

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Original article

Retrospective surgery study of the therapeutic effectiveness of MORA bioresonance therapy with conventional therapy resistant patients suffering from allergies, pain and infection diseases

Eckart Herrmann^a, Michael Galle^{b,*}^a 32805 Horn-Bad-Meinberg, Germany^b Institut für Biophysikalische Medizin, Algenrodter Strasse 51a, 55743 Idar-Oberstein, Germany

Received 20 October 2010; received in revised form 27 May 2011; accepted 31 May 2011

Abstract

Introduction: One of the authors (EH) practised the MORA bioresonance concept since 1984. In this investigation the therapeutic effectiveness was assessed. Therefore treatments of 935 patients were evaluated afterwards and not selected in the period of 1998–2008 including the drop outs. **Patients and methods:** The patients were resistant to conventional therapeutic efforts. They are suffering from diseases in the internal-orthopaedic-neurological spectrum and were treated with the MORA-concept and partly additional with the Zapper therapy according to H. Clark. For all patients and for three groups of indications (allergies, pain, infections) a global assessment of therapeutic effectiveness (very good – good – satisfactory – not satisfactory) was determined.

Results: 83.3% of all the patients exclusively treated with the MORA-concept ($N=296$) were assessed very good to satisfactory. In the field of allergies ($N=169$) this positive global assessment of therapeutic effectiveness comes to 88.2%, in the field of pain ($N=85$) to 85.9% and in the field of infections ($N=78$) to 96.1%.

By using the MORA-concept with partly additional Zapper therapy in all patients ($N=639$) the positive global assessment of therapeutic effectiveness improves slightly, but significant ($p<0.05$) to 86.7%. The field of allergies ($N=401$) improves slightly and significant ($p<0.01$) to 95.1%, the field of pain ($N=177$) slightly, but not significant ($p>0.05$) to 92.1% and the field of infections ($N=330$) decreases slightly but not significant ($p>0.05$) to 93.6%.

Conclusion: For patients suffering from diseases in the frame of the internal-orthopaedic-neurological spectrum, as well as particular in the fields of allergies, pain and infections the MORA therapy has a high practical-therapeutic effectiveness.

© 2011 Published by Elsevier GmbH.

Keywords: Allergies; Bioresonance therapy; Infections; MORA therapy; Therapeutic effectiveness; Pain; Zapper therapy**Introduction**

The MORA therapy (classical bioresonance therapy) has been practised for more than 30 years by naturopathic practitioners all over the world. The practical application of the MORA concept is based on the discoveries of Franz Morell and Erich Rasche. It is a combination of endogenous and exogenous bioresonance therapy, forming a complementary

diagnostic therapeutic unit with electro-acupuncture (EAP) and the EAP/bioresonance substance-test [1–3].

At clinical level, a lot of positive studies pertaining to several indication fields have been conducted by international work groups [e.g. 4–12, see also discussion]. Ultra low, coherent, low frequency (1 Hz– 10^5 Hz-range) electromagnetic oscillations are postulated as transmitters of information at a biophysical level [1–3].

However, three clinical studies [13–15] did not confirm the therapeutic effectiveness of the bioresonance method, so that a continuous controversial discussion is under way [e.g. 16–18].

According to our knowledge, at present there are the three above-mentioned clinical human studies, which, according to

* Corresponding author. Tel.: +49 06781 980622; fax: +49 06781 980622.

E-mail address: michael.galle@institut-biophysikalische-medizin.de (M. Galle).

the final conclusions of their authors, do not prove the clinical efficacy of the bioresonance method: Kofler et al. [13] for pollinosis, Schöni et al. [14] for neurodermitis and Wille [15] for children who stutter. In the Kofler and Schöni studies, however, the data provides indications of the clinical efficacy, although this has incomprehensibly been acknowledged by neither of the author groups. Lüdtkke [46] regards the final conclusion of Schöni as being simply wrong and inappropriate. Kofler strangely declares the positive partial results obtained in his study, which speak for the bioresonance method, to be a placebo effect, although this was a placebo-controlled study. Wille comes to the conclusion that the efficacy of bioresonance therapy for children who stutter cannot be proven adequately by his method of procedure. So much for “negative” clinical data situation at empirical testing level.

Wüthrich et al. [16], Classen [17], Kleine-Tebbe et al. [18], etc., are essays, which only relate selectively to the afore mentioned “negative” studies. Moreover, the authors have not looked into the bioresonance method intensively enough and do not practise this method themselves. Hence these essays are of no relevance to a scientific empirical discussion.

One of the authors (EH) has been practising the MORA concept since 1984 consistently for “problem patients”, first as a consultant in a rehabilitation clinic, then in a private medical surgery. The practical activities of EH, treating 935 patients in the period of 1998–2008 were evaluated for further assessment of the practical therapeutic effectiveness of the MORA concept. The results are summed up below.

Patients and methods

This retrospective investigation comprises all patients and indication cases in the investigation period without selection of any kind and includes the therapy drop outs.

Observation period and patients

All the patients of EH, who attended the surgery from January 1998 to autumn 2008, were included in the trial. From January 1998 to autumn 2000 they were treated in the out-patient department of a rehabilitation clinic (Klinik Silvaticum, Horn-Bad Meinberg, Germany) and from autumn 2000 to autumn 2008 in a private surgery (Bielefeld, Germany).

