

Survey on the worldwide Chronic Myeloid Leukemia Advocates Network regarding complementary and alternative medicine

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Abstract

Purpose Many cancer patients use complementary and alternative medicine (CAM). However, data in hematological cancers are lacking on which types of CAM are being used, what information sources on CAM patients use and to what extent CAM is being addressed in the consultation with the hematologist.

Methods We developed a standardized questionnaire on CAM which was provided online to the representatives of the worldwide Chronic Myeloid Leukemia Advocates Network.

Results A total of 53 leaders of patients' advocacy groups for chronic myeloid leukemia (CML) patients from 35 countries responded to the survey. In almost all countries, CAM is important for CML patients and is widely used in

addition to conventional leukemia treatment. Mostly, patients have to pay by themselves. General practitioners, herbalists, healers and naturopaths are the main sources for CAM treatments. Information on CAM is derived most frequently from the Internet, and family and friends, but rarely provided by the oncologist. Disclosure of CAM use to the oncologist is low, but increases if oncologists offer CAM.

Conclusions In spite of very different health care systems, the features of CAM usage are similar in the different countries. We suggest extending the cooperation of self-help and scientists in order to provide training of oncologists on CAM and quality-controlled, evidence-based information on CAM on the Internet both for patients as well as health professionals as a promising strategy to increase safe use of CAM in patients with CML.

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Introduction

Many patients with cancer use complementary and alternative medicine (CAM) during or after their disease. According to a recent systematic review, about 40 % of cancer patients use CAM (Horneber et al. 2011). Yet, data from recent studies report even higher rates (Naing et al. 2011; Micke et al. 2010).

There is no universally accepted definition of CAM. According to the National Center for Complementary and Alternative Medicine (NCCAM) of the United States, the term comprises diverse medical and health care systems, practices and products that are not generally considered part of conventional medicine (NCCAM 2013). The American Cancer Society distinguishes “Alternative medicine is used instead of standard or mainstream medical treatment, often with serious outcomes for the patient. Complementary medicine is used along with mainstream medical care. If carefully chosen and properly used, some of these can improve your quality of life without causing problems with your regular cancer treatment.” (American Cancer Society 2013).

Only few publications present data from different countries. In a European survey, Molassiotis et al. (2005a, b) asked patients from 14 different countries on. The mean rate was 36 %. The study revealed significant differences, the lowest rate being 15 % (Greece) and the highest nearly 75 % (Italy).

Ethnic roots have influence on patients’ behavior concerning CAM. In a study from Hawaii, people with Caucasian origin or Philipinos used CAM most often, Hawaiians and Chinese less and Japanese least. The type of CAM used also depends on ethnic origin: Chinese prefer phytotherapy, Hawaiian indigent healers and Philipinos spiritual healing and prayer (Maskarinec et al. 2000). Ethnic as well as social background also has an influence on type of information preferred. Caucasians prefer recent objective scientific information from medical journals or newsletters, telephone information services and internet. Japanese patients rely on media and commercial sources including telephone, journals, books and CAM providers. Non-Japanese Asian and Pacific populations prefer personal communication with the physician, their social contacts and other cancer patients (Kakai et al. 2003).

Also, patients on studies use CAM. Several publications, mostly from US American cancer centers, report numbers similar to those from the studies cited above. These numbers were even confirmed in phase I studies (Dy et al. 2000; Hlubocky et al. 2007).

Reasons why patients use CAM are diverse. Main goals are to treat cancer directly, to reduce side effects, to boost the immune system and to become active themselves (Hann et al. 2006; Molassiotis et al. 2005a; Verhoef et al. 2009).

Yet, CAM does not only offer some potential benefits but also entails substantial risks as delay of treatment, side effects and interactions. There is not data on the number of patients at risk of interactions between conventional therapies and CAM yet. In a recent study from our group, we could demonstrate that at least a third of all patients from a gynecologic outpatient ward were at danger of interactions (Zeller et al. 2012).

