5 Homeopathy — a case in point why EBM is so important — or, “the plural of anecdote is not data.”

5.1 Alternatives to medicine?

EBM is by now the established way to conduct medical research and practice, sometimes more, sometimes less successful and always dependent on the user, both the physician and the patient. And although a lot of the criticism levelled at EBM can be refuted or EBM changed in a way that it is still true to its principles and still patient friendly, many patients are looking for alternatives to EBM and medicine in general. They are either dissatisfied by the way there are treated in hospitals and by conventional GPs, or they are slightly afraid of the treatments which can have side effects and whose ingredients lists contain long and hard-to-understand words. These dissatisfied patients look for other means to treat and cure their ailments and a whole market of ‘alternative’ medicines has sprung up to cater to these patients wants and needs. Foremost of these alternative treatments is homeopathy, closely followed by acupuncture. The treatments claim to be more ‘natural’ in that they do not use any harsh chemicals and that they are more gentle, taking the whole person into account. This chapter will mainly deal with homeopathy and its methodological problems as a case in point why EBM is so important and why we need modern science to heal and cure. If these ‘alternative’ treatments are effective, they belong in the realm of EBM, and if they are not, they are no alternative to EBM, but should be abandoned. Either something is a medicine or it is not. There is no such thing as an ‘alternative’.304

5.2 Historical context of homeopathy

The methodology of homeopathy was developed by Samuel Hahnemann (1755-1843) and is based on two principles. ‘Like cures like’ latinised by Hahnemann into ‘similia similibus curantur’, and the assumption that water retains memory of

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303 Edzard Ernst and Simon Singh. (2008). Trick or Treatment? The undeniable facts about alternative medicine. London: Transworld Books.
304 Edzard Ernst. (2015). A Scientist in Wonderland: A memoir of searching for truth and finding trouble. Exeter: Imprint Academic.
the molecules it once contained. Hahnemann even considered the first principle, that ‘like cures like’ to be a law of nature. At the time Hahnemann came up with his homeopathic principles and remedies, regular medicine was not very successful in treating many conditions. Blood letting was still a very much accepted treatment and many patients died because of it. Many remedies commonly prescribed by doctors were poisonous, like lead or arsenic. Cocaine for example was considered a usable and successful treatment for pain and anxiety. Since homeopathic treatments usually do not contain any active ingredients, they could do no active harm compared to the many harmful treatments that were used. ‘Usually’ because some homeopathic treatments in very low potencies do contain active ingredients, but low potencies were and are seldom, if ever, prescribed. Patients that were treated by Hahnemann were treated compassionately and with time. They received good care and the body had time to heal itself. Naturally homeopathy looked very successful in comparison. And the comparison became even more favourable in cases of epidemics such as the cholera outbreak in London in 1854. At this point in time London already had a homeopathic hospital and the survival rate of cholera patients there was higher than in the regular hospitals. The homeopaths naturally argued that it was because of their treatments. However, the so called ‘heroic medicine’ used in the conventional hospitals, including treatments like blood-letting, was actively harming the patients. And the standards of hygiene and overall good food and cleanliness was higher in the homeopathic hospital as well. Doing nothing, in a clean environment, was in many cases much preferable than being subjected to some of the quackery of the time.

It was very important to Hahnemann that homeopathy was not equalled to herbal medicine, which he deemed dangerous because of the use of poisonous herbs and plants. Herbal medicine does contain active ingredients and is strictly plant based. Hahnemann also insisted that his system of diagnosis and treatment was not allowed to be altered. Followers had to strictly adhere to his rules. He himself had come up with homeopathy by ingesting cinchona bark, a bark containing quinine used to cure, or at least treat, malaria. Since he was healthy at the time, but soon after ingesting the bark developed symptoms which he figured where like the symptoms of malaria, he surmised that what can trigger the symptoms in a healthy person can cure the same symptoms in a patient afflicted with

305 Edzard Ernst. (2016). Homeopathy - The Undiluted Facts. Switzerland: Springer: 9
306 Edzard Ernst. (2016): 23.
307 Ben Goldacre. (2009): 29.
308 L. Grinspoon, JB Bakalar. (1981). “Coca and cocaine as medicines: an historical review.” in Journal of Ethnopharmacology: 149-159.
309 Edzard Ernst. (2016): 29.
310 Edzard Ernst. (2005). “The efficacy of herbal medicine – an overview.” in Fundamental & Clinical Pharmacology, 19: 405–409.
the disease. So was born the ‘like cures like’ principle. He most probably only had an idiosyncratic adverse reaction, but believed the sensation to be genuine. His second assumption was that the more the treatment was diluted, the more potent it was. During Hahnemann's time, the knowledge about the atom or the molecule as the smallest possible unit of a chemical substance was only just being recognised. So Hahnemann could quite rightfully claim that very high dilutions of a substance, to the point were there were no molecules of the treatment in the original substance left, were possible because it was not known otherwise. However, to make the solution really potent in Hahnemann’s view, it needed to be shaken vigorously. He called the process succussion and claimed that the memory of water is ‘triggered’ specifically by that method. Succussion means the banging of the bottle with the prepared tincture on a hard but yielding surface. Hahnemann ‘invented’ these surfaces by creating wooden boards covered with leather which were stuffed with horse hair, making them yielding enough to not break any glass vials. He came up with the idea while riding in a horse drawn carriage. “He believed that the vigorous shaking of the vehicle had further increased the so-called potency of his homeopathic remedies….” However, so far no difference has ever been detected in the tincture before or after succussion. The alleged water memory cannot be shown, even though it has been repeatedly put under test. “The process of dilution and succussion is termed ‘dynamization’ or ‘potenization’ by homeopaths. In industrial manufacture this may be done by machine.”

