

Use of the Herbal OTC Products and Dietary Supplements by Patients Receiving Chemotherapy: Survey-Based Study

Kowalczyk Adam^{*1}, Bodalska Agnieszka¹, Boszkiewicz Kamila², Karłowicz Bodalska Katarzyna³

¹Department of Pharmacognosy, Wrocław Medical University, Faculty of Pharmacy, Borowska, Wrocław, POLAND.

²Department of Industrial Pharmacy, Wrocław Medical University, Faculty of Pharmacy, Borowska, Wrocław, POLAND.

³CF Hasco-Lek, Żmigrodzka, Wrocław, POLAND.

ABSTRACT

Context: Among cancer patients receiving chemotherapy, there is a growing trend to use self-medication. Many of them take preparations sold over the counter (OTC) and dietary supplements containing plant raw materials. **Aims:** The aim of this study is to evaluate the herbal OTC drug and dietary supplement usage among patients treated on the chemotherapy ward. **Settings and Design:** An anonymous survey was conducted among 92 patients of the chemotherapy ward of the Lower Silesian Oncology Center in Wrocław (Poland) with the approval of the Bioethical Commission of the Medical University in Wrocław (no KB-562/2014) and The Declaration of Helsinki. **Methods and Material:** An anonymous survey was conducted among 92 patients of the chemotherapy ward of the Lower Silesian Oncology Center in Wrocław (Poland) in 2015. The questions concerned the use of herbal preparations by patients during chemotherapy. Statistical analysis used: The statistical analysis was developed using programs: Microsoft Office Excel 2007 and STATISTICA 10 (StarSoft Inc.). Analysis was performed by χ^2 test. **Results:** The study has confirmed that the use of herbal OTC products and dietary supplements among cancer patients is a common occurrence. The main source of information about herbal preparations is the Internet and the most common place of purchase is a pharmacy. **Conclusions:** It is necessary to educate cancer patients to increase their awareness of the importance of a doctor's knowledge about all preparations that they take. Pharmacists play a very important role in self-medication of the patients. Thus, pharmacy students' education is needed in this field as well.

Key words: Herbal OTC products, Dietary supplements, Chemotherapy; Self-medication.

Key Messages: Usage of herbal OTC products by chemotherapy patients based on survey study is a common occurrence. Pharmacy is the main place of their purchase, therefore pharmacist should be well-educated in their role in self-medication of patients.

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Correspondence:

Dr. Kowalczyk Adam,
Department of Pharmacog-
nosy, Wrocław Medical
University, Faculty of
Pharmacy, Borowska 211,
50-556 Wrocław, POLAND.
Phone no: +48 717840222
E-mail: adam.kowalczyk@
umed.wroc.pl

INTRODUCTION

Cancer is the second leading cause of death after cardiovascular diseases.¹ In 2012, cancer was responsible for 26% of all deaths in men and 23% of deaths in women. In both sexes the most common cause of death is lung cancer. The second position in women's deaths is breast cancer, while in men it is colorectal cancer. The percentage will increase due to the aging of the population,

as advancing age is one of the risk factors for cancer overall.²

Chemotherapy is one of the treatments for cancer though its use is associated with numerous side effects. Therefore, among cancer patients treated with chemotherapy, there is a growing trend to use self-medication, complementary and alternative medicine (CAM).^{3,4} Many patients take preparations sold over the counter (OTC)



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and dietary supplements containing plant raw materials. Natural substances contained in plants have multidirectional pharmacological and chemopreventive action. Plant raw materials most commonly used by cancer patients are: garlic, nettle, thyme, ginger, milk thistle, echinacea, ginko, ginseng and valerian.^{5,6} Literature data indicates a potential antitumor activity of substances of vegetable origin, of which the most frequently cited are curcumin, resveratrol, artemisinin, berberine, piperine, mistletoe, green tea, broccoli.⁷ Conventional drug therapy combined with complementary medicine are increasingly used in cancer patients treatment.^{8,9,10}

Universal access to information, (e.g. the Internet) results in patients willing to be actively involved in the healing process.¹¹ Patients take natural preparations to strengthen the immune system, to slow the progression of cancer, and alleviate side effects associated with chemotherapy.⁶

The aim of this study is to evaluate the herbal OTC drug and dietary supplement usage among patients treated on the chemotherapy ward in the Lower Silesian Oncology Center in Wrocław, Poland.

