

## BRIEF REPORT

# CLINICAL RESEARCH IN ANTHROPOSOPHIC MEDICINE

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Anthroposophic medicine includes special medications and special artistic and physical therapies. More than 200 clinical studies of varying design and quality have been conducted on anthroposophic treatment. Half of these studies concern anthroposophic mistletoe therapy for cancer. Clinical effects of mistletoe products include improvement of quality of life, reduction of side effects from chemotherapy and radiation, and possibly increased survival.

Apart from cancer therapy, the largest studies of anthroposophic treatment have been 2 naturalistic system evaluations: In

German outpatients with mental, musculoskeletal, respiratory, and other chronic conditions, anthroposophic treatment was followed by sustained improvements of symptoms and quality of life. In primary care patients from 4 European countries and the United States treated for acute respiratory and ear infections by anthroposophic or conventional physicians, anthroposophic treatment was associated with reduced use of antibiotics and antipyretics, quicker recovery, and fewer adverse reactions; these differences remained after adjustment for relevant baseline differences. (*Altern Ther Health Med*. 2009;15(6):52-55.)

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Anthroposophic medicine (AM) is a complementary therapy system founded in the 1920s by Rudolf Steiner and Ita Wegman<sup>1</sup> and provided by specially trained physicians in 56 countries worldwide.<sup>2</sup> AM acknowledges a spiritual-existential dimension in humanity, which is assumed to interact with psychological and somatic levels in health and disease. AM therapy includes special treatment modalities (eurythmy movement exercises, art therapy, rhythmical massage therapy) and special medications.<sup>3,4</sup>

Eurythmy therapy is an artistic exercise therapy involving cognitive, emotional, and volitional elements. In eurythmy therapy sessions, patients are instructed to exercise specific movements with the hands, the feet, or the whole body. Eurythmy movements are related to the sounds of vowels and consonants, to music intervals, or to affective gestures (eg, sympathy-antipathy). In AM art therapy, patients engage in painting, drawing, clay modeling, music, or speech exercises. Rhythmical massage therapy was developed from Swedish massage; special techniques include lifting movements, rhythmically undulating gliding movements, and complex movement patterns like lemniscates. AM medications are prepared from minerals, plants, animals, and chemically defined substances. AM medications can be prepared in concentrated form or in homeopathic potencies and are administered in various ways

(oral, rectal, vaginal, conjunctival, nasal, or percutaneous application or by subcutaneous, intracutaneous, or intravenous injection). AM medication therapy can be standardized (1 product for a given indication) or individualized (involving 1 or several AM medications and sometimes nonmedication AM therapies). AM treatments can be administered alone or combined with conventional medical therapy as needed.<sup>3,4</sup>

## HISTORY

AM was developed in the 1920s and early 1930s as a research-based therapy system. In this period, laboratory and clinical studies were conducted according to contemporary standards. After World War II, when AM was reestablished in Europe, the focus was on founding practices, clinics, and hospitals rather than on research. In the 1970s and 1980s, research was performed but also restrained by the predominant paradigm of the double-blind randomized trial, which was difficult to implement in AM settings. In recent times, research activities have grown strongly with experimental and observational studies, with work on methodology, and with researchers catching up with current technical standards.<sup>4</sup>

## CHALLENGES AND SOLUTIONS, STRENGTHS AND LIMITATIONS

Research into AM poses several challenges. Randomized allocation of patients into therapy and control groups is often rejected by AM physicians and their patients, chiefly because the physician-patient relationship is disturbed by randomization and because of strong therapy preferences.<sup>5,6</sup> Randomization refusal and other obstacles have led to severe recruitment problems and

premature termination of a number of randomized trials of AM medications.<sup>6</sup> Some forms of AM therapy can be evaluated in non-AM settings without unduly distorting the treatment, however, and for these treatments, randomized studies are possible and have been conducted.<sup>4</sup>