All the patients had previously received conventional medical treatment and had visited the surgery of EH due to the previous unsuccessful therapy. With a few exceptions, the diseases were of chronic nature. They had already existed for longer than three months when treatment commenced. Only a few patients, who were younger than the age of 16, suffered from acute diseases.

Treatment

The MORA bioresonance method was practised exclusively during the initial period of treatment lasting from 1998 to 2002 (MORA/98–02). The MORA Super Device (Med-Tronik, Friesenheim, Germany) was used that basically consisted of a bioresonance, an EAP diagnostic and a software section in which

electronic nosodes, allergens, colours etc. are stored electronically. The treatment was carried out using standardised allergy programs, pain programs, optimum setting according to Scott-Morley, point therapy and self compiled therapy programs, as defined as standard in the course of the MORA training for therapists.

The number of individual treatment sessions for each patient ranged from 1 to ca. 20 sessions. The second session followed the first session after one week. The subsequent sessions were undertaken according to the intensity of the complaints at intervals of one to three weeks.

Following a conventional medical examination, the MORA diagnosis was carried out with the EAP/bioresonance test. This included among other things the testing for geopathic disturbance, the testing for infections, allergies and intolerance as well as appropriate colours and nosodes.

Previously prescribed medicines were tested for tolerance and retained in the case of requirement and tolerance, or, in case of intolerance, replaced by equivalent preparations that were more easily tolerated.

In the second period of treatment lasting from 2003 to 2008 (MORA + Zapper/03–08) the MORA method was frequently supplemented with the so-called Zapper method according to Hulda Clark (Full Gamma Frequency Generator, LPS Electronic srl, Italy) in the case of positively tested infections. At an output voltage of 9 V, square wave pulses in the frequency range of 280–450 kHz were transmitted to the patients in defined frequency ranges (with wobble technique) in several therapy steps.

In the relevant years of investigation no alterations were made in the equipment technology, the diagnostics, the test technique and the sequence of the therapy administered by EH.

Patients and indications

Overall observation at patient level

In the surgery all diseases within the internal-orthopaedic-neurological spectrum were treated in which an improvement of the symptoms as a result of reversible regulation processes of the patients could be anticipated. This included all types of pain, inflammatory diseases such as dental affections, neuritis (e.g. trigeminal neuralgia, lumbo-sciatica, shingles), wound healing disorders following surgery, interference fields in scar tissue, allergies such as pollinosis and neurodermatitis, rheumatic diseases, infections caused by bacteria and viruses, psychosomatic diseases, colitis ulcerosa and various types of gastrointestinal affections.

The patients comprise all age groups from infants to elderly patients. Approximately one third of the patients are between the ages of 36 and 55, about half the patients are older than 56 years and ca. two thirds of the patients are female (distributions are not displayed). The distribution with regard to age and gender in the treatment periods from 1998 to 2002 and 2003 to 2008 are similar (distributions are not displayed) and show no significant differences ($p > 0.05$).

Partial observation at indication level

Three disease groups, which were in particular treated in the surgery, were assessed separately. Some of the patients were suffering from complaints that related to two or three of the disease groups, so the number of cases exceeded the total number of patients.

The allergy group comprised pollen allergy, allergic asthma, neurodermatitis and food intolerance of all degrees of severity. The pain group included spine complaints, extra-articular rheumatism and neuralgia, such as sciatica, trigeminal neuralgia and pain from migraine, as well as secondary chronic polyarthritis and rheumatoid polymyalgia. Patients suffering from primary chronic polyarthritis as well as diagnosed fibromyalgia were not taken into consideration. The infection group comprised all kinds of infectious diseases such as dental inflammation, sinus affections, neuritis, gastrointestinal inflammation as well as diverse other viral, bacterial and parasitic diseases.

The gender and age distributions of the cases in the two treatment groups of allergic and pain diseases from 1998 to 2002 and from 2003 to 2008 are as mentioned at patient level. Only the age distributions of the infectious diseases groups differ significantly ($p < 0.01$). In this section the MORA-Zapper/03–08-group is significantly younger than the MORA/98–02-group (distributions are not displayed).

Assessment

The effectiveness of the treatment as global assessment of efficacy were ascertained by EH directly after the end of the treatment.

In the efficacy evaluation of the MORA-bioresonance method the fundamental problem of this trial was, that an abundance of different symptoms were comprised in the present investigation. On the part of the question regarding the efficacy of bioresonance therapy this makes sense, since it is postulated that the comprehensive and variable therapy approach of the bioresonance method positively influences the patient's self-regulating forces on various levels and thus can be quite effective in different diseases. On the part of the definition for evaluation levels of a therapy effect, the difficulty arises, that the usual symptom-specific rating scales (e.g. pain scales like the VAS) do not seem suitable for the assessment of such a variety of symptoms. Therefore another, more general rating scale had to be chosen for this trial (see below). For all guiding symptoms this rating scale was used equally in the evaluation of the overall cases as well as on the individual indications.

The assessment was carried out in four classes:

Very good (1): completely objective and subjective elimination of the symptoms of disease (healing). For example, a total analgesia of a rheumatoid polymyalgia existed according to the patient and no more anomalous disease-specific, cytological or biochemical parameters were noticed.

Good (2): considerable improvement of the symptoms of disease with subjectively high satisfaction of the patients and a good improvement of the objective parameters (e.g. cytological, biochemical or other parameters depending on the symptoms).

