Health professionals rarely record history of complementary and alternative medicines

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Aims

To identify the completeness of documentation of Complementary And Alternative Medicine (CAM) use in hospital medical records of patients before and after an education programme.

Methods

Documentation of CAM in all parts of the medical records was compared to patients' self-reported use. Data were collected for one month before and one month after an education programme for hospital staff.

Results

At baseline: 59 (58%) of 101 patients used 129 CAM in the month prior to admission; only 36 (28%) of the CAM were documented in the medical record. After education: 51 (54%) of 94 patients used 91 CAM in the month prior to admission; 40 (44%) of the CAM were documented in the medical record. After education, recording rates increased by 16% (95% CI: 3% to 29%) due to improvements by pharmacists (18%, 95% CI: 5% to 31%). 32 (54%) of CAM users at baseline and 29 (57%) of CAM users after education informed a health professional. The recording rates were only 23 (39%) and 28 (55%) respectively for patients in these two subgroups, being an improvement of 16% (95% CI: -2% to 34%).

Conclusions

Prevalence of CAM use among patients admitted to hospital is high, but documentation of usage is low. Strategies need to be designed to improve health professionals' knowledge about the need to record history of CAM use.

Introduction

Complementary and alternative medicines (CAM) are widely used in Australia [1] (usually referred to as complementary medicines (CM) in Australia [2]) the USA [3] and UK [4]. A previous study in our hospital revealed that up to 52% of patients had used at least one CAM in the previous 12 months but fewer than 50% of them had informed their doctor [5]. CAM may include vitamins and minerals which can be prescribed for deficiency syndromes but, when used as self treatment, are often for nonspecific indications. Many herbal medicines may have serious adverse effects and can also

interact with other medications such as anticoagulants, immunosuppressants and antidepressants [6]. The best described of these is St John's wort, which has been shown to interact with a number of prescription medicines [7–9]. It is particularly important for CAM use to be a routine part of a medication history but even for conventional therapies doctors rarely take full histories [10]. Recent publications suggest that doctors do not consistently record CAM in patient charts [11]. A study in patients with prostate cancer found a high usage of CAM which had not been identified by conventional medication history taking [12].

We aimed to identify the completeness of documentation of CAM use in the medical records of patients in our hospital. To establish actual usage of CAM we interviewed patients and compared their self-report with the information on CAM recorded in all relevant sections of the hospital medical records. We also wished to evaluate whether a targeted education programme would alter recording rates.

Methods

The study was conducted at Royal North Shore Hospital, a teaching hospital of Sydney University and approved by the Hospital Human Research Ethics Committee. All patients who participated in the study provided written informed consent. The study was in three stages each lasting one month: baseline data collection, education programme, and post-education data collection.

During baseline and after education, all English-speaking patients admitted to one surgical and one medical ward were interviewed regarding CAM use using a semi-structured questionnaire. All interviews were conducted by NC. CAMs were classified as any products containing herbal medicines, vitamin and mineral supplements, other nutritional supplements, traditional medicines such as Ayurvedic medicines and traditional Chinese medicines (TCM), homeopathic medicines and aromatherapy oils [1]. For recording purposes these were categorized (Myers S, personal communication) as:

- 1 Nutritional supplements
- 2 Botanical supplements (including Western herbal medicine, traditional Chinese medicine, Ayurvedic medicine, essential oils)
- 3 Homoeopathic medicines
- 4 Miscellaneous

Data were obtained on type of CAM used, when last used, frequency of use and concurrent use with conventional medications. Patients were also asked whether they had been questioned about CAM use on admission. Patient-reported CAM use was compared with medication histories recorded in each relevant section of their integrated medical record (MR). Use was defined within set time periods as follows: in the previous 12 months; in the month prior to admission; in the fortnight prior to admission; in the week prior to admission; and in the 2–3 days prior to admission. The recording of CAM by different health professional subgroups in the MR was assessed in two ways: the number of different CAM recorded in at least one place; and the number of individual patients in whom at least one CAM was recorded.

Patients' self-reports of CAM were verified through home-visits or telephone interviews conducted with one in 10 patients recruited during each stage of data collection.

The education programme targeted medical, nursing and pharmacy staff within the hospital, emphasized the importance of recording a CAM history in all areas of the MR and encouraged them to do this for all patients. The programme was multilayered, and incorporated a series of talks and presentations, in addition to the distribution of written materials. General presentations, open to all medical, pharmacy and nursing staff, were held on 14 of the hospital's 20 wards (including the two study wards). In addition, focused sessions targeted medical and pharmacy staff. In total, there were 23 presentations. A lunchtime information stall was also held on a weekly basis (×4) in the staff cafeteria. Additional written information included: pamphlets that were distributed to all wards, medical staff lounges, and the pharmacy department; posters that were displayed on staff noticeboards throughout the hospital; a memorandum from the hospital CEO detailing the hospital's CAM policy; internal e-mail notices sent to all medical officers and nursing managers; and articles in internal publications such as the pharmacy newsletter.