Blinding of patients is often unmasked because of properties of the AM treatment such as local reactions to injections.<sup>7</sup> Blinding can also induce a subtle form of bias, when patients willing to participate in double-blind trials have worse outcomes of AM therapy than patients who reject being blinded.<sup>8</sup> Nevertheless, for some AM medications, double-blind trials are possible and have been successfully conducted.<sup>9-12</sup>

Another challenge is the very large number of AM therapy options; approximately 1700 AM medications are manufactured, and most are sold in very small quantities (personal communication, Agnes Mitzakoff, February 23, 2009; e-mail communication, Peter Vögele, March 1, 2009). Moreover, AM therapy is often individualized, involving several AM medications sometimes combined with artistic or physical therapies, and as a result, the number of AM therapy options is further increased. Consequently, there is not enough money or manpower to conduct individual studies for each AM therapy option. A solution to this challenge is to evaluate AM therapy as a whole system.<sup>13</sup> Whole-system evaluations of AM treatment have been performed with acute infections,<sup>5</sup> cancer,<sup>14-18</sup> and other chronic indications.<sup>4,19</sup> A strength of these system evaluations is their high practice relevance, with clinically relevant settings, range of patients, therapy administration, and outcomes.<sup>4</sup> Whole-system evaluations can be supplemented by analyses of major components of the AM therapy system.<sup>20-24</sup>

## PREVENTION

Research into preventive effects of AM has focused on allergic diseases, which affect up to one-third of children in many countries.<sup>25,26</sup> Related to the AM approach is an educational philosophy implemented in more than 3000 Waldorf schools, kindergartens, and curative education centers worldwide.<sup>27,28</sup> In well-controlled epidemiological studies, Waldorf school attendance was associated with a reduced risk for atopic disease,<sup>29,30</sup> possibly mediated by effects on the intestinal bacterial flora from restrictive use of antibiotics and antipyretics in childhood infectious disease<sup>30</sup> or from a diet containing fermented vegetables.<sup>31</sup> Antibiotic and antipyretic use in early childhood is a risk factor for allergic diseases.<sup>32-34</sup> In a naturalistic study of primary care patients treated for acute respiratory or ear infections, the use of antibiotics and antipyretics could be reduced to a minimum in AM settings (antibiotics: 5% vs 34% of patients treated by AM or conventional physicians, respectively; antipyretics: 3% vs 22%, respectively) without detrimental effects.<sup>5</sup>

## CLINICAL EFFECTIVENESS

The most complete systematic review of clinical effectiveness of AM treatment identified 195 studies, 18 of which were randomized trials.<sup>4</sup> Of the studies, 186 (including 15 of the 18

randomized trials) had positive results for AM treatment, 8 studies had no benefit, and 1 study had a negative trend. Study quality was variable: some studies had serious deficiencies, but there were also a number of very carefully conducted and well described studies.<sup>4</sup> One possible explanation for the deficiencies is that many studies were performed by enthusiastic AM practitioners who did not have formal training in clinical research.

Half of the studies concerned AM mistletoe therapy for cancer; other frequent indications were acute infections, pain syndromes, and hepatitis.<sup>4</sup> AM mistletoe products are widely used in Central Europe. In Germany, 9.2 million defined daily doses of AM mistletoe products were sold in 2007, amounting to 23% of all chemotherapy agents sold.<sup>35</sup> A large number of laboratory studies have shown that mistletoe extracts inhibit the growth of cancer cells, modulate the immune system favorably, and stabilize DNA in noncancerous cells.<sup>36,37</sup> Moreover, numerous animal experiments show a reduction of tumor growth and metastasis after mistletoe application.<sup>36,37</sup> The most complete systematic review of clinical effectiveness of AM mistletoe products comprised 37 studies, of which 16 were randomized trials.<sup>38</sup> The best documented clinical effects of AM mistletoe therapy are improvement of quality of life and reduction of side effects from chemotherapy and radiation. A survival benefit also has been shown but not beyond critique. Tumor remissions have been described following local or high-dose applications of AM mistletoe products.<sup>38</sup>