Previously taken allopathic medicaments were no longer necessary.

Satisfactory (3): distinct partial improvement of the symptoms with satisfaction of the patients with only limited objective parameters (e.g. anatomic parameters: on activated arthrosis no more pain, however still movement restrictions; e.g. biochemical parameters: no more allergy symptoms but with positive RAST-test). Although the previously taken allopathic medicaments could not be discontinued completely in some cases, the dosage could be reduced considerably. The multimorbid patients experiencing an improvement of some of the symptoms were often placed in this class.

Not satisfactory (4): the therapy concept had no measurable and observable effects on the symptoms of disease. No improvement of symptoms was reported on by the patients. Not even the dosage of previously taken allopathic medicaments could be changed. This class includes the therapy failures and the therapy drop outs.

As has already been mentioned, some patients were suffering from several diseases. The evaluation of the efficacy of the treatment in the case of these multimorbid patients was difficult because, especially when elderly, the patients continued to suffer from other symptoms that could not be relieved by the therapy concept practised, in spite of a considerable improvement of specific symptoms. In these cases EH endeavoured to conduct the evaluation particularly critically and, in case of doubt, made a lower assessment of the efficacy of treatment.

The sustainability of the treatment was not investigated in this study. The extensive feedback received months and even years after the treatment indicate a good sustainability effect especially in the allergy and infectious disease group.

Statistics

The statistical before and after comparison within the groups was conducted with the help of one-factor variance analysis with repeated observations [19]. To achieve this purpose, the qualitative classification of results (the global assessment) was classified in a rank scale (rank 4: not satisfactory (as before treatment), rank 3: satisfactory, rank 2: good and rank 1: very good.)

The efficacy (W) can be calculated with the sum of squares (Q_s) obtained from the variance analysis and the mean sum of squares (M_s). The efficacy (range from 0 to 1) is a mean estimated value for the degree of variation of the dependent variable (global assessment) within the relevant patient group which is determined by the independent variable (therapy).

The efficacy specified the mean effect size. As the variance analysis used separates the total variation in Q_s (within probands) and Q_s (between probands), only Q_s (within) is used for the calculation of W . Q_s (between) defines the variations between the individual parameter level of the probands and is therefore individual history that has nothing to do with the treatment practised.

The statistical comparison of the frequency distributions with regard to homogeneity was carried out with the Chi square test [20].

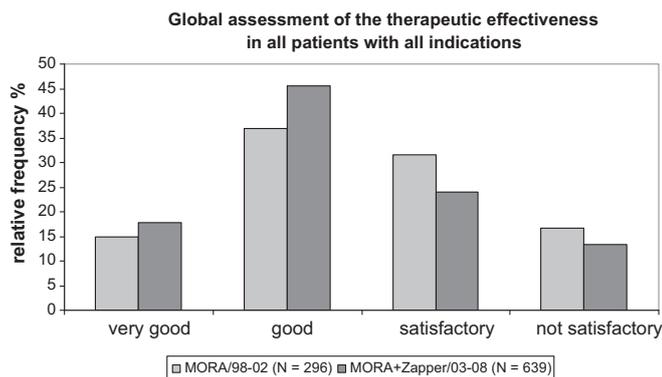


Fig. 1. Global assessment of the therapeutic effectiveness at patient level with regard to all treated indications. The two distributions differ significantly ($p < 0.05$). The relative frequency of the global assessment of a positive clinical effect (very good to satisfactory) with MORA + Zapper/98–08 is 85.6%, with MORA/98–02 is 83.3% and with MORA + Zapper/03–08 is 86.7%.

The test criterion was the 5% probability of error level.

Results

Assessment at patient level

Results of all treated indications

The relative frequency of the global assessment of a positive clinical effect (very good to satisfactory) with MORA + Zapper/98–08 is 85.6%, with MORA/98–02 is 83.3% and with MORA + Zapper/03–08 is 86.7% (Fig. 1). By virtue of the variance analyse an efficacy (W) or an effect size of 0.75 is obtained if MORA + Zapper/98–08 is taken as a basis, $W = 0.72$ with MORA/98–02 and $W = 0.77$ with MORA + Zapper/03–08. The verification of the frequency distributions (Fig. 1) with regard to homogeneity of exclusive MORA methods with the MORA Zapper method yields a significant difference ($p < 0.05$), in spite of considerable similarity.

Therapy failures and therapy drop outs

135 patients (14.4%) exhibited no decisive improvement in their complaints prior to termination of the therapy. 60.9% of the patients who experienced no improvement terminated the therapy after the second treatment session. As, due to the experience acquired with the MORA therapy method – according to the indication field and the chronicity of the disease, three to five therapy sessions are necessary before it can be established whether the patient responds decisively to the treatment. Informed patients who terminate the treatment after one or two sessions must, in all probability be classified as therapy drop outs and not as therapy failures. Thus from the 135 patients, who did not experience any improvement, approximately half of these patients (ca. 7%) must be classified as therapy drop outs.

