Apply; If No, Please Leave Blank):

CAM therapy	*Number of responses* (n)	*Percentage of responses (9 neurosurgeons did not respond)* n/15	n/24
Acupuncture	12	80.00%	50.00%
Biofeedback	5	33.33%	20.83%
Distant healing	1	6.67%	4.17%
Energy healing	1	6.67%	4.17%
Guided imagery	1	6.67%	4.17%
Herbs	4	26.67%	16.67%
Homeopathy	1	6.67%	4.17%
Hypnosis	2	13.33%	8.33%
Massage therapy	8	53.33%	33.33%
Magnetic therapy	3	20.00%	12.50%
Meditation	1	6.67%	4.17%
Megavitamins	2	13.33%	8.33%
Music therapy	1	6.67%	4.17%
Prayer	3	20.00%	12.50%
Relaxation techniques	5	33.33%	20.83%
Spiritual practices	3	20.00%	12.50%
Yoga	4	26.67%	16.67%
Other	2	13.33%	8.33%
No response given	9	60.00%	37.50%

and herbal therapies are more popular than others.[3] In our study, the most common CAM modalities neurosurgeons discussed with their patients were acupuncture and massage therapy, followed by prayer, yoga, and herbs. Thus, neurosurgeons as well as other medical providers need to familiarize themselves with these specific CAM modalities. The most common CAM modality neurosurgeons discussed with their colleagues was acupuncture, not surprisingly, as acupuncture is popular in the United States. A 2002 survey of 31,044 adults revealed a 1.1% recent use (within the last 12 months) of acupuncture, which represents 2.13 million Americans.[7] Acupuncture has demonstrated effectiveness in pain conditions such as chronic low-back pain,[8] and numerous clinical trials have demonstrated its effectiveness in postoperative nausea and vomiting.[9] Neurosurgeons should be familiar with acupuncture and its applications, and consider using acupuncture as an adjunct to their patient care when appropriate, for example, to reduce postoperative nausea.[10]

We found spirituality and prayer a common topic of discussion between patients and neurosurgeons and that nearly half of neurosurgeons believe prayer may affect neurosurgical outcomes. In fact, over one third of responding neurosurgeons reported praying for their patients (Table 6). Spirituality, religion, and prayer can be topics avoided in medicine, especially by conventionally trained physicians who do not wish to offend their patients or are uncomfortable discussing this topic.[11] However, for millennia, religion and healing have been intertwined. Patients often pray for their own health and the health of others. An increasing number of studies have examined the role of intercessory prayer (IP) and healing. A handful of trials have found significant improvement in health when the patients receive IP.[12,13] However, a recent systematic review of IP has found inconclusive evidence regarding the relationship between IP and specific positive health outcomes.[14] While the exact mechanism of the role of prayer and healing may not be clear presently, it appears that spiritual well-being, reduction of psychologic stress, and connectedness to a community play

Table 4. Pray for Patient's Health

Question 5: What Percentage of Your Patients and/or Their Families have Disclosed to You that They Pray for the Patient's Health (Please Circle)?

Answer	*Responses* = n	*Percentages of responses (3 neurosurgeons did not respond)* n/21	n/24
0–25%	12	57.14%	50.00%
25–50%	7	33.33%	29.17%
50–75%	2	9.52%	8.33%
No response given	3	14.28%	12.50%

Table 5. Spirituality and Prayer in Neurosurgery Outcome

Question 6: Do You Think Spirituality and Prayer May Affect Neurosurgery Outcome?

		Percentages of responses (2 neurosurgeons did not respond)	
Answer	*Responses* = n	n/22	n/24
Yes	10	45.45%	41.67%
No	7	31.82%	29.17%
Don't know	5	22.73%	20.83%
No response given	2	N/A	8.33%

Table 7. CAM Treatments and Role in Neurosurgery

Question 8: Do You Think Complementary and Alternative Medical Treatments Have a Role in Neurosurgery?

		Percentages of responses (2 neurosurgeons did not respond)	
Answer	*Responses*	n/22	n/24
Yes	15	68.18%	62.50%
No	7	31.82%	29.17%
No responses given	2	9.09%	8.33%

CAM, complementary and alternative medicine.

an important role in the healing process. Neurosurgeons should ask about spirituality, as it may be a useful marker in predicting the patient and families' social support, overall well-being, and coping methods.[15]

Limitations

One of the challenges in investigating the frequency of CAM utilization is that the definition of CAM is broad, evolving, and subject to interpretation. Therapies such as vitamins, supplements, and prayer may not be considered CAM by physicians. Furthermore, as CAM modalities merge into traditional medical practice, the line between CAM and conventional therapies blurs even further. For this survey, the CAM modalities presented in the survey was kept to a short general list to reduce the time required to fill out the questionnaire. This condensed list aimed to capture most of the modalities considered to be CAM; however, many modalities were excluded and large categories were not further defined. Therefore, our assessment of CAM knowledge is limited by the categories of CAM presented in the survey and subject to interpretation by the respondents.

