

# Complementary and alternative medicine in patients with chronic lymphocytic leukemia

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## Abstract

**Background** Despite the widespread use of complementary and alternative medicine (CAM) in the general population for the treatment of chronic diseases, only few data have been published for patients with leukemia. The aim of this survey was to study systematically the use of CAM in patients with chronic lymphocytic leukemia (CLL).

**Patients and methods** A structured questionnaire was sent to 247 CLL patients of all clinical stages and disease durations, treated and untreated. The questionnaire was returned anonymously by 87 patients (35%).

**Results** Thirty-nine patients (44%) had used alternative treatments. No correlation was seen with educational level, gender, or previous or current chemotherapy. The most common alternative or complementary treatment modality was vitamin supplementation (26%), followed by mineral (18%), homeopathic (14%), and mistletoe therapy (9.2%). Some 21% of patients considered their alternative treatment as being successful. Most patients reported that they decided to use CAM after conducting a personal investigation and based on the information they found, without outside recommendations (59%). The majority of the patients used patient brochures about CLL as an important source of information (54%), followed by specific lectures (34%) or the internet (32%).

**Conclusion** Our data show that patients with CLL use a wide range of CAM, among them potentially harmful methods. Rational, evidence-based medical information about the effects and risks of CAM use should be made available through patient brochures distributed by patient organizations, through information events with lectures, or via the internet.

**Keywords** Chronic lymphocytic leukemia · CLL · Alternative medicine · Complementary

## Introduction

Chronic lymphocytic leukemia (CLL) is an indolent lymphoproliferative disease with a median survival of about 10 years. Those patients with good prognostic factors have a normal life expectancy [10, 31]. Most patients will require treatment with chemotherapy and/or monoclonal antibodies sooner or later because of disease progression.

Despite the widespread use of CAM in the general population [3, 12] for the treatment of chronic diseases [2, 15, 26, 28], only few data have been published for patients with leukemia [20, 35, 38, 39]. It might be speculated that patients either supplement conventional medical treatment with an unconventional therapy (complementary therapy) or replace the prescribed medication by an alternative therapy. It is obviously important for the treating physician to have an overview of any additional therapies his/her patients are using and what information deficits they might have. Information on concomitant use of CAM is essential as some of these treatments are associated with side effects and might interact with conventional chemotherapy [29, 30]. Several authors have reported potential risks and side effects, for example, caused by phytotherapy, herbal medicine [14], and dietary supplements [5]. A stimulating

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effect of mistletoe extracts on leukemic cells from patients with CLL has been discussed [38].

More than 80 million Americans have been estimated to have used alternative therapies for malignant and nonmalignant disorders. In 1997, total expenditures were calculated to be 32.7 billion dollars [12]. Gertz and Bauer reported that there were 425 million visits for alternative therapy, compared with only 388 million visits to primary care providers [17]. There is a broad range of reasons why people seek alternative therapies for cancer. Many turn to alternative therapy when options for conventional therapy have been exhausted. It is also known that, for some tumor systems, conventional therapy is of limited effectiveness and that the patients are scared by side effects of chemotherapy, surgery, and radiation. Many patients perceive that a conventional approach is emotionally or spiritually empty and provides neither comfort nor solace [17]. Many alternative therapies have invented a simple etiology to explain that all cancers are linked to a common cause, usually toxin-based [37].

The purpose of this study was to determine the frequency and characteristics of complementary and alternative medicine (CAM) use among patients with CLL treated in our institution, their attitudes toward the etiology of the disease and the source of information from which they retrieve their information.

## Materials and methods

A structured questionnaire was sent out to 247 CLL patients of all clinical stages and disease durations, treated and untreated (Table 1). The questionnaire consisted of seven multiple choice questions with free text sections. The patient characteristics were determined by questions

concerning duration of disease, previous treatment, educational level, and profession. Patients could choose between seven items regarding the etiology of the disease (smoking, alcohol, pollution of the environment, pollution at working place, radioactivity, stress, familial predisposition, professional overload, nutrition, and others) (Table 2) and eight items regarding CAMs (vitamins, minerals, homeopathy, acupuncture, cell therapy, mistletoe, enzymes, and other treatments). Three multiple choice questions referred to their opinion about the effect of their CAM use, the reason why they decided to use CAM and the preferred sources to get background information about their disease.