Apart from cancer therapy, the largest and most detailed clinical studies of AM therapy have been 2 system evaluations, together comprising more than 2700 patients. The Anthroposophic Medicine Outcomes Study (AMOS) is a naturalistic cohort study of German outpatients treated for mental, musculoskeletal, respiratory, and other chronic conditions.<sup>39</sup> One-fourth of all qualified AM physicians and therapists in Germany participated in AMOS, and the participating physicians and dentists resembled eligible but not participating physicians and therapists with respect to age, gender, the number of years in practice, and the proportion working in primary care.<sup>20-23</sup> These features suggest that the AMOS study to a high degree mirrors contemporary AM use in outpatient settings. Following AM treatment (art therapy, rhythmical massage, eurythmy, physician-provided counseling, AM medications), substantial and sustained improvements of disease symptoms and quality of life were observed.<sup>39</sup> These improvements were found in adults and children,<sup>39,40</sup> in all therapy modality groups,<sup>20-24</sup> and in all evaluable diagnosis groups.<sup>41-44</sup> The improvements in quality of life were at least of the same order of magnitude as improvements following other (non-AM) treatments.<sup>45</sup> Some of the improvement may have other causes than the AM therapy, such as other treatments; however, patients not using conventional therapies for their main disorder (two-thirds of patients) had a similar improvement.<sup>24</sup> A more detailed analysis of 4 possible causes of the improvement showed that conventional therapies together with patient dropout, natural recovery, and regression to the mean together explained a maximum of 37% of the improvement.<sup>46</sup>

The International Integrative Primary Care Outcomes Study—Anthroposophy study was a naturalistic comparison of primary care patients from 4 European countries and the United States who were treated by AM or conventional physicians for acute respiratory and ear infections.<sup>5</sup> Compared to conventional therapy, AM treatment was associated with reduced use of antibiotics and antipyretics, quicker recovery, fewer adverse reactions, and greater therapy satisfaction. These differences remained after adjustment for country, age, gender, and 4 markers of baseline severity.<sup>5</sup>

## SAFETY

In safety studies, AM treatment is generally well tolerated. Adverse reactions are infrequent and mostly mild to moderate in severity. Three types of adverse reactions to AM medications are commonly described: local reactions from topical application, systemic hypersensitivity including very rare cases of anaphylactic reactions, and aggravation of preexisting symptoms in sensitive patients.<sup>4,47,48</sup> In a detailed safety analysis from the AMOS study, the incidence of confirmed adverse reactions to AM medications was 3% of users and 2% of the medications used. No serious adverse reactions were found.<sup>48</sup> An innovative electronic pharmacovigilance system has been established in a network of AM practices.<sup>49</sup>

Theoretically, avoidance of necessary conventional treatment in AM settings might pose a risk,<sup>50</sup> but no evidence has been found for this.<sup>4</sup> In comparative studies, AM treatment had similar<sup>42</sup> or lower<sup>5,19,51</sup> rates of adverse reactions than conventional treatment.

## COST

The most detailed cost analysis of AM treatment was performed in the AMOS study.<sup>52</sup> The analysis included costs of AM and conventional therapies, inpatient hospital and rehabilitation treatment, and sick leave. Total costs in the first study year did not differ significantly from costs in the pre-study year, although the patients were starting new AM therapy, whereas in the second year, costs were significantly reduced by 13%. The cost reduction was due to a reduction of inpatient hospitalization that could not be explained by secular trends during the study period.<sup>52</sup> Other, less detailed evaluations also indicate similar or lower costs in AM therapy settings compared to conventional settings.<sup>4</sup>

## CONCLUSION

It is difficult to conduct randomized trials for each AM therapy option because of therapy preferences and because of the very large number of AM medications used. More than 200 studies are now available, 90% of them observational and of varying quality. The studies predominantly show good clinical outcomes, few side effects, high patient satisfaction, and possibly slightly less cost, but there is a need for more studies of high quality.

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