Frequency of the therapy sessions

Throughout the whole period in approximately half of the patients (48.8%) a maximum of five treatment sessions led to a therapy success. Within the period MORA/98–02 treatment was successful in 45.3% of the patients and within

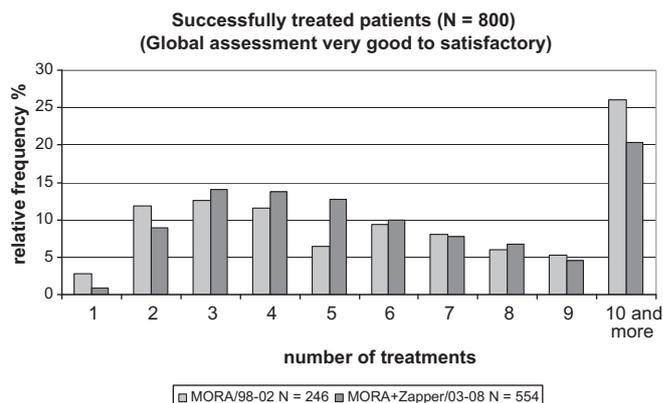


Fig. 2. Number of treatments received by the successfully treated patients. The two distributions differ significantly ($p < 0.01$). Throughout the whole period in approximately half of the patients (48.8%) a maximum of five treatment sessions led to a therapy success. Within the period MORA/98–02 treatment was successful in 45.3% of the patients and within the period MORA + Zapper/03–08 treatment was successful in 50.5%.

the period MORA + Zapper/03–08 treatment was successful in 50.5% (Fig. 2). These cases involved incidents of disease in the field of anatomy respectively biochemistry in which treatment was reversible or could be compensated in so far, that the symptoms could be eliminated or distinctly improved.

The group of patients with 10 or more therapy sessions concern the chronic diseases, whose anatomical respectively biochemical changes could only be influenced somewhat by our treatment respectively only after a longer time period. Examples for such incidents of disease were activated arthrosis, polymyalgia rheumatica, or postoperative neuralgias of the mouth–tooth–jawbone. A pain improvement showed as early as during the first sessions. The stabilization of these incidents of pain however, could only be achieved after a longer treatment period.

According to the Chi square test the relatively slight differences in the frequency distribution of MORA/98–02 and MORA-Zapper/03–08 (Fig. 2) are different ($p < 0.01$).

Assessment at indication field level

Allergies

Within the whole period of time the therapy was evaluated as clinically efficacious in 93.1% of the cases, with MORA/98–02 in 88.2% and with MORA + Zapper/03–08 in 95.1% of the cases (Fig. 3). By virtue of the variance analyse an efficacy (W) of 0.84 is obtained if MORA + Zapper/98–08 is taken as a basis, $W = 0.78$ with MORA/98–02 and $W = 0.86$ with MORA + Zapper/03–08. The verification of the frequency distributions with regard to homogeneity of the exclusive MORA method with the MORA Zapper method (Fig. 3) yielded a significant difference ($p < 0.01$).

Pain

During the whole period the therapy was evaluated as clinically efficacious in 90.0% of the cases, with MORA/98–02 in 85.9% and with MORA + Zapper/03–08 in 92.1% of the

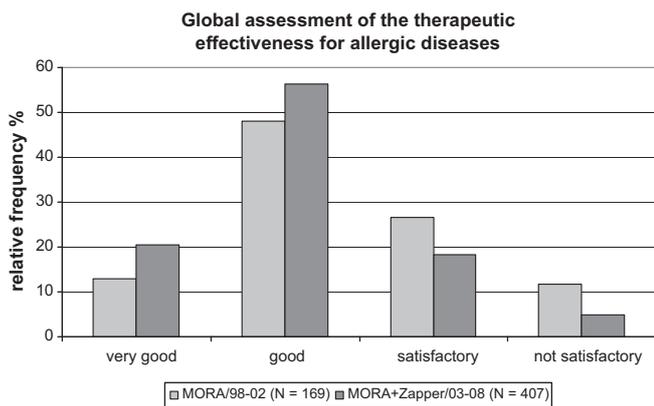


Fig. 3. Global assessment of the therapeutic effectiveness of the MORA therapy and the MORA therapy with supplementary Zapper therapy for allergic diseases. The two distributions differ significantly ($p < 0.01$). Within the whole period of time the therapy was evaluated as clinically efficacious (very good to satisfactory) in 93.1% of the cases, with MORA/98–02 in 88.2% and with MORA + Zapper/03–08 in 95.1% of the cases.

cases (Fig. 4). By virtue of the variance analysis an efficacy (W) of 0.79 is obtained if MORA + Zapper/98–08 is taken as a basis, $W = 0.73$ with MORA/98–02 and $W = 0.81$ with MORA + Zapper/03–08. The verification of the distributions of the exclusive MORA method with the MORA Zapper method (Fig. 4) yielded no significant difference ($p > 0.05$).

Infections

During the whole period the therapy was evaluated as clinically efficacious in 94.2% of the cases, with MORA/98–02 in 96.1% and with MORA + Zapper/03–08 in 93.6% of the cases (Fig. 5). By virtue of the variance analysis an efficacy (W) of 0.84 is obtained with MORA + Zapper/98–08, MORA/98–02 and MORA + Zapper/03–08. The verification of the distributions of exclusive MORA methods and MORA Zapper methods (Fig. 5) does not result in any significant difference ($p > 0.05$).