The response rate of 38% was not as high as desired and may not completely reflect the opinions of all neurosurgeons practicing within Washington State. Our small study sample may not be generalizable to the overall population of neurosurgeons. In addition, the survey was only sent to neurosurgeons within the state of Washington, and results may not be applicable to neurosurgeons practicing outside of this state. It is possible that the results could be influenced by selection bias, such that respondents who are more open or knowledgeable about CAM would be more likely to fill out the questionnaire. Nonresponders may not be interested in CAM and would be less likely to fill out the questionnaire. Therefore, results from the study may be artificially inflated, and actual opinions may reflect *less* knowledge regarding CAM, *less* CAM discussions with colleagues and patient, and *less* receptivity toward CAM in the field of neurosurgery.

Table 6. Pray for Your Patients

Question 7: Do You Pray for Your Patients?

		Percentages of responses (2 neurosurgeons did not respond)	
Answer	*Responses* = n	n/22	n/24
Yes	9	40.91%	37.50%
No	13	59.09%	54.17%
No response given	2	9.09%	8.33%

Commentary on communication gap

It is important to note that open discussion regarding CAM between providers and patients has not kept up with the increasing use of CAM. Oz and colleagues found that only 20% of patients discussed their CAM use with their heart surgeons.[6] Other studies reveal much of the same concerning trend, with 2 of 3 patients not discussing their CAM use with their providers.[16] The reasons for this lack of communication are manifold. Patients often assume that physicians will respond negatively to CAM use and thus, are hesitant to discuss the issue.[17,18] Patients also indicate that another reason for nondisclosure of CAM use is simply because their doctors have never asked about their use.[19] Due to this lack of communication, physicians significantly underestimate the use of CAM among their patients.[20] Furthermore, physicians are sometimes uncomfortable in discussing CAM due to lack of training, knowledge, and established protocol.[21]

In our neurosurgery practice over the past decade, we have been amazed at how CAM use has optimized outcome for patients and their families. Although CAM can have beneficial effects, serious adverse complications can occur if CAM use is not fully disclosed. Surgeons as well as other physicians must be aware that CAM therapies may interfere with conventional medical care.

Two (2) case vignettes underscore the need for CAM use disclosure. In one case, we operated on a premature infant who presented with a ventricular shunt malfunction; thus, we revised the ventricular shunt and placed a programmable shunt valve that is programmed by an external magnet. Postoperatively, we learned from the family that they were using magnetic therapy on the infant. If magnets had been placed near the shunt valve, then the pressure could be adjusted inadvertently and might have caused a serious complication. In another case, we operated on a child who had a brain tumor. This child was regularly ingesting flaxseed oil as a food supplement, and the patient developed a potentially life-threatening brain hemorrhage after removal of an external ventriculostomy drain. If we had known the patient

was on flaxseed oil, which has been shown to increase the risk of bleeding and decrease clotting of blood, we would have taken precautions. Furthermore, many herbal supplements may interact with other commonly administered drugs such as warfarin and digoxin.[6] Thus, to maximize a patient's recovery from a neurosurgical procedure, it is critical that neurosurgeons be aware of the benefits and adverse complications of CAM therapies.

Conclusions

This small-scale study is a first step toward investigating the current trends of CAM use in neurosurgery. The online survey tool, WebQ Catalyst, was simple, inexpensive, and convenient to use. Participants click on a link in their e-mail, and the results are automatically tabulated. For future studies, we hope to expand our WebQ survey to include neurosurgeons from other regions, as well as assess CAM use in patients and families.

In future studies, we hope to study specific CAM therapies as adjuncts to conventional neurosurgical care to optimize and improve clinical outcomes as well as enhance patients' quality of life. Our study suggests that some neurosurgeons believe the use of CAM plays a role in neurosurgical care. Specifically, we would like to explore the role of spirituality and prayer in neurosurgery.

The use of CAM may influence neurosurgical care, and the role of spirituality and prayer should be further explored. Because CAM use is virtually omnipresent, open discussion about CAM during patient visits and familiarity with nonconventional remedies will become increasingly important in the field of neurosurgery.

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