Complementary and alternative medicine in asthma – safety, effectiveness and costs

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The use of complementary and alternative medicine (CAM) is very popular. According to Blanc et al. [1] and Ernst et al. [2] 59% (United Kingdom) and 41% (United States of America) of patients with asthma or rhinosinusitis report using CAM. It has been adopted by the public health systems of many countries as a remunerated and accepted alternative to standard of care. But being popular should not be equal to an unreflected legitimation. It is important to apply safe, efficient and cost-effective treatments to patients, and the same rules should apply for all different treatment modalities including CAM.

Is it safe?

The most relevant aspect of safety is mortality. In spite of huge efforts it was not possible to substantially reduce the number of asthma deaths over the last decades. In Switzerland (7 million inhabitants) there are still 200 to 250 recorded asthma deaths per year [3], a number which was raising till the late 80s of the last century. Thus, treatments which are able to reduce mortality due to asthma are needed. To date, the only treatment which has proven to reduce asthma mortality is inhaled corticosteroids [4, 5]. This has been related to their potent anti-inflammatory activity. In a cohort study involving 30,569 asthmatics with 77 asthma deaths occurring during the observation period, patients not inhaling corticosteroids in the last 3 months had a 4.6-fold higher risk of dying from asthma than patients who did inhale them [5].

How does CAM compare in terms of safety? – There is no study with enough statistical power to answer this question in terms of mortality. In a representative survey of 601 asthmatics Blanc et al. [6] investigated the frequency of emergency visits and hospitalisations due to asthma. Adjusting for demographic and illness covariates, the use of herbal medicines (odds ratio 2.5; 95% confidence limits 1.1 to 5.6) was associated with increased risk for asthma hospitalisation within the last 12 months. It can be speculated that this could be related to a lack of control of airway inflammation predisposing to asthma exacerbations requiring hospitalisation. Thus, the data about safety of CAM are neither sufficient nor supportive.

Another aspect of safety is the occurrence of side effects. Most side effects related to CAM are negligible and often comparable to placebo. Notable side effects in relation to CAM include pneumothorax after chest acupuncture and various types of intoxication after specific herbal applications. The main difference with classical medicine is the fact that patients often assume that CAM has no side effects and a respective information is not standard.

Is it effective?

In this issue of the journal Steurer-Stey et al. [7] report published evidence of the effectiveness of CAM in asthma. In their systematic review of literature, they conclude that no evidence or absence of it can be derived from randomised-controlled trials on the effectiveness of acupuncture, homeopathy, herbal and nutritional therapies. Breathing techniques, on the other hand, might contribute to breathing control and improvement of asthma symptoms – but evidence is scarce. Breathing techniques need to be further investigated.

It has been pointed out repeatedly that it is very important to perform randomised controlled trials (RCT) in CAM. However, the classical CAM approach does not consist of a uniform treatment. In most RCTs on CAM the treatment arms received a uniform treatment potentially reducing its

effectiveness. Furthermore, it is difficult to define a suitable control/placebo group, as a true sham treatment is often not possible. Nevertheless, it is still not clear whether or not CAM induces more than a placebo effect.

Is it a "super-placebo"? – Often, a strong placebo effect is observed in RCTs of CAM. In a study in 242 asthmatics with house dust mite sensitivity [8], for example, the use of ultramolecular potencies of allergen compared to sham homeopathy lead to a similar, but relevant improvement of lung function and symptoms in both groups. Is the placebo effect a distinct entity? The term *placebo effect* is taken to mean not only the narrow effect of a dummy intervention, but also the broad array of non-specific effects in the patient-physician relationship, including attention, compassionate care, and the modulation of expectations, anxiety, and self-awareness [9]. Therapeutic patterns that heighten placebo effects are especially prominent in unconventional healing. Ultimately, however, only prospective trials directly comparing the placebo effects of unconventional and classical medicine could provide reliable evidence to support such claims. Can an alternative ritual with only non-specific psychosocial effects have similar positive health outcomes than a proven specific conventional treatment? The answer may be "yes" in some cases: In a four-arm crossover RCT involving 44 patients with chronic cervical osteoarthritis of more than 6 months' duration, acupuncture, sham acupuncture, and diazepam were all equivalent and were superior to a placebo pill [10]. In this study, the outcome of the ritual of acupuncture (real and sham acupuncture were not different) equalled the outcome of an effective drug.

Is it cost-effective?

