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A Cancer Therapy Special

Integrative Oncology

Treating Cancer Patients Safely

By Sabine Ritter, HP

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For those in a hurry
About half of cancer patients in Germany seek support from complementary medicine in addition to evidence-based conventional ("school") medicine. The "*S3-Guideline for Complementary Medicine in the Treatment of Oncological Patients*" presents evidence-based, complementary therapies.

Once the initial shock of a cancer diagnosis has subsided, many sufferers want to take action themselves and therefore resort to micronutrients or phytotherapy in addition to their conventional therapy. Unfortunately, the number of studies on integrative cancer therapy is still insufficient for many approaches. In order to accompany patients safely, a few principles should therefore be observed.

In the last ten years, about 500,000 people in Germany have been newly diagnosed with cancer every year. In 2019, 502,655 people were affected, of which 234,925 were women and 267,730 men. Women are most likely to develop breast, colon and lung cancer, while prostate, lung and colon cancers dominate in men [1, 2].

The diagnosis comes as a shock to most sufferers. In their heads, it is identical to a death sentence, even though mortality from cancer in Germany has been declining for years. Before 1980, more than two-thirds of all cancer patients died as a result of their cancer, but today it is less than half. In 2021, there were 229,068 people, and in 2019 there were 230,242 people. At the same time, the life expectancy of those affected has increased significantly. Even if the therapies are stressful, many patients still have good reason to hope for a cure. However, this also depends on the organ affected and the stage at which the disease is detected. As a result, patients with pancreatic, liver and lung cancer still have a lower 5-year survival rate than other cancer patients [1, 2].

The approach is intended as a supplement and not as an alternative to classical, evidence-based conventional medicine.

Integrative Oncology of Tumor Patients

About half of cancer patients in Germany seek support from complementary medicine in addition to treatment by surgeons, oncologists and radiation physicians. They want to become active themselves in order to support the success of the therapy, strengthen their body in the fight against the disease, alleviate side effects of the therapy and improve their quality of life [3].

The goal of integrative oncology is to improve health, quality of life and conventional medical treatment success during acute treatment and aftercare in order to encourage patients to continue a health-promoting lifestyle in the long term. Methods of evidence-based conventional (school) medicine are combined with complementary medical therapies. This approach is therefore intended as a supplement and not as an alternative to classical, evidence-based conventional medicine [3].

In 2021, the *S3-Guideline on Complementary Medicine in the Treatment of Oncological Patients* was published, the long version of which comprises 630 pages. Among other things, evidence-based, complementary therapies are presented for 32 complaints that can occur during tumor therapy (e.g. anxiety, appetite disorders, depression, dermatitis, exhaustion, fatigue, polyneuropathy or sleep disorders). They can alleviate symptoms and contribute to the increase of quality of life. In this context, the scientific evidence of numerous treatment methods is assessed.

They include, but are not limited to:

- Acupuncture and acupressure
- Exercise therapy
- Dietetic treatment
- Body therapies such as hyperthermia, massages, osteopathy, shiatsu or tuina
- Micronutrient therapy
- Mind-body techniques such as meditation, mindfulness-based stress reduction (MBSR), tai chi, qigong and yoga
- Phytotherapy and secondary plant substances

The development of the Guideline was a real challenge for the authors, because the study situation on complementary medicine in oncology is still very poor [4].

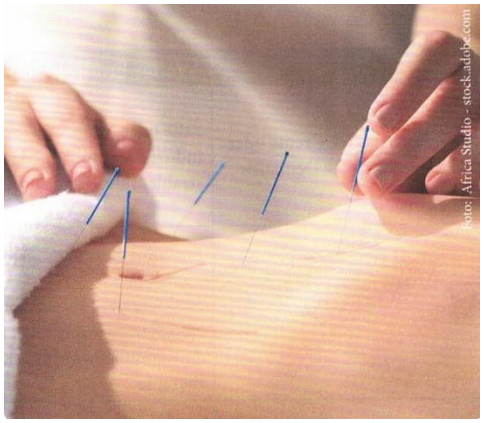

Figure 1: Acupuncture can be used as part of holistic cancer treatment.

Risks of Integrative Therapy of Tumor Patients

Due to the lack of data, it is often not possible to assess whether tumor patients benefit from complementary adjunctive therapy or whether it may cause harm. As a result, it is always important to be aware that medicinal plants and micronutrients in particular can interact with chemotherapy or radiation therapy. On the one hand, this can increase the bioavailability of the drugs, which can increase the risk of side effects. On the other hand, the bioavailability of the drugs can also be impaired, which can reduce the effectiveness of chemotherapy.