The patient population included all CLL patients that presented at the Department of Medicine V, University of Heidelberg between 1 January 2001 and 6 November 2003. Patients were contacted by a letter describing the study along with the questionnaires. This letter was accompanied by an invitation to a CLL information event at our institution. The Joint Ethical Committee of the University of Heidelberg approved the questionnaire and survey procedures.

## Statistical analysis

Descriptive statistics (frequencies, medians, and means) were applied to present the clinical and sociodemographic data. Differences between groups were tested with Fisher's exact test (nominal categorical variables), *t* test for independent and paired samples (scale and item scores), and Kruskal–Wallis analyses of variance where appropriate. The level of significance between groups was set at a *P* value of 0.05 or less. All tests were performed using SPSS software (release 14.0; SPSS, Chicago, IL, USA).

## Results

The questionnaire was returned anonymously by 87 patients (35%); 40.2% of those had been previously treated,

**Table 1** Demographic characteristics of the study population

Variable	Whole study population ( <i>n</i> =247)	Patients returning questionnaire ( <i>n</i> =87)
	Frequency (%)	Frequency (%)
Age at time of study (years)		
Mean	64	61.9
Standard Deviation	10	8.0
Sex		
Male	157 (63.5)	50 (57.5)
Female	90 (36.4)	37 (42.5)
Diagnosis		
CLL	247 (100%)	87 (100%)
Duration of disease (months)		
Mean	61	n.a.
SD	47	n.a.
Pretreated patients	44 (17.8)	35 (40.2)

n.a. not available

**Table 2** Patient opinions about disease etiology

Variable	Frequency	% <sup>a</sup>
Stress	41	47.1
Pollution of the environment	29	33.3
Radioactivity	25	28.7
Pollution at working place	24	27.6
Familiar disposure	24	27.6
Professional overload	21	24.1
Smoking	8	9.2
Nutrition	5	5.7
Alcohol	3	3.4
Other	11	12.6

<sup>a</sup> More than one answer was allowed

and ten patients (11.5%) were under therapy at the time of the survey. The mean age of the patients was 61.9 years (SD, 8 years). The questionnaire was completed at a median of 61 months after diagnosis of CLL (SD, 47 months).

As for the level of education, 27 of the respondents (31%) had acquired a university degree, 22 patients (25.2%) had received a higher educational level as defined by passing the “Abitur”, which is equivalent to matriculation examination.

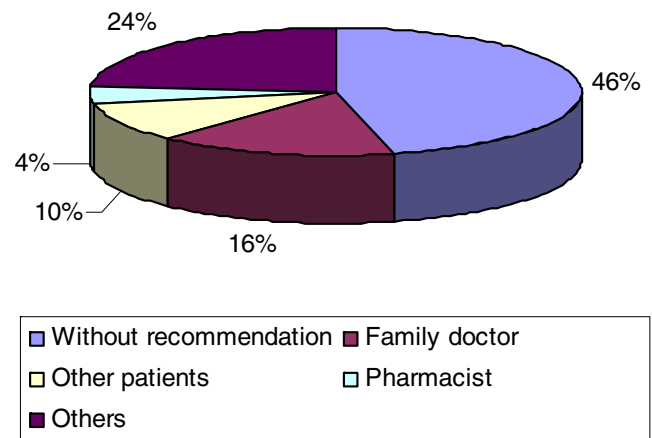
Of 87 patients, 39 (44%) used complementary and alternative treatments, especially patients older than 59 years (51.6% compared to 29.6% of patients younger than 60 years,  $p=0.05$ ). No correlation was seen with educational level, gender, or previous or current chemotherapy. The most common alternative or complementary treatment modalities were vitamin supplementation (26%), mineral (18%), homeopathic (14%), and mistletoe therapy (9.2%) (Table 3). Only eight out of 39 patients (21%) considered their alternative treatment as having been successful. Most patients reported that they decided to use CAM after conducting a personal investigation and based on the information they found, without outside recommendations (59%). Of these patients, 20.5% used CAM upon the advice of their family doctor (Fig. 1).

Nearly half of the patients (47%) speculated that stress (e.g., emotional, professional, etc.) could be the reason they developed the disease, mainly patients with a lower level of education (Fisher’s exact test:  $p=0.04$ ). One third (33%), especially younger patients ( $p=0.01$ ), believed that environmental factors (e.g., pollution, radioactivity) could have an influence (Table 2). As compared to younger patients, older individuals more often believed that familial predisposition could be the cause (35% of patients  $\geq 60$  years vs 11%  $< 60$  years;  $p=0.02$ ).