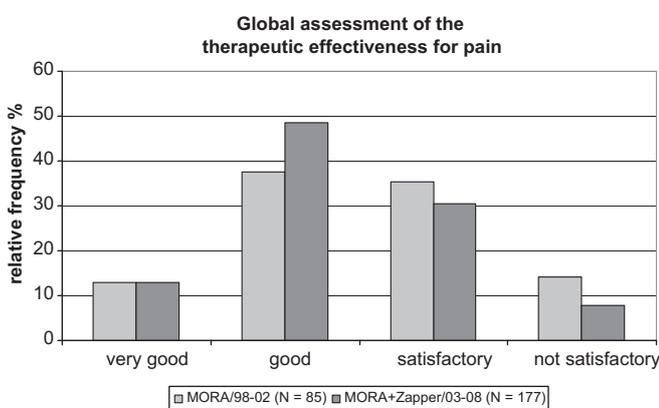


Fig. 4. Global assessment of the therapeutic effectiveness of the MORA therapy and the MORA therapy with supplementary Zapper therapy for pain. The two distributions do not differ significantly ($p > 0.05$). During the whole period the therapy was evaluated as clinically efficacious (very good to satisfactory) in 90.0% of the cases, with MORA/98–02 in 85.9% and with MORA + Zapper/03–08 in 92.1% of the cases.

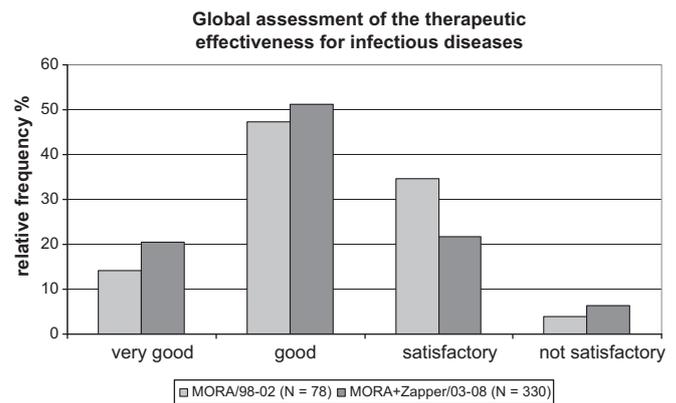


Fig. 5. Global assessment of the therapeutic effectiveness of MORA therapy and MORA therapy with supplementary Zapper therapy for infections. The two distributions do not differ significantly ($p > 0.05$). During the whole period the therapy was evaluated as clinically efficacious (very good to satisfactory) in 94.2% of the cases, with MORA/98–02 in 96.1% and with MORA + Zapper/03–08 in 93.6% of the cases.

Tolerance

Regardless of the age of the patient, the MORA therapy is extremely well tolerated. An initial worsening of symptoms could occur after the first two therapy sessions which then disappear of their own accord within the first few hours following the therapy. Undesirable adverse therapeutic effects, which demand medical intervention or the discontinuation of the therapy, have never been observed. This also applies to the Zapper method.

Discussion

Firstly it must be emphasised that the findings of this trial relate to therapy-resistant patients suffering predominantly from chronic diseases. Contrary to the healing successes obtained in a normal medical surgery, where one can conventionally anticipate a success rate of 70–80%, including the many unproblematic patients suffering from acute diseases with a high tendency to self healing, the participants in this study are the 20–30% therapy failures of a “normal” surgery with low spontaneous tendency to healing and low spontaneous fluctuations. The high efficacy (effect sizes) of the sole MORA therapy (Table 1) at patient level with all indications ($W = 0.72$), as well as in the indication of allergies ($W = 0.78$), of pain ($W = 0.73$) and of infections ($W = 0.84$) are presumably only subject to slight influence from non-MORA specific effects. A remarkable thing about it is that the effect size is similar in three very different fields of indication (see below).

The supplementary Zapper therapy practised significantly improved, but only slightly the efficacy of the MORA therapy at patient level in all indications and in the indication of allergies (Table 1). This also appears to be confirmed through the minor, but significant, reduction of the number of treatment sessions with the supplementary Zapper therapy. The efficacy in the indication field pain is tendentially and slightly increased by the supplementary Zapper therapy. In the case of infectious diseases, the supplementary Zapper therapy does not increase

Table 1
Overview of findings of efficacy *W* (effect size) and the comparative distribution tests of the therapeutic effectiveness of the MORA therapy and the MORA therapy with supplementary Zapper therapy with regard to patients and indication field level.

	Type and period of treatment	Efficacy (<i>W</i>) (variance analysis)	MORA/98–02 versus MORA + Zapper/03–08 (Chi square test)
All patients, all indications	MORA + Zapper, 1998–2008, <i>N</i> = 935	0.75	Significant <i>p</i> < 0.05
	MORA 1998–2002, <i>N</i> = 296	0.72	
	MORA + Zapper 2003–2008, <i>N</i> = 639	0.77	
Indication field allergies, cases	MORA + Zapper, 1998–2008, <i>N</i> = 576	0.84	Significant <i>p</i> < 0.01
	MORA 1998–2002, <i>N</i> = 169	0.78	
	MORA + Zapper 2003–2008, <i>N</i> = 407	0.86	
Indication field pain, cases	MORA + Zapper, 1998–2008, <i>N</i> = 262	0.79	Not significant <i>p</i> > 0.05
	MORA 1998–2002, <i>N</i> = 85	0.73	
	MORA + Zapper 2003–2008, <i>N</i> = 177	0.81	
Indication field infections, cases	MORA + Zapper, 1998–2008, <i>N</i> = 408	0.84	Not significant <i>p</i> > 0.05
	MORA 1998–2002, <i>N</i> = 78	0.84	
	MORA + Zapper 2003–2008, <i>N</i> = 330	0.84	

the efficacy of the MORA therapy (Table 1). Be that as it may, the additional application of the Clark-therapy does not result in a further substantial effect. In our opinion this is due to the fact, that with the MORA-concept a comprehensive, widely indication independent, diagnostic–therapeutic concept was used (with infectious nosodes also), which has a wide scope in chronic diseases, so that this scope coincides with the scope of the Zapper method (thereto also see below). Therefore the merely supplementary Zapper therapy could not develop its full effect beyond that, which does not mean that she is not to be regarded isolated as clinically effective.

