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Editorial

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Effectiveness of complementary and alternative medicine – Call for a "black box" research agenda

Over recent decades, the use of complementary and alternative medicine (CAM) has become increasingly popular in Western industrialized societies [1, 2]. This trend, however, is characterized by a striking "asymmetrical" pattern: on the one hand, CAM is offered frequently in general medical practice based on patient demand. On the other hand, academic medical centers have only slowly become involved in providing CAM treatment, and systematic research in this field has remained sparse. As a result, many CAM therapies have not been sufficiently investigated according to the accepted methodological standards of modern medicine. Methodological issues are frequently cited as an important reason for the lack of systematic research in CAM, including in particular the difficulties of using a randomized controlled study design. Physicians and institutions that offer CAM, therefore, often base their decision to do so on case reports, the findings of smaller studies with serious methodological limitations, or even on personal opinions. The sluggish process of collecting evidence for or against CAM therapies has been pungently described by Edzard Ernst as "science friction" [3].

This situation is not satisfactory. CAM may offer important treatment options to individual patients with certain diseases. However, a treatment recommendation is only truly justified if it is based on clear evidence of effectiveness and safety. In this issue of the *Wiener klinische Wochenschrift*, Hamre and coworkers present the findings of a study that compared anthroposophic and conventional treatments of acute respiratory and ear infections [4]. Among the merits of their study is the fact that it investigated a common disorder that has a large impact on public health. In addition, it used a prospective design with a control group and included its patients consecutively. Its limitations include a non-randomized comparison and open label treatment. Indeed, even the interviewers who evaluated the patient self-reports of treatment outcome were not blinded to treatment allocation.

The study was not designed to provide efficacy data on the specific mechanism of anthroposophic therapy. Instead, it focused on the outcome effectiveness and safety of two different treatment strategies. The effects observed (a somewhat better outcome for patients who received anthroposophic treatment) may well be based, at least in part, on patient self-selection of treatment strategy, on the differences in therapeutic setting (including significant variations in consultation length between both physician groups), on other aspects of patient-physician interactions, on placebo effects, etc. Although the findings of the study do not allow for conclusions regarding the specific efficacy of anthroposophic medication in unselected patient groups, the study clearly contributes important evidence that anthroposophic medicine is a promising treatment option for patients with acute respiratory and ear infections.

As in the field of conventional medicine, the research agenda in CAM needs an array of studies on different levels in order to determine appropriate clinical use: registries as well as prospective studies, interventional as well as observational studies (incidentally, relationship between both study types in the standard hierarchy of evidence has been challenged [5]), outcome studies as well as mechanism studies, randomized as well as non-randomized studies to combine the experimental setting with high internal validity and the pragmatic setting with high external validity. The large ongoing acupuncture research programs in Germany are an example of mutually complementary study types applied simultaneously to address important medical issues in detail and thoroughly [6–8].

Above all, there is a need for research into the subtle aspects of patient-physician interaction. In the present paper by Hamre and coworkers (as in typical studies on conventional medicine), treatment effectiveness is based on assessing the difference between disease status/symptoms at the onset of the disease compared to the end of therapy. The therapeutic process is considered a "black box" not amenable to analysis. Accordingly, we urgently need black box research in order to elucidate important aspects of, and processes within, the therapeutic setting. We need more refined approaches for characterizing physician qualities as well as patient susceptibility to certain therapeutic approaches, we need to learn more about the predictors of therapeutic success and failure, and we need to identify ways to enhance the impact of the patient-physician relationship. This, incidentally, holds true for CAM as well as for conventional medicine. By learning more about individual aspects of therapeutic processes, treatment options may eventually be better tailored to individual patients with specific disease status.

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