Patients mostly do not disclose the use of CAM to their oncologist. Their sources of information mainly are friends or relatives, media and other patients (Eng et al. 2003; Eschiti 2007). As information on CAM is abundant in the media and Internet but mostly of minor quality (Matthews et al. 2003), patients often feel confused and stressed instead of informed (Verhoef et al. 2009; Broom and Tovey 2008).

In the literature, there seems to be only few data on whether and how patients with hematological cancers use CAM. A total of 50 % of patients with leukemia in the USA use CAM, with usage rate depending on age, education and gender (Miller et al. 2009). A recent German study on patients undergoing radiotherapy disclosed that 83 % of patients with M. Hodgkin use CAM, this being second only to breast cancer patients (91 %) (Micke et al. 2009). According to the European survey, 26.5 % of patients with leukemia or lymphoma used CAM [homeopathy 39 %, herbs 22 % and diverse mental and spiritual methods (healer, rebirthing) 22 %]. Whereas the typical user of CAM is female, of middle age and higher education, this could not be confirmed in patients with hemato-oncologic diseases. Nevertheless, reasons to use CAM as well as preferred sources of information are the same as described in other cancer patients (Molassiotis et al. 2005b).

The objective of our study was to analyze data on the behavior of patients with CML regarding CAM in different countries in order to characterize prevalence, attitudes, sources of information and treatment facilities.

Methods

In order to collect a set of data from all over the world, we decided to use a questionnaire which was developed on the basis of a questionnaire established by an expert group of the working group prevention and integrative oncology (PRIO) of the German Cancer Society. In order to adapt this questionnaire to the needs of patients with hematological diseases from different countries, we established a core working group which consisted of two patient advocates (JG from CML Advocates Network and AW from Myeloma Euronet) and two scientists (TE und JH).

For our research, we decided to use the following differentiation: complementary medicine is accompanying

therapy and is fine tuned to conventional therapy, and alternative therapy is applied *instead* of conventional therapy (Cassileth 2012). This definition was also part of the introduction to the questionnaire and is widely accepted in scientific discourse on CAM in oncology.

We focused on three main topics:

1. Setting of conventional therapy in the different countries—access to modern treatments.
2. Relevance of CAM—providers of information and treatment—reasons to use CAM—discussion with the oncologist.
3. Type of CAM used.

A list of different CAM methods used by German cancer patients represents the core of the original questionnaire. This list was in a first step adapted according to the international literature, patients’ questions on CAM from an international patient advocates’ conference on targeted therapy in 2009 in Vienna and the experiences of the two patient advocates derived from their international work. In the next step, members of the CML advocates network were asked to add any CAM method they thought being important in their country.

Finally, the questionnaire consisted of 21 questions. This final version was programmed as an online questionnaire (using Unipark/Questback) and the link was sent to all groups represented in the CML Advocates Network. All leaders of the groups were invited to take part in the survey. The link was also accessible on the website of CML Advocates Network (www.cmladvocates.net) from July 9, 2011 to October 31, 2011. Six weeks after the first invitation, a reminding email was sent.

After direct import of the data to SPSS, they were analyzed statistically by IBM SPSS Statistics version 19.

Results

At the time of the survey, the CML Advocates Network connected leukemia patient organizations in 50 countries. After the online questionnaire was sent, 53 answers from leaders of these organizations in 35 countries were received.

Only two representatives stated that there is no conventional therapy for CML available at their country: South Korea and Venezuela. (The answer of those two patient advocates is in contrast to other reports from those countries on treatments available in both countries). In all other countries, chemotherapy, targeted therapy and immunotherapy are available.

A differentiation between complementary and alternative medicine is made in most but not all countries. Three quarters of representatives stated that it is common. In most

countries, complementary medicine is important; only representatives from Canada, Italy and Finland denied it. In addition, alternative medicine is of (minor) importance. Only representatives from Serbia and Indonesia reported it as very important (for details see supplement 1). The difference between the importance of complementary and alternative medicine is illustrated in Fig. 1. In most countries, conventional treatment is reimbursed either by the state or by health insurance companies. In contrast, patients mostly have to pay for CAM by themselves (see Fig. 2). The level of CAM usage in the different countries as rated by the representatives is presented in Fig. 3 (see also supplement 1).