Records were not kept of attendance at the education sessions but all available nursing staff came to the general presentations on each ward, all pharmacy staff not on leave came to one of the focused sessions. Medical staff were poor attendees at all sessions.

Statistical analysis of collected data was made using the Statistical Package for Social Studies [13]. Discrete variables were analysed using the χ^2 test. Continuous data were analysed using nonparametric tests (Mann–Whitney *U*-test). In order to assess the impact of the education programme, the χ^2 test for independent proportions was used to compare the recording of CAM use between baseline and post-education data collection. $P < 0.05$ was considered statistically significant.

Results

At baseline, 101 patients were interviewed. The mean age of the baseline sample was 48 years (range 19–79 years) and 65% were female. After education, 94 patients were interviewed. The mean age of this sample was 49 years (range 19–87 years) and 68% were female. As there were no differences among patient characteristics between the baseline and the post-education groups the data were combined for the purposes of analysis. In the 12 months prior to admission, 137 (70.3%) had used at least one CAM. Table 1 lists the total num-

ber of CAM used in this period by category. CAM usage by each patient ranged from 1 to 19 (median 3). Nutritional supplements were the most frequently used CAM (281, 69.7%) of which the majority (208, 74.0%) were micronutrients such as vitamins and minerals. In total there were 106 (26.3%) botanical supplements used, of which 83 (78.3%) were Western herbal medicines, 15 (14.2%) were essential oils and 8 (7.5%) were traditional Chinese medicines. Overall, the majority (64%) of CAM were being taken on at least a daily basis. In total, 85 (62%) patients reported they were using CAM in conjunction with conventional medicines, often for the same condition.

In total, over the two time periods, 110 (56.4%) patients reported that they had used at least one CAM in the month prior to admission. Of these, 48 (44%) reported taking CAM in the 2–3 days immediately prior to their hospital admission, and eight were using them during their admission, which was unknown to staff and contrary to hospital policy. Detailed analysis for the

recording of CAM used in the *month* prior to admission, between baseline and post-education are provided below.

Table 2 provides the comparison between the number of different CAM used and recorded in each study period. Many patients used more than one product. Overall, CAM recording by at least one health professional increased by 16% (95% CI: 3% to 29%; $\chi^2_1 = 6.08$, $P = 0.014$). This was almost entirely due to better history taking by pharmacists who improved their recording by 18% (95% CI: 5% to 31%; $\chi^2_1 = 7.233$, $P = 0.007$).

Recording of CAM by medical staff also significantly increased by 10% (95% CI: 0.5% to 20%) following the education programme ($\chi^2_1 = 4.101$, $P = 0.043$). Small improvements in recording CAM were also observed amongst nursing staff, increasing 5% (95% CI: –0.8% to 11%) following the education programme ($\chi^2_1 = 3.873$, $P = 0.049$).

Table 3 provides the comparison between the patients' self-report of CAM use and the percentage of patients for whom *at least one* product was recorded. At baseline pharmacists took more complete histories from their patients in comparison to medical and nursing staff, recording at least one CAM for 32% of users. This increased to 49% after education, but was not statistically significant ($\chi^2_1 = 3.223$, $P = 0.073$). Small, nonsignificant improvements in recording CAM amongst medical (7%) and nursing (3%) staff were also observed ($\chi^2_1 = 0.767$, $P = 0.381$; $\chi^2_1 = 0.392$, $P = 0.531$). Overall, recording of at least one CAM by at least one health professional increased from 39% at baseline to 55% after education, this was not statistically significant ($\chi^2_1 = 2.788$, $P = 0.095$).

At baseline 32 [54%] of patients using CAM in the month prior to admission reported that they disclosed

Table 1

Total number of CAM used by patients in previous 12 months (combined data from each survey)

Type of CAM	Number used	Proportion of total (%)
Nutritional supplements	281	69.7
Botanical supplements	106	26.3
Homeopathic medicines	8	2.0
Miscellaneous	8	2.0
Total	403	100.0

Table 2

Comparison of the total number of different CAM taken by the 'users' in the month prior to admission and the total number recorded in the MR

Number of CAM recorded in at least one section of the MR* by:	Baseline (n = 129)	Post-education (n = 91)	% Improvement (95% CI)	P-value
Medical staff (n, %)	12 (9%)	17 (19%)	10% (95% CI: 0.5% to 20%)	0.043
Pharmacy staff (n, %)	33 (26%)	39 (44%)	18% (95% CI: 5% to 31%)	0.007
Nursing staff (n, %)	2 (2%)	6 (7%)	5% (95% CI: –0.8% to 11%)	0.049
Any health professional (n, %)	36 (28%)	40 (44%)	16% (95% CI: 3% to 29%)	0.014

*There were seven possible sections in MR to record CAM history.