We asked patients whether they used specific sources to get background information about their disease. The majority of patients used flyers, patient brochures, or booklets about CLL as an important source of information (54%), followed by patient education sessions (34%), and the internet (32%) (Fig. 2). There was no correlation between these sources of information and age, gender, or educational level except for a predominance of younger patients who attended lectures ( $p=0.03$ ). 55% of the patients declared an interest in

**Table 3** Most common alternative or complementary treatment modalities

Variable	N	%
Vitamins	23	26.4
Minerals	16	18.4
Homeopathy	12	13.8
Acupuncture	6	6.9
Cell therapy	3	3.4
Mistel	8	9.2
Enzymes	7	8.0

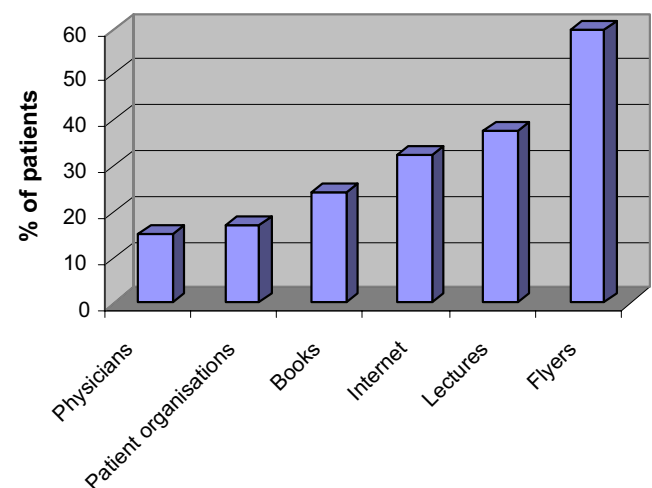


**Fig. 1** Who gave the recommendation for CAM use (% of patients)?

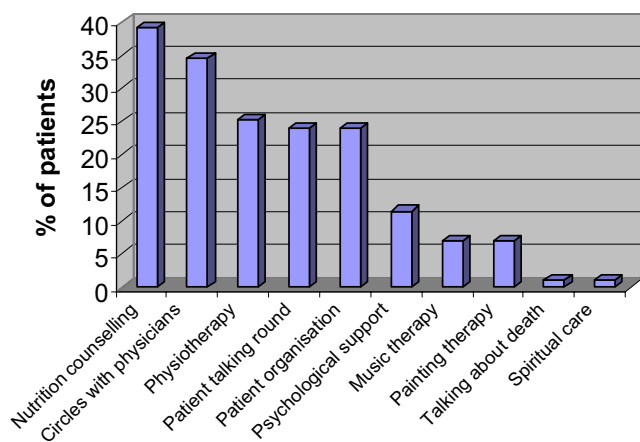
nutrition counseling, supportive care activities such as physiotherapy, patient groups, psychological support, etc. Spiritual counseling or discussion groups about dying and death were required only by few patients (Fig. 3). Some 31% of patients of all age and educational groups were interested in participating actively in patient organizations or groups. The interest in psychological support was greater in younger patients ( $p=0.04$ ).

## Discussion

The aim of this study was to examine the frequency and characteristics of complementary and alternative medicine (CAM) use among patients with CLL treated in our institution, to assess their perception of the disease and how they acquire this knowledge. These data on behavioral pattern might serve as a basis for improvement in providing appropriate patient information in clinical practice. Our findings are in keeping with reports from various countries,



**Fig. 2** Preferred source of information about CLL and CAM



**Fig. 3** Fields of interest of CLL patients

including the United States as well as European countries [6, 9, 12, 13, 15, 18, 19, 22, 27, 34, 36].

In the UK, the prevalence of CAM use was estimated to be 25% of cancer patients, in Germany and France 50% [16], and in Norway [34] and Australia 41% [24, 25]. Among residents of the United States, the prevalence was estimated to be 34–69% [3, 12, 21]. All these publications have focused on patients with all kinds of cancer, mostly solid tumors. The only data concerning the prevalence of CAM in leukemia patients were published by Gupta in 2002. In a North Indian tertiary care hospital, 56% of leukemia patients used CAM, mostly Aryveda (33%) [19]. Our trial is the first one ever to report on the use of CAM in patients with lymphoma, especially with chronic lymphatic leukemia.