The access to CAM is diverse. Figure 4 provides an overview. In most countries, general practitioners, herbalists, healers and naturopaths are the main providers for complementary therapies. Yet, a quarter of the representatives quoted university clinics, and nearly a third stated oncologic centers. Alternative therapies are mainly provided by herbalists, healers and naturopaths, and only in a minority by specialists or oncologic centers. The Internet is an important source for complementary as well as alternative therapies. (see supplement 1).

Information on CAM is derived from different sources. A total of 88 % of the representatives named the Internet, 80 % family and friends, 41 % patient advocacy groups,

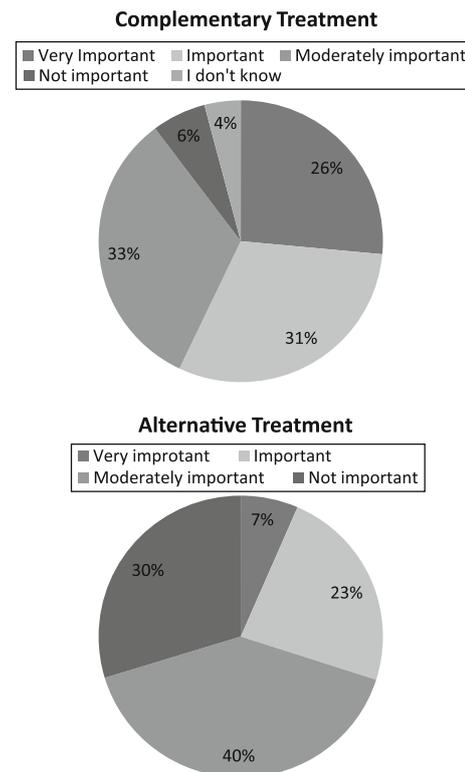
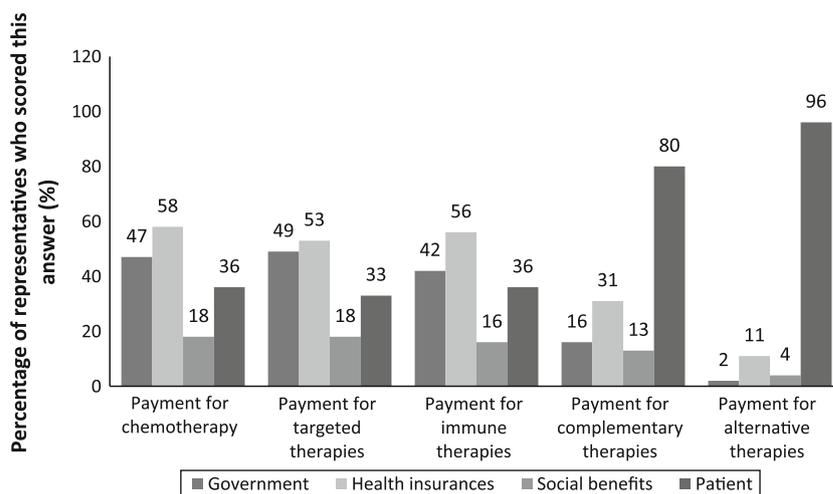
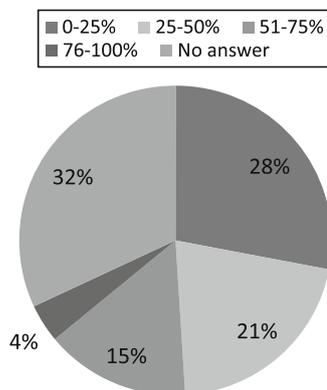