Table 3

Comparison of patient's self-report of any CAM use in the month prior to admission with recording of at least one CAM in the MR by any Health Professional

Type of 'user' to record at least one CAM	Baseline (<i>n</i> = 101)	Post-education (<i>n</i> = 94)	% Improvement (95% CI)
Patient self-report (<i>n</i> , %)	59 (58%)	51 (54%)	–
Medical staff (<i>n</i> %)*	12 (20%)	14 (27%)	7% (95% CI: –9% to 23%)
Pharmacy staff (<i>n</i> %)*	19 (32%)	25 (49%)	17% (95% CI: –1% to 35%)
Nursing staff (<i>n</i> %)*	2 (3%)	3 (6%)	3% (95% CI: –5% to 11%)
Health professional (<i>n</i> Any %)	23 (39%)	28 (55%)	16% (95% CI: –2% to 34%)

*There were seven possible sections in MR to record CAM history.

their CAM use (either spontaneously or when specifically questioned about CAM) to staff. However the overall recording rate was only 23 [39%] in this subgroup. At after education 29 [57%] of the 51 users disclosed their CAM use and the overall recording rate was 55% in this subgroup (Table 3).

Discussion

The improvements seen after the education programme were due largely to improved recording rates by pharmacy staff. Overall the recording of CAM history in the MR was poor, with fewer than 45% of all CAM documented. Where use was documented, it often lacked full information, e.g. 'vitamins' rather than the product name. Documentation of both the product name and dose was only found twice in the 110 MRs.

This overall recording rate was worse than has been previously described [14] and considerably worse than reported for recording past adverse drug reactions [15]. The current study excluded non-English speaking patients, and these results may be an underestimate of CAM usage in the total community as some studies have shown CAM use varies by ethnicity [16]. Approximately 18% of the population within the hospital's catchment area were born in a non-English speaking country [17].

It is important to note that at baseline, even when patients disclosed their recent CAM use to at least one health professional upon their admission, this was not recorded in the MR in up to 15% of cases. While this discrepancy reduced after education, there were still some cases where CAM use was not recorded anywhere in the MR.

We did not investigate the occurrence of adverse drug reactions attributable to CAM in patients in this study but one of the reasons it is important to know about the

use of CAM is because some symptoms might be due to adverse effects and serious interactions between CAM and conventional medicines. These problems have been documented in the literature; amongst the most significant is St John's wort, which can induce both intestinal and hepatic cytochrome p450 3A4 [7, 8] and intestinal P-glycoprotein [9]. This can result in clinically significant reductions in serum concentrations of warfarin, oral contraceptives, ciclosporin, digoxin and protease inhibitors [6]. In our study, two patients reported using St John's wort in the 2–3 days prior to their admission but this was not recorded in the MR. They had not started any potentially interacting medications in this period. Other studies have identified high, unsupervised usage of St John's wort often resulting in significant adverse effects [18].

CAM use may also have implications for surgery, resulting in peri-operative anaesthetic or surgical problems. Reports have documented significant changes in heart rate and blood pressure during anaesthesia in patients taking ginseng [19]. Other examples include excessive bleeding associated with *Ginkgo biloba* [6] and immunosuppression associated with long-term use of Echinacea, which may result in poor wound healing and infection [19] in spite of its putative immunostimulant properties [20].

A limitation of the current study was related to the challenge of providing education to over-worked health professionals in the public hospital system. While the education programme reached a large proportion of nursing and pharmacy staff within the hospital, few medical staff attended the sessions. In addition, while we did observe some improvements in recording of CAM following the education programme, our results are unlikely to be sustained over the long term, given the short, intensive nature of the programme. It is also

of importance to note that while behaviour change is possible, it generally requires comprehensive approaches at different levels. These approaches may not be applicable to all situations [21].

With the increasing use of CAM, there is a need for all health professionals to ask about and document CAM use when taking a medication history. We found that the omission of CAMs from medication histories is common and the problem was only partially solved by an intensive, short-term education programme. With rapidly increasing and widespread purchase of CAM it will be necessary to devise new strategies for health professional undergraduate and postgraduate training.

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