



Use of complementary and alternative medicine in pediatric otolaryngology patients attending a tertiary hospital in the UK[☆]

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Summary

Objective: Little data is available on complementary and alternative medicine (CAM) use in children attending otolaryngology services. We investigated the prevalence and pattern of CAM use among children attending the pediatric otolaryngology department in a tertiary pediatric teaching hospital in Scotland.

Design: A cross-sectional survey conducted by administering an anonymous questionnaire to the parents accompanying patients attending the pediatric otolaryngology department. Elective admissions and clinic attendees were included over a 3-month period in 2005/2006.

Setting: Academic tertiary care referral centre in North-East Scotland.

Patients: Five hundred and fifty-four consecutive patients aged less than 16 years were eligible. The response rate was 59% ($n = 327$).

Main outcome measures: Prevalence of CAM use in children. Secondary measures include types of CAM used, indications for use and communication with family physicians.

Results: Based on 327 responses, 93 patients (29%) had ever used CAM, 20% within the last year. Commonly used CAM preparations were cod-liver oil, echinacea, aloe vera, cranberry, primrose oil and herbal vitamin supplements. The popular non-herbal CAM included homeopathy, massage, aromatherapy, chiropractic, yoga and reiki. Nineteen percent used CAM for their admission illness. Sixty-one percent of parents thought that CAM was effective and 65% would recommend it to others. Fifty-one percent of parents stated that the family physician was unaware of CAM use by the child.

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Conclusions: Despite concerns regarding the efficacy, safety and cost effectiveness of complementary and alternative medicine, its use among the pediatric otolaryngology population is more common than many providers may realize. This has implications for all healthcare workers involved in their care.

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1. Introduction

Complementary and alternative medicine (CAM) usage has been steadily increasing over the past decade [1]. Although these therapies have been a mainstay of treatment within Eastern cultures for centuries, their popularity has risen within Europe and the United States recently because of belief in their beneficial effects, much of which is reported within the popular press and other media sources. This is at odds with a lack of scientifically validated research for many of these products and treatments. Conversely, concern exists that there may in fact be potentially harmful effects of CAM [2,3], such as interference with antibiotic function, retardation of wound healing or interaction with the coagulation cascade. These aspects are pertinent to surgical patients, particularly in light of the fact that, in the majority of surgical patients, CAM use is neither volunteered by the patient nor enquired about by the health care practitioner. Parents usually initiate CAM usage for their children, in the mistaken belief that any treatment that is 'natural' is beneficial, or at least unlikely to cause harm [4].

The incidence of CAM usage has been studied between both the general adult and pediatric surgical population. To date, few studies have focused exclusively on its use among pediatric otolaryngology patients. Complementary medicine has been defined as, 'diagnosis, treatment and or prevention which complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodoxy or diversifying the conceptual frameworks of medicine' [5]. Within this, there exists a broad spectrum of both conventional externally administered products, such as herbal remedies and other more global therapies. Pediatric otolaryngology disease may seem to parents at least, intuitively to respond to such therapies, particularly since many of these diseases may be in part related to the immature pediatric immune system.

Despite recent increased awareness and interest in CAM, there are large deficits in our knowledge of many areas of CAM use, such as prevalence of use and parent-child associations of use. Further knowledge in these areas is vital to prevent both primary adverse events with CAM and secondary events related to their adverse interaction with

conventional medicines or surgical procedures. This study was designed to estimate CAM use in a sample of children attending otolaryngology services.

1.1. Objective

This study aims to describe the local prevalence and pattern of use of CAM within attendees at a tertiary children's hospital in Scotland.

1.2. Setting

A cross-sectional study was undertaken of patients attending the Otolaryngology Department of the Royal Aberdeen Children's Hospital, Aberdeen, Scotland. This hospital is in an urban setting and provides secondary and tertiary level care to children both within the city of Aberdeen and a rural population of 500,000 encompassing the North-East of Scotland.

1.3. Design

The survey was conducted by administering an anonymous questionnaire, with an explanatory letter, to the parent or caregiver accompanying eligible patients. The term parent is used throughout this manuscript. Verbal informed consent was taken before distribution of the questionnaire, which was completed prior to the patient being seen by the otolaryngologist. Although parents completed the survey by hand themselves, clinic nurses and/or one of the investigators were always available to provide any explanation required. Parents whose knowledge of the English language was insufficient to complete the survey were excluded. The survey was anonymous, although hospital identification data was collected to ensure that only one questionnaire was completed for each child.

1.4. Main outcome measures

Details of CAM use collected included the specific therapies used, parents' perceptions as to the effectiveness of CAM, and whether they would recommend its use to others. CAM usage was enquired about throughout both the lifetime of the child and within the preceding 12 months. Specific enquiry was also made into whether their family physician was aware of CAM use in the child and whether the

Table 1 Sample characteristics by use of CAM

	Ever used CAM (<i>n</i> = 93, 29%)	Never used CAM (<i>n</i> = 234, 71%)	Total (<i>n</i> = 327)	<i>P</i> value
Gender of child				
Female	49 (34)	96 (66)	145	0.05
Male	44 (24)	138 (76)	182	
Age of child (years)				
≤5	28 (26)	80 (74)	108	0.69
6–10	40 (28)	101 (72)	141	
11–16	25 (32)	53 (68)	78	

CAM was being used to treat the disease for which they were attending the otolaryngology department. The survey employed both multiple choice and free-field text questions. Multiple choice questions were used for 49 CAM products or therapies, with space for parents to detail any other types of CAM. Basic demographic data was also collected for the parent and child, as was educational attainment of the parent.