Fig. 1 Importance of complementary and alternative medicine

Fig. 2 Payment for conventional, complementary and alternative treatments



Representatives who scored this value for their country



Representatives who scored that this institution provides complementary medicine

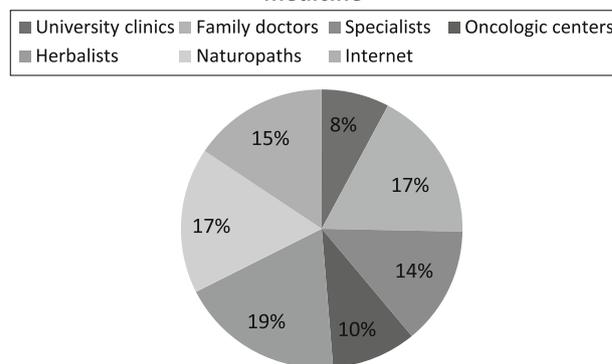


Fig. 3 User rate of CAM as rated by the representatives

41 % radio and TV, 33 % family doctors or specialists and 24.5 % the oncologist (see Fig. 5).

In order to learn which CAM methods are being used in different countries, we provided a list of most commonly used CAM methods. Vitamins and trace elements as well as healthy nutrition were most often named (69 % of representatives), followed by herbs and teas (62 %), homeopathy (55 %), physical activity (48 %) and psychological support (48 %). Spiritual healing and traditional Chinese medicine were scored by 36 % of representatives and cancer diets by 31 %. Spiritual methods (21 %), Ayurveda (14 %), Mistletoe (10 %) and traditional medical system of the country (10 %) are less important.

In scientific literature, a number of reasons are given why patients use CAM. We asked the representatives to rate the five most frequently cited reasons according to the importance they have in their country. The result is presented in Fig. 6.

In order to address the question whether the type of institution providing CAM treatments or information on

Representatives who scored that this institution provides alternative medicine

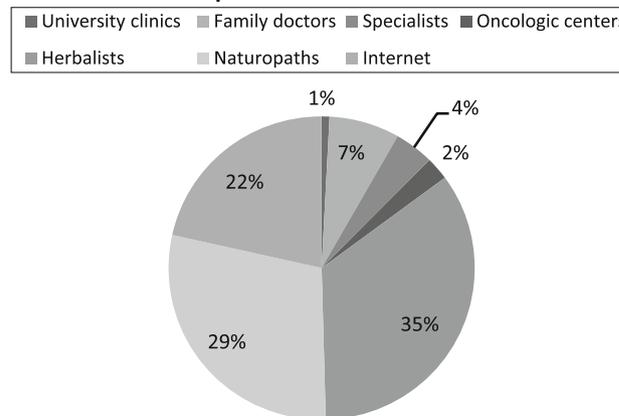


Fig. 4 Providers of complementary and alternative medicine

CAM has any influence on patients' behavior concerning CAM, we analyzed correlations between type of provider, source of information and usage rate or disclosure to the oncologist, respectively. We only found few significant correlations: If specialists or oncologic centers offer CAM,