The most common and popular CAM modalities in our study population were vitamins and minerals, followed by homeopathic and mistletoe treatments. Most of the published trials have shown that vitamins represent one of the most common CAM modalities [33, 36]. Especially in the German-speaking populations, vitamins, herbs, and homeopathy are the most common CAMs [18, 36], whereas in North America spiritual approaches are very popular [23, 32]. Mistletoe preparations have been frequently used among German cancer patients for many years already [18], whereas they are not very frequently used in the United States [7]. A cross-sectional study in three oncology centers in Israel has revealed that the most popular CAM modality was homeopathy, followed by relaxation therapy, healing, and megavitamins [27].

In our population of CLL patients, patients older than 60 years more often used CAM ( $p=0,056$ ), and no correlation was seen with educational level, gender, or previous or current chemotherapy. Most of the previous studies found that CAM users are more likely to be female, younger, and educated [8, 11, 13, 27, 33]. Other studies were not able to demonstrate a correlation between CAM use and education in cancer patients, which is in line with our data [21, 36].

Most of our patients reported that they decided to use CAM after conducting a personal investigation and based on the information they found, without outside recommendations. Only 20% of our CLL patients used CAM upon the advice of their family doctor, which is in contrast to previous reports that up to 56% of patients with solid tumors were encouraged to use CAM by their family physicians [18, 23]. The majority of CLL patients in our study considered patient brochures or booklets about CLL as an important source of information, followed by patient education sessions and the internet.

Our findings also illustrate the enormous information deficit of leukemia patients concerning the etiology of their disease, which included factors such as stress, environmental factors, and family history. In the most comprehensive survey conducted by Lerner et al. in 1992, 25% of these cancer patients received their information through media such as the newspaper, magazines, and television [18, 23]. In recent years, it has been speculated that more and more patients are using the internet as their preferred source of information. Our survey is, to our knowledge, the first that has collected data on leukemia patients' use of the internet for this purpose.

There is considerable concern about the use of CAM in cancer patients. Patients might decline potentially curative conventional therapies in favor of unproven methods [8]. Toxicities may be associated with non-conventional therapies or interactions with chemotherapy [1]. Two studies have shown that patients with cancer treated outside of conventional facilities have a poorer quality of life [8] and possibly shorter survival times than those who received treatment at conventional institutions [4]. Further concerns might be the high costs of some alternative or unproven therapies. It has been calculated that in the United States more than 4 billion dollars per year have been spent on non-conventional cancer therapies and about 13.7 billion dollars for alternative treatments in general [13].

Furthermore, there are data supporting the hypothesis that CAM might negatively influence the outcome of leukemia patients. In a recent publication it was demonstrated that alternative medicine remedies (extract of *Biscum album*, *Uncaria tomentosa*, *Croton lechleri*) stimulated the viability and survival of leukemic cells [38, 39].

Our study has limitations in terms of sample size and the low rate of response to the questionnaire, which was 35% of the initial CLL cohort of 247 patients. This might cause a bias of this sample and an unrepresentative estimation of CAM use. Age and sex of the responding patients are similar to that of the patients who were initially contacted. The main difference of the responding cohort was the significantly higher rate of previously treated patients (40.2%) compared to the patients initially contacted (17.8%). Previously treated patients with CLL might be much more preoccupied with



their disease and therefore more interested in alternative treatments and more likely active in using such modalities compared to patients with a low Binet stage who do not require treatment and with no or only a few symptoms. Previous trials have shown that patients with solid tumors who have progressive disease or prolonged illness more often use CAM than patients with low disease activity [18, 23, 27, 36]. On the other hand, the cross-sectional design of our trial that employed structured, anonymous questionnaires gives patients the opportunity to answer correctly without the risk of being criticized by the treating oncologist. Within the context of the limitations of our trial, the results are in line with the published literature in many points and provide treating physicians with valuable and new information about CAM use in CLL patients.

Our data show that there is a great need for detailed, general information about the disease in patients with CLL that is not covered by the treating physicians. A wide range of CAM is frequently used, among them potentially harmful methods. Information on concomitant use of CAM is essential as some of these treatments are associated with side effects and might interact with conventional chemotherapy.

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