SUBJECTS AND METHODS

Ethical Consideration: An anonymous survey was conducted among 92 patients of the chemotherapy ward of the Lower Silesian Oncology Center in Wrocław (Poland) with the approval of the Bioethical Commission of the Medical University in Wrocław (no KB-562/2014) and The Declaration of Helsinki. All respondents gave informed consent.

Study Design: The study involved 57 women and 35 men in the period March- May 2015. The questions concerned, e.g. the use of herbal preparations during chemotherapy, where they purchase them and how often; if they inform physicians about their usage of these products or use them together with other medications; where they get knowledge about them; and whether or not the leaflet or information on the product package is sufficiently understandable. The patients rated, on a scale of 1 to 5, their effectiveness and safety. Table 1 shows the sociodemographic data subjects.

Statistical Analysis: The statistical analysis was developed using programs: Microsoft Office Excel 2007 and STATISTICA 10 (StarSoft Inc.). Analysis was performed by χ^2 test.

RESULTS

Half of the surveyed patients were positively disposed to herbal OTC drugs and dietary supplements, 30%

Table 1: Title Sociodemographic data of patients

Number of patients	n=92	%
Gender	Women	62%
	Men	38%
Education	Primary	7.6%
	Vocational	21.7%
	High school	41.3%
	University	29.4%
Place of residence	Town below 20 000	33.7%
	20 000-100 000	38.0%
	Over 100 000	28.3%

were rather positively disposed, and only 7.7% assessed these preparations negatively or rather negatively.

Among the surveyed patients 33.7% were unable to assess the effectiveness of herbal drugs, while 32.6% believed them to be rather effective, 6.5% believed them ineffective, and 4.3% rather ineffective. More than half of the patients (62%) assessed the preparations taken as safe or rather safe compared to synthetic drugs. Only 5.4% of respondents did not rate the safety of herbal drugs positively. The correlation between the safety and efficacy of herbal preparations made by the χ^2 test showed that 81% of patients evaluated herbal preparations as effective and rated their safety highly ($\chi^2 = 102.96$; $df = 16$; $p < 0.00001$).

The most common sources of knowledge about herbal preparations among the responders was the Internet (19.6%), the recommendation of a physician and/or pharmacist (14.1%), recommendation of friends (13%), and, most rarely, lectures (1.1%). Based on the Levene's variance ($\chi^2 = 12.56$; $df = 4$; $p = 0.01$) a correlation between the age of patients and usage of information sources about these preparations was demonstrated. It was found that the average age of people using the internet is lower than the average age of patients using other sources of information.

The vast majority of patients (95.7%) declared that they read the leaflet attached to the product. The majority of respondents believed that the safety information contained in leaflets or on the package were sufficient (32.6%) or rather sufficient (31.5%). However one fifth of patients (19.5%) considered them insufficient.

81.5% of respondents made standalone purchases of herbal preparations. The most popular place to make purchases were a pharmacy (64.1%) and medical shop (27.2%), while the least popular was the internet (2.2%). 23.9% of patients were buying herbal OTC drugs and dietary supplements once a month or more often, 21.7% once in two months, and 18.5% once in three months. There was a correlation between the opinion of patients

about the effectiveness of herbal preparations and the frequency of their purchase. χ^2 test showed that 45.5% of patients who bought herbal preparations once a month or more often, and 75% of them who made purchases once in two months considered them to be effective ($\chi^2=56,67$; $df=24$; $p=0,00019$). Effectiveness influenced herbal product choice the most (37.0%), followed by pharmacist (14.1%) or doctor recommendation (12.0%) and composition of preparation (13.0%). The most commonly used herbal preparations were in the form of teas (75%), while 25% of respondents used capsules, tablets, syrups and drops. Evaluation of the Levene's variance showed that 87% of patients with positive and 75% of patients with rather positive attitudes to herbal OTC drugs and dietary supplements used herbal teas ($\chi^2=12,56$; $df=4$; $p=0,01363$). The most frequently used substances of plant origin are: cranberry fruit (55.4%), garlic (43.5%), St John's wort (26.1%), aloe (22.8%), apricot kernel (22.8%) and milk thistle (21.7%). Among other herbs, respondents most frequently indicated usage of chamomile (2.2%) and mint (2.2%). 78.3% of patients who had taken preparations say they fulfilled their expectations. Patients dissatisfied with the preparations were 10.9%, while 10.8% were not able to answer this question. A statistically significant correlation between the opinion and attitude of the patient to the product, and satisfaction with the effects of its use was demonstrated. The preparations fully met the expectations of 80% of the respondents who defined their attitude to herbal medicines as rather positive and 95.5% of patients who defined it as positive ($\chi^2=13,74$; $df=4$; $p=0,00817$). 68.5% of respondents informed their doctors about taking herbal preparations, 28.3% did not inform and 3.2% did not answer this question.