There is not a single cost-effectiveness study of CAM in asthma. There is a widespread assertion that CAM practices are less expensive than classical medicine and that using such therapies will lower overall health care costs. This assertion posits that CAM therapies would replace more expensive classical therapies rather than being used in addition to classical medicine. This assertion has not undergone rigorous testing. In fact, recent data suggest that including complementary therapies as treatment options increases overall health care costs for adults because CAM therapies are used as "add-ons" rather than replacements [11, 12].

Although inhaled corticosteroids may be more expensive than short-acting inhaled beta 2-agonists, they are the most cost-effective way of controlling asthma because reducing the frequency of asthma attacks will save on total costs [13]. Inhaled corticosteroids also improve the quality of life of patients with asthma and allow many patients to lead a normal life, thus saving costs indirectly [14].

Why its popularity or what can be learnt from CAM?

If not safety, effectiveness or costs of the treatment, what is the reason for adherence to CAM? What makes CAM so attractive for patients and politicians?

Is it because one goes against the establishment of the pharmaceutical industry and academic research, as defined by a small élite and the doctor seen as its knight? Is CAM the social, "every man's party" of medicine – the "medicine, which cares"? – Indeed classical medicine should not stop at prescribing effective drugs. It is mandatory that physicians learn again to be compassionate and fight for and with their patients. The physicians also need to keep their independence from the pharmaceutical industry in order to keep their integrity.

Or is it because one wishes to be taken seriously, as an individual, and not assimilated to a cohort of patients with the same diagnosis? – Evidence-based medicine denotes the effort to apply techniques, drugs and treatments with effectiveness, documented whenever possible in randomised controlled trials. Due to the nature of the design of these trials patients are put in different "boxes" labelled with a diagnosis. More than the individual response, the effectiveness measured in the group of individuals is taken forward. But the patient in front of us is an individual and wants to be treated as an individual. And this is the real strength of CAM.

Where to go?

Should more RCTs be conducted for CAM? In my view, the relevant question of up-to-date medicine should not be to study whether CAM is better than placebo in order to justify support for a whole CAM industry. There are several treatment modalities with few and acceptable side effects and documented superiority to placebo. It is rather to identify treatment modalities which are superior to the current gold standards and which are able to reduce asthma mortality. The identification of new treatment modalities should not exclude the investigation of drugs and methods derived from CAM [15]. Furthermore, classical medicine should focus more on the individual – its situation, problems and thoughts. The *placebo effect* and the *activation of self-healing mechanisms* should be rediscovered.

In spite of the fact that approximately 50% of asthmatics are using methods of complementary and alternative medicine, there is no or absence of objective evidence derived from randomised-controlled trials concerning safety, effectiveness and cost-effectiveness of acupuncture, homeopathy, and herbal and nutritional therapies. Breathing techniques need to be further investigated. The isolated use of complementary and alternative medicine for asthma cannot be recommended and even may confer an increased risk for exacerbations, hospitalisations and mortality. CAM as an add-on therapy is safe, but does not seem to be cost-effective. Available scientific data do not legitimate health care managers and politicians to support methods of complementary and alternative medicine in times where resources for health care are limited.

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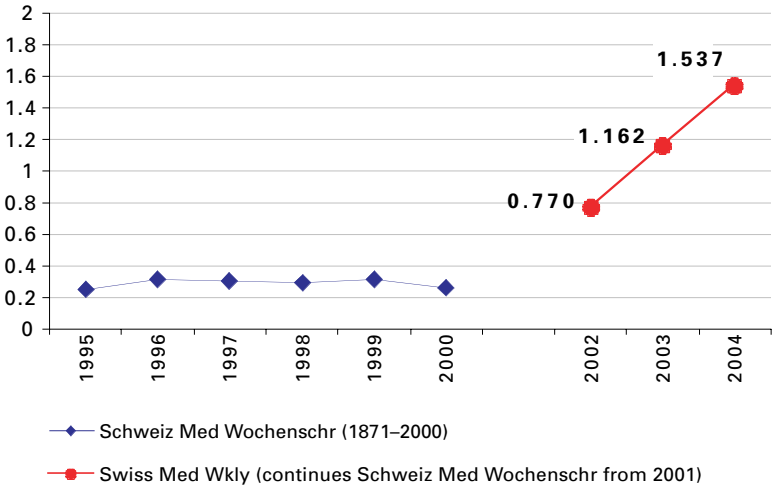

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