Data entry was performed using a Microsoft Excel database and all data were analyzed using SPSS for Windows version 14. χ^2 -tests were used to determine statistically significant differences between groups, with a *P* value less than 0.05 considered statistically significant. Data on CAM were categorized as herbal or non-herbal; frequency of CAM use was categorized as less than or greater than three products.

1.5. Patients

Consecutive children attending general pediatric outpatient clinics and all elective admissions for otolaryngology procedures to the surgical ward over a 3-month period from October 2005 to January 2006 were eligible for inclusion. Children up to 16 years of age were eligible for participation on their primary visit to the department during the study period. Children undergoing treatment for malignant disease were excluded. All emergency referrals

and admissions were also excluded, to ensure that the majority of patients surveyed were being treated for a chronic otolaryngology disease.

2. Results

Over the 3-month study period 554 consecutive patients were invited to participate, of whom 327 completed the questionnaire (59% response rate). Reasons for non-compliance rate included insufficient time in the clinic setting and poor distribution of questionnaires in the ward setting. Based on 327 responses, 182 (56%) were male and 145 (44%) were female. Data were not collected regarding the ethnicity of patients. The majority of children surveyed were under 10 years of age (*n* = 249, 76%). Of these, 49 of 182 girls (34%) and 44 of 145 boys (24%) had used CAM. In total, 93 patients (29%) had used CAM, 18 (20%) within the preceding year (Table 1). Girls were significantly more likely to have used CAM than boys (34% versus 24%, *P* = 0.05). The educational status of the parent had an impact on the children's use of CAM, with the offspring of parents who had completed high school or college education being more likely to have used CAM (*P* = 0.02; Table 2). However, there was no association found between the children's use of CAM and the marital status of their parents (*P* = 0.61; Table 2).

Table 2 Main parent status

	Ever used CAM <i>n</i> (%)	Never used CAM <i>n</i> (%)	Total (<i>n</i> = 327)	<i>P</i> value
Marital status				
Single	11 (24)	35 (76)	46	0.61
Married/co-habiting	74 (29)	174 (70)	248	
Divorced/sep/widowed	8 (26)	23 (74)	31	
Missing			2	
Parent education				
College	37 (37)	62 (63)	99	0.02
High school	50 (26)	141 (74)	191	
None	5 (15)	29 (85)	34	
Missing			3	

Table 3 Use of herbal products

Herbal products	<i>n</i>	Reason ^a
Cod-liver oil	32	General health, concentration/brain, joints
Echinacea	26	Colds, immunity, general health
Aloe vera	24	Skin, eczema, cold
Cranberry	14	UTI, general health
Herbal/vitamin supp.	10	Colds, general health
Primrose oil	9	Eczema, skin, PMT
Bach flower remedy	6	Relaxation, bruises, sleep
Garlic	4	Colds, general health, warts
Senna	4	Constipation
Ginseng	2	Energy
Chinese medicine	2	Colds
Melatonin	2	Insomnia
Soy	2	Brain, general health
St. John's wort	1	General health
Nutritional medicine	1	Not reported
Comfrey	1	Not reported
Total	140	

^a Three most commonly cited reasons for use.

Frequency and reason for use of herbal and non-herbal CAMs are shown in Tables 3 and 4. The most common herbal products used were cod-liver oil, echinacea and aloe vera. Homeopathy, massage and aromatherapy were the most popular non-herbal therapies.

Enquiry was made as to the reasons for use of CAM: 17 (18%) of children were using CAM for the condition they had attended hospital for and 75 (81%) used CAM for other reasons. Parents were questioned whether they had advised their child's primary care physician about their use of CAM: half ($n = 46$; 50%) had advised the primary care physician and half had not ($n = 47$; 50%). A total of 57 (61%) parents felt that the CAM was effective; five

(5%) felt it was not effective and the remainder ($n = 31$, 33%) were unsure. Of those parents whose children had ever used CAM, 67% would recommend its use to others. Sub-group analysis was carried out on those children who were high users of CAM (three or more therapies). An association was observed between levels of parental education, with parents educated to college level more likely to treat their children with four or more types of CAM (Table 5).

Parents reported accessing information about CAM from multiple sources. Friends and family was the most frequently reported source of information about CAM products (68%), but also health care professionals (36%), the media (26%), books

Table 4 Use of non-herbal therapies

Therapies	<i>n</i>	Reason ^a
Homeopathy	24	Colds, skin, ear
Massage	13	Backache, general health, crying
Aromatherapy	12	Calming/stress, sleep, colds
Chiropractor	9	Backache, colic, ear infection
Yoga	6	General health, balance, stress
Reiki	5	Blocked ear, nose, colic
Counseling stress therapy	3	Depression, stress
Spiritual healing	3	Postoperative bleeding, skin, stress
Meditation	2	Insomnia, stress
Reflexology	1	Not reported
Kinesiology	1	Hypermobility syndrome
Ayurvedic medicine	1	Asthma
Anthroposophical medicine	1	ENT infection
Naturopathy	1	Brain
Total	82	

^a Most commonly cited reason for use.