The exact biophysical and physiological mode of functioning of the Zapper therapy – like that of the bioresonance therapy – has yet to be clarified. However, two *in vitro* studies have meanwhile been conducted which document a direct inhibition in the growth of *Candida* [21,22].

Furthermore, it must be emphasised that the therapeutic effectiveness of the MORA concept is evaluated in this study. It can and should not serve as specific evidence of efficacy of the MORA bioresonance therapy. In accordance with current medical understanding, such isolated specific evidence of efficacy can only be presented by means of randomised, double-blind controlled studies involving standardised therapeutic interventions. So far, two such double-blind studies have been conducted, one in the indication field of allergies [14], which shows tendentially positive but not significant results and a further test conducted within the scope of quitting smoking [11], which shows a significant and sustainable positive result.

In the allergy indication field there are currently 11 further positive uncontrolled studies in existence [23–33] and five controlled studies have been conducted, of which three show unrestricted positive results [6,7,34] and two show significant or tendential results only in some areas [13,14]. These studies confirm the results presented.

Within the indication field of pain three uncontrolled studies [9,35,36] and a range of controlled studies [4,5,8,10,37] confirm the positive results presented.

In the indication field of infectious diseases only one study has been conducted on the therapeutic effectiveness of the method. In this retrospective questioning [9] the classical biores-

onance therapy was found to be clinically efficacious in the treatment of infections in 98.4% of the cases (*N* = 63), similar to the findings of this investigation.

If in relation to the retrospective study conducted by Rahlfs and Rozehnal [9], the positive global assessment of the clinical effectiveness in 92.4% of the cases throughout all indications and patients (*N* = 541) is compared with the presented results involving exclusive MORA therapy throughout all indications and patients resulting in a success rate of 83.3% and the fact that almost all the patients treated by EH are the so-called “problem patients” are taken into consideration, the two independently conducted investigations confirm a high therapeutic effectiveness of the bioresonance method within a wide range of indications. The conclusion can be drawn that, by virtue of their practical non-indication specific clinical positive effects (see therefore also Figs. 3–5) as well as their fundamental biological efficacy [e.g. 38–43], and taking the possibility of electronic storability of the biological and clinical efficacious information into consideration, the bioresonance therapy must underlie an elementary biophysical mechanism of action at the level of electromagnetic interaction [3, see below]. This hypothesis has recently been confirmed by two independently conducted studies [44,45].

From our point of view, the analogy of the effect-intensity of the MORA-bioresonance therapy and the frequency distribution’s analogy in view of EH’s evaluation (very good, good, ...) of the various indications (see Figs. 3–5) is essentially due to two reasons, for one the diagnostic–therapeutic level and for another on the biophysical level:

1. For all indications, the MORA-concept applies an identical diagnostic–therapeutic strategy, largely independent of the clinical indications. Based on the EAP-bioresonance test on the terminal acupuncture points, the external stress factors are initially balanced in the first treatment step and hence eliminated (geopathic stress, primary allergies, food intolerances, heavy metal pollution, intestinal mycosis, scar tissue-disturbance fields, tooth foci, medical drug pollution, environmental toxins, and chronic infectious burdens). The human self-healing potential should be relieved from

blocking burdens as effectively as possible. In the subsequent second step, again largely independent of the clinical indication with due regard to the still existing energetic situation at the terminal acupuncture points and based on the EAP-bioresonance test the self-regulating potential is prompted by means of point-therapy, energy-circulation therapy, electronic nosodes, electronic homeopathy, electronic colour-therapy and if necessary using suitable indication-specific therapy programs.

2. A further reason for the efficacy of the MORA bioresonance therapy without differentiation of medical indication is the suspected biophysical action mechanism. In a nutshell, we postulate that the bioresonance method activates an interaction of the human electromagnetic oscillation field with him/herself or with external oscillations and, by destructive interference, an integration of previously rigid, isolated oscillations (“pathological oscillation”, electromagnetic correlate of the disease) in the flexible and dynamic human oscillation field (healthy oscillation field) ensues with the subsequent dissolution of physiological blocks. The electromagnetic program structure within the superordinate human electromagnetic regulation-respectively information field will be readjusted with a corresponding impact on the associated biochemical and physiological fields. Irreversible anatomical changes cannot be reversed by the bioresonance method.

The comparison of MORA with MORA + Zapper in consecutive periods of time at patient and indication field level is based on two prerequisites: 1. the treatment concept and 2. the patient and the disease characteristic have remained unchanged.

To 1. EH had already practised the MORA concept 14 years prior to the investigation period. This procedure was adhered to unchanged in the two consecutive investigation periods.