Table 1 (on the following Page Four): Assessment of micronutrients in the *S3-Guideline on Complementary Medicine in the Treatment of Oncological Patients* [4]

Micronutrient	Recommendation	Neither recommendation nor objection	Objections
Carnitine		Relief of fatigue; weight gain in tumor cachexia; Increase in physical activity and functionality, muscle strength or quality of life	Not to be used in patients with polyneuropathy or with medications that may trigger polyneuropathy
Folic acid	In the case of treatment with pemetrexed, the recommendations for the administration of folic acid (350 to 1,000 µg daily)		Not given to patients with normal folic acid levels
Selenium	Protection against side effects of radiotherapy on the oral mucosa and pelvic mucosa; Protection against diarrhea after radiotherapy	Protection against mucositis or susceptibility to infections due to chemotherapy; Regeneration of neutrophils and platelets after stem cell transplantation	
Vitamin A & Derivatives	Use in Acute Promyelocyte Leukemia of All-trans-Retinoic Acid (ATRA)		Not recommended for tumor therapy or in secondary prevention to prolong survival
Vitamin B_6 (pyridoxine)		Relief of Hand-Foot Syndrome	Not recommended for tumor therapy or in secondary prevention to prolong survival
Vitamin B_{12}	Accompanying drug therapy according to the prescribing information	Prevention or alleviation of polyneuropathy	
Vitamin B_{17} (Amygadalin)			Not recommended due to potentially life-threatening side effects.
Vitamin C		Intravenous high-dose therapy for tumor therapy or secondary prevention to prolong survival	Oral high-dose therapy not recommended for tumor therapy, to reduce treatment toxicity, or in secondary prevention to prolong survival
Vitamin D	Correction of a proven deficiency, prophylaxis of tumor therapy associated with osteoporosis by daily administration of 800 to 1,000 IU.	Vitamin D administration independent of a proven deficiency	
Vitamin E			Not recommended for prolonging survival, preventing or treating polyneuropathy, relieving hot flashes, cisplatin-induced ototoxicity, preventing or treating mucositis, or improving chemotherapy-induced toxicity
Zinc	May be considered for the prevention or treatment of mucositis by radiotherapy		Not recommended for the prevention or treatment of mucositis by chemotherapy or other toxicities

Integrative Micronutrient Therapy

The *S3-Guideline on Complementary Medicine in the Treatment of Oncological Patients* summarizes the evidence of studies on the integrative treatment of cancer patients with some micronutrients. The most important statements are listed in Table 1 (preceding on Page Four).

Other micronutrients are not listed in the Guideline due to a lack of data. When dealing with other micronutrients, one should therefore adhere to the basic principles for integrative therapy of cancer patients mentioned below.

Integrative Phytotherapy of Tumor Patients

In the *S3-Guideline on Complementary Medicine in the Treatment of Oncological Patients* several medicinal plants and secondary plant substances which are used in complementary cancer therapy are also listed in addition to micronutrients. The study situation on the effect and undesirable consequences of an application during oncological treatment are explained in detail. The most important statements are summarized Table 2.

Of course, phyto therapists lack many medicinal plants that they would like to use to alleviate side effects of conventional therapy or to improve the quality of life of those affected. Unfortunately – it can only be repeated – there are no studies on this. However, this does not mean that you have to avoid these medicinal herbs. However, you should be oriented by a few principles.

The study situation on complementary medicine in oncology is still quite poor.

Table 2 (on the following two Pages Six & Seven): Assessment of medicinal plants and secondary plant substances in the *S3-Guideline on Complementary Medicine in the Treatment of Oncological Patients* [4].

Medicinal plant	Recommendation	Neither recommendation nor objection	Objections and comments
Aloe vera	Topical application as a gel, cream or lotion for radiation-induced dermatitis	Juices or mouthwashes for radiation-induced stomatitis; rectal ointment for radiation-induced proctitis; Tincture orally	Aloe vera juice inhibits CYP3A4 and CYP2D and can therefore affect the bioavailability of drugs that are metabolized by these enzymes. The clinical significance is unclear.
Valerian (Valeriana officinalis)		Difficulty falling asleep and staying asleep	
Curcumin		Reduction of mortality and disease-associated morbidity; topical application for mucositis by radiotherapy	
Enzymes such as bromelain or papain		Alleviating the side effects of radiotherapy	
Epigallocatechin Gallate		Influencing tumor development, BMI, body fat percentage, wound healing, quality of life; Reduction of gastrointestinal symptoms through radiotherapy	
Ginkgo (Ginkgo biloba)		Treatment of cognitive impairment	In vitro inhibition and inductions of CYP1A2, CYP2C19, CYP2C9, CYP2D6 and CYP3A4, inhibition of P-glycoprotein, modulation of UGT enzymes. The clinical significance is unclear. Patients receiving immunosuppressants such as cyclophosphamide should be monitored.
Ginseng (Panax Ginseng)	Improvement of fatigue	Reduction of mortality	Possible changes in the activity of CYP1A2, CYP2D6 and CYP3A4 are probably not clinically relevant, but should be considered.
Pomegranate (Punica granata)		Pomegranate Juice Extract for Prostate Cancer	Inhibition of CYP2C9 and CYP3A isoenzymes in humans probably not clinically relevant
Guarana			Not recommended for chemotherapy-related fatigue
Medicinal mushrooms		Reduction of mortality	Maitake and reishi have hypoglycemic, anti-hypotensive and anticoagulant effects, Agaricus inhibits CYP3A4 interactions with drugs possible