Table 5 Characteristics of high users of CAM

	≤3 CAM therapies used n (%) (n = 73)	≥4 CAM therapies used n (%) (n = 18)	P value
Sex of child			
Female	39 (80)	10 (20)	0.87
Male	34 (81)	8 (19)	
Age of child			
≤10 years	53 (80)	13 (20)	0.97
11+ years	20 (80)	5 (20)	
Parent education			
College	26 (70)	11 (30)	0.05
Other	46 (87)	7 (13)	

(22%) and Internet sites (12%) were accessed for information (multiple responses were permitted).

3. Conclusions

Our results indicate that complementary and alternative medicine therapies are relatively and widely used within the pediatric otolaryngology population. In this study, 29% of pediatric otolaryngology patients had ever used CAM; it is therefore incumbent upon all surgeons involved in the care of these children to familiarize themselves with the potential adverse effects and drug interactions these therapies may induce. In the current study, 93 patients used 16 different types of herbal preparations. Many of the more commonly used herbal supplements are known to have serious adverse effects; echinacea is used to treat common infections such as upper respiratory tract infections, however, its use beyond 8 weeks is associated with hepatotoxicity [6]. Other herbal preparations, such as garlic, ginseng, ginkgo and St. John's wort (*Hypericum perforatum*) are known to interact with synthetic drugs [7], with potential risks such as anticoagulation. Moreover, the safety and efficacy of the use of these products in young children is less well known. This ordinarily may be of little concern, however, it has serious implications in the perioperative period when children may be exposed to a variety of complex pharmacological agents. There is concern also regarding the effects that many CAM products have on both coagulation and wound healing, again, particularly salient to children undergoing otolaryngology procedures. Unsurprisingly, cod-liver oil was the most widely used CAM; this is a product that has been widely promoted in the British media for its health benefits and there is some historical basis to this as it was given to children in the UK after the WWII to prevent rickets which was endemic at the time. Although we could find no reports regarding harmful effects of cod-

liver oil, similarly, there is no compelling scientific evidence for its benefit.

The level of CAM use in the current study is higher than that reported in previous studies of adult surgical populations [1,8] although similar to a report within a pediatric population [9]. Unfortunately, this survey had a relatively high non-response rate of 41%. The reasons for low compliance rate included insufficient time in the clinic setting to complete the questionnaire and poor distribution of questionnaires in the ward. However, there are no compelling reasons to suspect that failure to return the questionnaire was related to families' attitudes to, or use of, CAM. Because of the self-administered design of the questionnaires, there were some questions incompletely answered; potential causes for this being a positive choice to not answer the question or disinterest. There are limitations with the use of a self-administered questionnaire. A structured, interview-led questionnaire may have improved participant understanding and thus gathered more information, particularly for exploring reasons of use; unfortunately, this technique was not available to us within the confines of the current study. While the demographic characteristics of the children studied are similar to that of other pediatric otolaryngology populations within the UK, the high rate of CAM use may reflect the relative affluence of the local population, and therefore the results may not be generalisable to other geographic areas. Since data were not collected regarding ethnicity of patients, it may be argued that the current ethnic spectrum within our study population does not reflect that of the UK as a whole. Potentially, the use of CAM may vary within different ethnic groups, perhaps with a trend towards increase use in patients of Asian origin.

At present, there is no requirement for products labeled as herbal remedies to undergo formal assessment of their efficacy and safety [10]. This has raised concerns regarding the appropriate labeling and surveillance of such products. In particular,

there is no legislation governing their dosages, toxicity or possible side effects. Although a Federal commission reported in 1997 on dietary supplement labels [11], much of the information available to patients, both in the United States and Europe, remains nebulous. The introduction of the National Centre for Complementary and Alternative Medicine (NCCAM) may go some way to addressing this. Despite little scientifically validated data on the efficacy of CAM, in the current study, two-thirds of parents felt it was effective for their children and would recommend the use of CAM to friends or relatives. The deeply entrenched patient belief in these products may seem highly surprising to ourselves as surgeons, who are constantly striving for sound scientific basis to our practice. Surgeons also need to be cogniscent of the fact that a significant proportion of patients (half in the current study) do not make their primary care physicians aware of the fact that they are using CAM. Potential reasons for this include fear of ridicule and naivety of the potential drug interactions of CAM. It is therefore important that health workers involved in the care of children make specific enquiry about the use of CAM, preferably prior to admission to hospital, in order that CAM products can be stopped timeously to lessen the risk of drug interaction in the perioperative period.

We advocate that all pediatric otolaryngologists to familiarize themselves with commonly used herbal and non-herbal CAM, in order to appreciate the potential for associated risks to their patients'

perioperatively, and counsel their patients appropriately.

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