To 2. The gender distributions of patient and indication field level in the comparative periods are very similar. The age distributions at patient level with all indications do not differ significantly. The patients over the age of 36 in the MORA + Zapper/03–08 period are somewhat younger than in the MORA/98–02 period. This trend was also shown in the indication field allergies, pain and clearly and significantly in the indication field infection. It may be assumed that this age shift has an influence on the clinical efficacy of the treatment and the efficacy of the MORA + Zapper therapy in relation to exclusive MORA therapy is overestimated, especially in the infectious disease group.

Due to the unselected procedure employed for many years and the large number of patients, it can be presumed that the respective comparative groups are similar with regard to the characteristic of the diseases. However, this presumed similarity is not explicitly proven by distributions.

Conclusion

The MORA therapy is of high practical benefit in the treatment of diseases of the internal-orthopaedic-neurological

spectrum and is of special benefit in the case of allergies, pain and infections in patients who are resistant to conventional therapy.

Conflict of interest statement

Eckart Herrmann has no possible conflict of interest in relation to this article. Michael Galle is a scientific consultant of Med-Tronik GmbH.

References

- [1] Morell F. MORA-Therapie – patienteneigene und Farblichtschwingungen. Heidelberg: Haug; 1987.
- [2] Herrmann E. Das MORA-Praxisbuch – Therapie mit körpereigenen Schwingungen. Heidelberg: Haug; 1998.
- [3] Galle M. MORA-Bioresonanztherapie... und es funktioniert doch! Biologische Fakten -Physikalische Thesen. Wiesbaden: Pro-medica; 2002.
- [4] Maiko O Ju, Gogoleva EF. Outpatient bioresonance treatment of gonarthrosis. Ter Arkh 2000;72(12):50–3.
- [5] Gogoleva EF. New approaches to diagnosis and treatment of fibromyalgia in spinal osteo-chondrosis. Ter Arkh 2001;73:40–5.
- [6] Yang J, Zhang L. 300 Behandlungsbeispiele gegen Asthma mittels BICOM-Gerätes für die Kinderpatienten. Matern Child Health Care China 2004;19(9):126–7.
- [7] Huang S, Sun Z, Fang Y. Klinische Behandlung vom allergischen Schnupfen und Bronchialasthma der Kinder mit dem Bioresonanztherapiegerät. Zhejiang Med J 2005;27(6):457–8.
- [8] Nienhaus J, Galle M. Placebokontrollierte Studie zur Wirkung einer standardisierten MORA Bioresonanztherapie auf funktionelle Magen-Darm-Beschwerden. Forsch Komplementarmed 2006;13:28–34.
- [9] Rahlfs VW, Rozehnal A. Wirksamkeit und Verträglichkeit der Bioresonanzbehandlung. Erfahrungsheilkunde 2008;57(8):462–8.
- [10] Schuller J, Galle M. Untersuchung zur Prüfung der klinischen Wirksamkeit elektronisch abgespeicherter Zahn- und Gelenksnosoden bei Erkrankungen des Rheumatischen Formenkreises. Forsch Komplementarmed 2007;14:289–96.
- [11] Pihili A, Cuhadaroglu C, Kilicaslan Z, Issever H, Erkan F. The effectiveness of bioresonance method in quitting smoking. Clinical report 2009. University Istanbul, Turkey: Department of Medicine.
- [12] Chen T, Guo ZP, Zhang YH, Gao Y. Effect of MORA bioresonance therapy in the treatment of Henoch-Schönlein purpura and influence on serum antioxidant enzymes. J Clin Dermatol 2010;39(5):283–5.
- [13] Kofler H, Ulmer H, Mechtler E, Falk M, Fritsch PO. Bioresonanz bei Pollinose – eine vergleichende Untersuchung zur diagnostischen und therapeutischen Wertigkeit. Allergologie 1996;19(3):114–22.
- [14] Schöni MH, Nikolaizik WH, Schöni-Affolter F. Efficacy trial of bioresonance in children with atopic dermatitis. Int Arch Allergy Immunol 1997;112:238–46.
- [15] Wille A. Bioresonanztherapie (biophysikalische Informationstherapie) bei stotternden Kindern. Forsch Komplementarmed 1999;6 Suppl. 1:50–2.
- [16] Wüthrich B, Frei PC, Bircher A, et al. Bioresonanz – diagnostischer und therapeutischer Unsinn. Schweiz Ärztezeitung 2006;87:50–4.
- [17] Classen M. Kuhmilchinduzierte Enteropathie – Diagnostik durch Bioresonanz? Pädiatrische Praxis 2007;70(4):612–4.
- [18] Kleine-Tebbe J, Ballmer-Weber B, Beyer K, et al. In-vitro-Diagnostik und molekulare Grundlagen von IgE-vermittelten Nahrungsmittelallergien. Allergo J 2009;18(2):132–46.
- [19] Eimer E. Varianzanalyse. Stuttgart: Kohlhammer; 1978.
- [20] Sachs L. Angewandte Statistik. Berlin: Springer; 1997.
- [21] Puacz E, Elmborg LK. Evaluation study on the effect of three electric currents on the *Candida albicans* fungus cells. Polish J Environ Stud 2006;15(2b):1514–6.
- [22] Puacz E, Elmborg LK. Studies on the effect of Medizap and Ne 555 devices used in natural medicine on the *Candida albicans* fungus cells. Polish J Environ Stud 2006;15(2b):1517–9.