DISCUSSION

A survey of patients undergoing chemotherapy in the Lower Silesian Oncology Center in Wroclaw confirmed that they used herbal OTC drugs and dietary supplements. The obtained data are consistent with studies conducted by Ebel *et al.*¹²

Other studies show that 52% of cancer patients use at least one form of complementary medicine, and 77% of them use herbal OTC medicines, dietary supplements and vitamins.¹³ Research by Alsanad *et al.*, conducted in the UK, indicate that adult cancer patients use herbal preparations (3.1% - 21.8%) simultaneously with pharmacotherapy.^{7,14} In less developed countries a higher percentage of patients use herbal OTC drugs or

dietary supplements, e.g. in Palestine 69.5%, Malaysia 70.2%, and Ethiopia 79%.^{15,16}

In this survey, women accounted for 62% of patients, similar to research by Ustundang.¹⁷

The internet was the main source of knowledge about herbal preparations for 19.6% of the respondents, while the recommendation of doctor and pharmacist accounted for 14.1%. Similar results were obtained in studies conducted by the Turkish Oncology Group, which showed that for 16.7% of cancer patients, the internet is the main source of information, and, for 76%, it was a credible source of information.¹⁸ These results are different from results obtained in American studies, in which the most common source of information about herbal preparations was a salesman in a health food store, and rarely was the recommendation of friends or the internet.¹² The survey showed that the main place of purchase was a pharmacy (64.1%), which is comparable to the results obtained by Bastani *et al.* in 2017.¹⁹ Pharmacists have a significant role in the patients' self-medication as health care providers and they have a key role in encouraging patients to cooperate with other health professionals like doctors or nurses. As the experts on drug therapy, pharmacists are obliged to take increased responsibility for the safe and effective use of medications, OTC products and food supplements also by patients during chemotherapy.

The most common substance of vegetable origin used by the respondents was cranberry (55.4%). Less frequently mentioned were garlic, St John's wort, apricot kernel, aloe and milk thistle. The results obtained do not coincide with similar research conducted in the USA and Turkey, which is probably due to the different geographical location and regional traditions in the use of herbal preparations.^{5,6} Herbalism is perceived by patients as a natural and safe method of treatment, as shown in the research in which more than half of the respondents recognized that the herbal preparations are safer (34.8%) or rather safer (27.2%) compared to synthetic drugs. A study conducted among doctors from 16 countries of the Middle East, showed that herbal dietary supplements and herbal OTC medicines are the most commonly used addition to pharmacotherapy. Doctors, in contrast to the patients, are aware of the possibility of adverse effects with simultaneous use of synthetic drugs and herbal preparations.^{14,20}

In the present study, it was shown that most of the respondents (68.5%) informed the doctor about taking herbal preparations. This is a large percentage compared to the results of other surveys, in which only one fourth of patients informed the doctor about simultaneous use of synthetic drugs and herbal products.⁵

CONCLUSION

The study has confirmed that the use of herbal OTC drugs and dietary supplements among cancer patients is a common occurrence. The main source of information about herbal preparations is the Internet and the most common place of purchase is a pharmacy. It has been shown that among substances of plant origin, there are those which can cause interactions with co-administered synthetic drugs. It is therefore necessary to educate cancer patients to increase their awareness of the importance of a doctor's knowledge about all preparations that they take. Pharmacists play a very important role in self-medication of the patients by providing them the necessary information about the impact of dietary supplement and over the counter (OTC) products on the pharmacological treatment, about possible drug interactions and side effects. Thus, pharmacy students' education is needed in this field as well.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

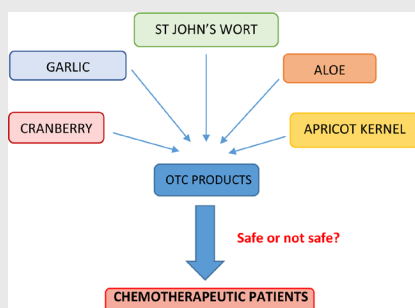
ABBREVIATION USED

OTC: Over the Counter; **CAM:** Complementary and Alternative Medicine.

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PICTORIAL ABSTRACT



SUMMARY

- The use of herbal OTC drugs and dietary supplements among cancer patients is a common occurrence.
- Pharmacists play a very important role in self-medication of the cancer patients.

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