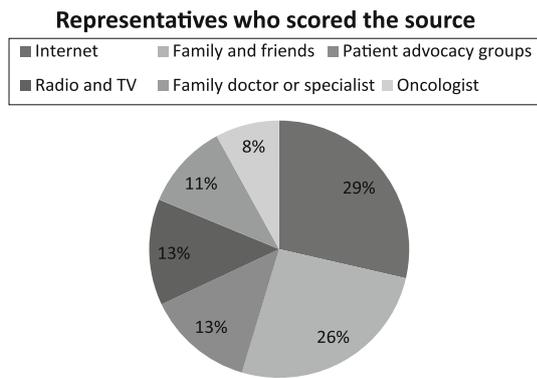


Fig. 5 Source of information on CAM

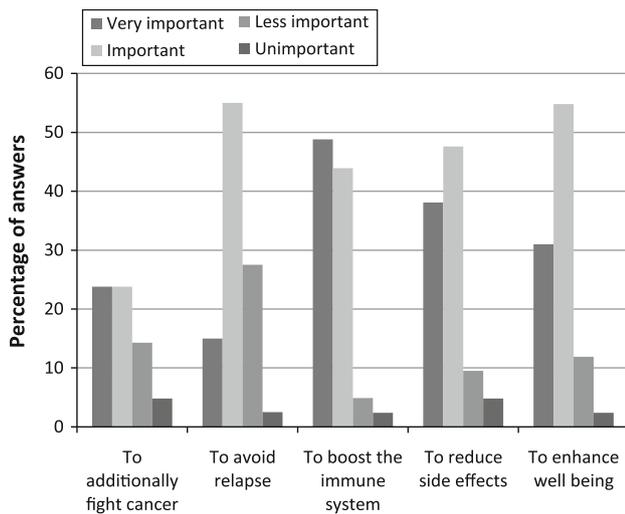


Fig. 6 Reasons to use complementary medicine

patients' disclosure of their CAM use to the oncologist was estimated to be higher than in other countries where this is not the case. In contrast, when university centers are offering CAM, the level of patients' disclosure of CAM usage to the oncologist is not influenced. We could also find no correlation between university centers or oncologic centers offering CAM, and the different CAM methods used. Also family doctors seem to have no influence on the choice of CAM methods. In case of naturopaths are offering CAM, more representatives quoted psycho-oncologic care ($p = 0.005$). Internet offerings are also associated with psychosocial care but also with mistletoe ($p = 0.001$ and $p = 0.045$). When stratifying the countries by main providers of CAM, in countries where oncologists and other specialists offer CAM, physical activities and sports are more often being used as complementary method ($p = 0.03$). In countries where herbalist offer CAM to cancer patients, more often Traditional Chinese Medicine or traditional domestic medicine are being used ($p = 0.06$ and $p = 0.08$).

There is a significant correlation between reimbursement of complementary medicine and type of providers. If the government pays for the therapy, they are significantly more often provided by university clinics ($p < 0.001$), specialists (in conventional medicine) ($p = 0.011$) and family doctors ($p = 0.010$). In contrast, reimbursement by government does not influence the use of services from herbalists, naturopaths or the Internet. In case of reimbursement by health insurance companies, only family doctors more often provide complementary medicine ($p = 0.006$). If the government pays for alternative medicine, family doctors and herbalists more often provide these methods ($p = 0.034$; $p = 0.043$), and also specialists and oncologic centers seem to do so, yet the numbers are too small to be reliable. Reimbursement of alternative treatments also has no correlation to the use of services from herbalists and naturopaths.

In the next step, we analyzed whether distinct reasons to use CAM correlate with different CAM methods. Also, this analysis revealed only few statistically significant correlations. Consuming domestic herbs and teas is correlated to the goal to directly fight cancer ($p = 0.05$), cancer diets with the aim to alleviate side effects ($p = 0.035$). To receive holistic therapy, patients more often use domestic herbs and teas ($p = 0.043$) and as means against cancer and spiritual healing ($p = 0.008$). Patients prefer physical activity ($p = 0.008$) and psychosocial care ($p = 0.039$) in order to be able to take action themselves consciously. No distinct CAM method correlates with the wish to boost the immune system, to alleviate side effects, to detoxify the body or to support the patients' general condition.

Discussion

To our knowledge, these are the first data which provide insight into CAM in CML worldwide. It also is the first joint scientific survey on health care and patient behavior which gathered data from different countries all over the world.

While patients with hematological cancers were thought to be less active with respect to CAM in comparison with patients with gynecological cancers, Micke et al. (2009) were the first to publish a high user rate (89 %) in patients with Morbus Hodgkin. Our indicative data derived from experienced patient leaders support these findings and reveal that this is not only true in Germany but also in most other countries, even if there seem to be some differences between countries or regions. Our findings reflect the prominent use of certain CAM methods observed in other surveys (Molassiotis et al. 2005a, b; Rausch et al. 2011): Vitamins, trace elements, herbs and teas and traditional medicine are frequently used. These so-called

biological-based treatments can induce interactions with conventional treatments and may have side effects of their own. Clinical evidence of the effectiveness of these CAM therapies has been published only for few substances and often is contradictory. In fact, data for targeted therapy and CAM are nearly missing. Yet, we have to assume that they are as important as with classical chemotherapy. Besides interactions via CYP 450 3A4, direct interactions of two molecules as well as influence on apoptosis have been described. For example, the effect of Bortezomib or Imatinib on cancer cells is hampered by many antioxidants as vitamin C (Shatzer et al. 2012; Heaney 2008). Whereas Resveratrol enhances cytotoxicity of these drugs (Puissant 2008).