- [23] Morell F. Allergietherapie mit dem MORA-Super – eine prospektive Praxisstudie. Ottfingen, Germany: Klinischer Bericht; 1988.
- [24] Schumacher P. Biophysikalische Allergietherapie – Grundlagen und Ergebnisse. *Erfahrungsheilkunde* 1990;39(12):812–7.
- [25] Schumacher P. Biophysikalische Therapie der Allergien. Sonntag: Stuttgart; 1998. p. 147–154.
- [26] Hennecke J. Energetische Allergietherapie – Möglichkeiten und Erfahrungen mit der Bicom-Bioresonanztherapie. *Ärztezeitschrift für Naturheilverfahren* 1994;35:427–32.
- [27] Xu M, Zheng M, Xu Y, Jang J, Zhang X. Klinische Beobachtung der Behandlung vom chronischen Nesselausschlag mit dem Bioresonanztherapiegerät. *China J Lepr Skin Dis* 2005;21(7):533–4.
- [28] Feng Y, Chen H, Li R, Liu L. Die neulich klinische Beobachtung der Heilwirkung mit Bioresonanztherapiegerät in 150 casesn der Kinder-Allergiekrankeheit. *Chin J Contemp Paediatr* 2005;7(3):257–8.
- [29] Du X, Liu Y, Yang J. Klinische Beobachtung über 79 Behandlungsfälle gegen allergische Hautkrankheiten mittels Bioresonanzgerät. *Chin J Pract Med* 2005;4(5):259.
- [30] Zhang X, Wang W, Liu Q. Klinische Beobachtung über 54 Behandlungsfälle gegen Nesselausschlag mittels BICOM Bioresonanztherapiegerät. *China J Lepr Skin Dis* 2005;21(8):651.
- [31] Cheng CF, Wu YL, Tsai MH, Wu WF, Liu LL. A study to evaluate the efficacy of bioresonance therapy of MORA device on allergic symptoms. Clinical report 2008, Danshuei Township Public Health Center, Taipei County, Taiwan. In: Presented on the Second World Conference of Natural Medicine. 2008.
- [32] Wen Q, Zhang C, Liu H. Allergy disease test and therapy result observation with MORA-Super biophysical therapy device. Clinical report 2009. Xingjiang, China: Dermatology Section of Herbal Medical Hospital.
- [33] Li Y, Liu H. Observation on clinical treatment result for both chronic and acute urticaria with MORA device. *Chin J Clin Dermatol* 2009;50(3):128–9.
- [34] Chervinskaya AW, Gorelow AI, Nasarowa LW. MORA-Therapie bei respiratorischen und allergischen Erkrankungen. Clinical report 1997, Central Medical Department No. 122. University St. Petersburg.
- [35] Nienhaus J. MORA und Psychosomatik. Med-Tronik: Friesenheim; 1999. p. 65–74.
- [36] Uellendahl U. Darstellung der MORA-Color-Methode in der Behandlung von chronischen funktionellen Schmerzen am Bewegungsapparat. Universität Bratislava, Slowakei: Rigorosearbeit zum Dr. päd., Sportwissenschaftlichen Fakultät; 2008.
- [37] Papcz BJ, Barpvic J. Einsatz biophysikalischer Frequenzverfahren beim Überlastungs-syndrom von Leistungssportlern. *Erfahrungsheilkunde* 1999;48(7):S.449–50.
- [38] Hutzschenreuter P, Brümmer H. Die Narbe, das Keloid und die MORA-Therapie. *Therapeutikon* 1991;5(10):507–15.
- [39] Endler PC, Pongratz W, Smith CW, Schulte J. Non-molecular information transfer from thyroxine to frogs. *Vet Human Toxicol* 1995;37:259–63.
- [40] Benveniste J, Aissa J, Guillonnet D. Digital biology: specificity of the digitized molecular signal. *FASEB J* 1998;12:A412 [see in greater detail: www.digibio.com].
- [41] Fedorowski A, Steciwko A, Rabczynski J. Low-frequency electromagnetic stimulation may lead to regression of Morris Hepatoma in Buffalo rats. *J Altern Complement Med* 2004;10(2):251–60.
- [42] Thomas Y, Schiff M, Belkadi L, Jurgens P, Kahhak L, Benveniste J. Activation of human neutrophils by electronically transmitted phorbolmyristate acetate. *Med Hypotheses* 2000;54(1):33–9.
- [43] Podcernyaeva R Ja, Lopatina OA, Mikhailova GR, Baklanova OV, Danlibaeva GA, Gushina EA. Effect of exogenous frequency exposure on human cells. *Bull Exp Biol Med* 2008;146(1):148–52.
- [44] Korenbaum VI, Chernysheva TN, Apukhtina TP, Sovetnikova LN. Absorption spectra of electronic–homoeopathic copies of homoeopathic nosodes and placebo have essential differences. *Forsch Komplementarmed* 2006;13:294–7.
- [45] Montagnier L, Aissa J, Ferris S, Montagnier J-J, Lavallee C. Electromagnetic signals are produced by aqueous nanostructures derived from bacterial DNA sequences. *Interdiscip Sci Comput Life Sci* 2009;1:81–90.
- [46] Lüdtker R. Journal club – Methodischer Kommentar. *Forsch Komplementarmed Klass Naturheilkd* 1998;5:96–7.