Ginger (Zingiberis officinalis)	Reduction of nausea and vomiting with cytostatic drugs	Reduction of mortality and disease-associated morbidity	
Isoflavones		Alleviation of Side Effects of Androgen Deprivation/Androgen Suppression in Prostate Cancer	Not recommended for prostate cancer or to relieve menopausal symptoms in breast cancer
St. John's wort (Hypericum perforatum)		Relief from mild or moderate depression	Depending on the hyperforin content, St. John's wort increases the activity of CYP3A4 as well as CYP2C9, CYP2C19 and P-glycoprotein in a clinically relevant way. A daily dose of < 1 mg of hyperforin reduces the risk of reduced bioavailability and effect of drugs. Patients need to be educated about possible serious interactions of St. John's wort with a high content of hyperforin with medications.
Flaxseed (Linum usitatissimum)		Influencing the course of prostate cancer	Minimum interval to take medication 30 minutes to one hour
Milk Thistle (Silybum marianum)		Reduction of disease-associated and healthcare-associated morbidity	
Mistletoe	Subcutaneous administration of total mistletoe extract to improve quality of life	Administration of total mistletoe extract to prolong overall survival	
Rhubarb (Rheum palmatum)		Rhubarb Extract for Prophylaxis of Radiotherapy-Induced Lung Toxicity	Rhubarb may reduce the effectiveness of drugs metabolized via CYP450. The clinical significance is unclear.
Devil's claw (Boswellia serrata)		Oral to relieve edema in brain tumors; Topical application for radiation-induced stomatitis	Boswellia extract and keto-boswellic acid may affect drug transport and inhibit platelet aggregation. The clinical significance is unclear.
Black cohosh (Cimicifuga racemosa)	Reduction of menopausal symptoms such as hot flashes in breast cancer patients	Reduction of mortality or disease-associated morbidity	

The treating physicians must be informed in detail about the planned integrative therapy.

General Tips for Integrative Treatment of Cancer Patients

- **Consent of the treating physicians:** The treating physicians must be informed in detail about the planned integrative therapy and agree to it. Otherwise, phytotherapy or micronutrients must be used as part of follow-up care following conventional treatment.
- **Patient education and informed consent:** Patients should be informed about the lack of data on complementary treatment. You should be aware that there may be previously unknown interactions that can adversely influence conventional treatment. The contents of the consultation should be well documented in a consent form signed by the patient before acceptance of the treatment. Heed the warnings of the guideline authors. The guideline authors advise against only a few complementary approaches (see tables). This should be taken seriously.
- **Interruption of complementary therapy:** No phytotherapy or micronutrients 3-5 days before, during, and 3-5 days after chemotherapy to avoid drug interactions. Medicinal plants and micronutrients should therefore only be used in the therapy-free interval.
- **Stay in dialogue:** Regularly consult with patients about which therapy or dietary supplement they are using in the meantime, additionally because they often follow well-intentioned advice from friends, neighbors and relatives.
- **Check the study situation:** The therapist should check the study situation on integrative oncology at regular intervals.

The authors of the guideline advise against only a few complementary approaches.

Other Therapies in Integrative Oncology

For some procedures, such as acupuncture, acupressure, MBSR, meditation, Tai Chi and Qigong, which aim to improve symptoms and quality of life under tumor therapy, the guideline authors noted that they can be used "during and after adjuvant therapy" or "during and after completion of chemotherapy/radiation therapy", but for example they recommend acupuncture for depression only after chemotherapy. In addition, some of the recommendations are limited to certain patient groups. This is often due to a lack of data [(4)].

(Continued next page)

Result

Safety should be the top priority in the complementary medical care of tumor patients. If an approach is unsuitable in a specific case, there are many alternatives that can improve the well-being and quality of life of those affected without jeopardizing the success of conventional medical treatment.

The Authoress

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She is a pharmacist and alternative practitioner in Munich with a focus on acupuncture and western Phytotherapy, author of books and specialist articles.

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