Also for interferon, interactions might occur. Yet, data are completely missing. Mistletoe and other plant extracts mainly from Chinese traditional herbs have strong effects on the immune system changing expression of cytokines. We do not know whether this may result in clinically significant influence on therapies containing interferon.

As many patients intent to ameliorate side effects of conventional therapy, they most often use CAM during chemo- or targeted therapy. The question of interactions even becomes more prominent considering that many patients use different CAM substances and OTC's at the same time. In our own survey on patients with breast cancer, we found a high number of patients using combinations of supplements or supplements and herbs (Zeller et al. 2012).

Safety issues like side effects and interactions with other treatments are relevant risk factors of CAM. Our survey results support previously published data that the oncologist is often not regarded as relevant source of information on CAM (Eng et al. 2003; Robinson and McGrail 2004; Saxe et al. 2008). Our data confirm that patients mostly do not communicate with their oncologist on CAM. They prefer to speak to general practitioners, naturopaths and herbalists providing complementary and even alternative medicine. Even universities offering CAM or information on CAM do not alter this. Yet, if specialists or oncologic centers engage in CAM, the rate of disclosure on CAM use to the oncologist rises from 30 % to 40 and 50 %, respectively, and patients more often use complementary methods with scientific background as nutrition and physical activity then.

In all studies which focused on patients' objectives in the use of CAM, nearly the same reasoning was found regardless of country or type of disease. Also, patients with CML follow these objectives. To boost the immune system is the most important goal, but also alleviating side effects, supporting the patients' general condition and tackling cancer are important.

The Internet as source of information has been studied by several authors. Eysenbach (2003) revised data from 24 studies. A total of 39 % of cancer patients use the internet to look for information, the range being broad (4–58 %). To our knowledge, we are the first to report a high frequency of the Internet as information source on CAM. The advantages but also risks of the Internet are discussed in recent literature. For cancer patients, the Internet provides a vast amount of information which is often of questionable quality instead of being quality controlled, informative and reassuring (Broom and Tovey 2008; Verhoef et al. 2009).

In our survey, patient advocacy groups play an important role as source of information on CAM. In the analysis of information needs of cancer patients in the Internet, Maddock et al. (2011) describes the fact that patient support groups provide the website as one decisive factor for patients' trust in the content of the website.

In conclusion, a strategic, evidence-based, two-tier approach on CAM which meets the needs of cancer patients and at the same time reduces risks worldwide should be considered:

1. Training of oncologists and other specialists on CAM and on discussing CAM with patients. As all published surveys reveal, the number of different CAM methods is limited, and their use seems to be similar in most countries. There is some cultural and ethnical diversity. Nevertheless, a defined standard curriculum, that can be adapted to specific (national) needs, seems possible. Thus, most patients will be able to directly discuss CAM with the physician and oncologist in charge.
2. "Evidence-based, quality-controlled" information on CAM on the Internet is needed. The information should be provided at websites where patients know they find reliable information. The design, set up and dissemination of such a website should be realized in cooperation with patient advocates.

As a new tool of scientific research, online questionnaires developed with and addressed to representatives of self-help offer some interesting advantages: the intense discussion during the development of the questionnaire allowed for including all important aspects from point of view of the patient. Furthermore, the cooperation later on needed for projects based on results already is established and mutual understanding will be more easily achieved. In a next step, we will try to find out how to extend this tool to a survey of the individual patient.

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Conflict of interest The authors declare no conflict of interest.

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