Hahnemann believed that homeopathy was a true ‘alternative’ to regular health care, going so far as to claim that patients were not allowed to be treated by a homeopath and a regular doctor at the same time and even claiming that homeopaths who did not adhere to his rules were ‘traitors.’

Today there exist a number of different schools of homeopathy, each having a slightly different focus. The actual way that remedies are produced however and the focus on the patient as an individual who needs individualised treatment is largely the same for all schools. Therefore it is reasonable to look at an overall methodology of homeopathy, especially in comparison to the methodology of EBM.

5.3 The methodology of homeopathy

One big criticism towards EBM is that it is not holistic enough, that it looses, sometimes simply because of time constraints, the patient out of sight. Practicing homeopaths, regardless of school or inclination, claim to fill this gap. Homeopaths

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311 Ben Goldacre. (2009): 30.
312 Ben Goldacre. (2009): 33.
313 Edzard Ernst and Simon Singh. (2008): 96.
314 Edzard Ernst. (2016): 12.
look at the entire patient, also taking the psychological well-being into account and design individualised treatments for each patient. A first visit to a homeopath can often last over an hour or even longer, in which the homeopath is exclusively listening to the patient and encourages the patient to keep on talking about symptoms, but also about their lives and problems.\(^{315}\)

Homeopathic remedies are supposed to be individualised to a degree that the same treatment might not treat the same symptoms in two different patients. And two different homeopaths might choose very different remedies for the same patient presenting with the same symptoms. All the treatments are listed in the ‘repertories.’ These consist of long lists of the different symptoms that are caused by the different remedies and which these remedies then are suppose to cure. Repertories have only been altered over time by the addition of new remedies. They have neither been questioned nor altered according to science.\(^{316}\) They are available today for downloading, so every lay person can access them and since homeopathic remedies are available over the counter, can devise their own treatment, without ever having to see a homeopath.\(^{317}\) The only reason why that approach is not in itself dangerous is precisely because there are no active ingredients in homeopathic remedies and hence consuming them, even the ‘wrong’ remedy or too much or too little, cannot lead to adverse effects. The ‘only’, but significant danger is that patients are delaying or foregoing life-saving treatment because they rely on homeopathy, and consequently harm themselves or those in their care.

‘Like cures like’, Hahnemann's first principle, means that the substance that can bring symptoms of a disease about in a healthy person can cure the ill person of that disease. For example, homeopathic red onion is used for curing watering eyes in a cold and Apis, made from bee venom is used against pain and swelling from bee stings.\(^{318}\) The remedies should bring about an “‘artificial disease’ which would stimulate the patient’s vital force, which would in turn defeat the patient’s real disease.”\(^{319}\)

This approach however is not to be confused with vaccines which use the germs that cause a disease to immunise against that disease. These germs however

\(^{315}\) Natalie Grams. (2015). Homöopathie neu gedacht: Was Patienten wirklich hilft. Berlin, Heidelberg: Springer Verlag: 32.

\(^{316}\) Edzard Ernst. (2016): 133.

\(^{317}\) Kent Homeopathic repertory for Iphone. http://download.cnet.com/Kent-Homeopathic-Repertory/3000-2129_4-75978808.html. Last accessed on October 6th, 2017. Or: Complete Dynamics — Professional homeopathy. http://download.cnet.com/Kent-Homeopathic-Repertory/3000-2129_4-75978808.html. Last accessed on January 23rd, 2020. These two are only a demonstration of the possibilities to access homeopathic repertories on the internet.

\(^{318}\) Janko von Ribbeck. (2012). Schnelle Hilfe für Kinder. Notfallmedizin für Eltern. München: Kösel Verlag: 240.

\(^{319}\) Edzard Ernst. (2016): 10.
are measurable in the vaccine, they are either killed or weakened so that they act-
ivate the immune system, not produce a kind of ‘artificial disease, and do not
make the patient sick. If the germ is only weakened, the patient can experience
minor side effects, but they are usually mild and only last a couple of days, if at
all.\textsuperscript{320} The huge difference to homeopathic treatments is that vaccines contain ingre-
dients that are traceable and really trigger a measurable response in the body. They
are not claiming a ‘like cures like’ principle but work by activating a response of the
human immune system to create antibodies. They are not curative, but preventive.
Homeopathic remedies are diluted to the point were there is no active ingredient left
in the remedy, therefore they can not influence the immune system. Any type of
response to the treatment that the patient experiences is strictly due to the placebo
effect or some form of observation or selection bias. As with placebos, the simple
act of providing a treatment and telling the patient that the symptoms are going to be
better shortly is often enough to trigger a positive response.

The ‘mother tincture’ from which the homeopathic treatments are derived is
either water or alcohol in which the ingredient is dissolved. Homeopathic ingredi-
ents can range from plant material to animal material to actual human material.
The latter is most often ‘disease’ material, i.e. pus or secretion from open wounds.
Additionally homeopath use so called \textit{imponderables}, i.e. x-rays or sunshine, in
their remedies.\textsuperscript{321} The ‘mother tincture’ however is never used as the actual rem-
edy, since homeopaths believe that the higher the dilution, the more potent the
treatment. The active ingredient is taken out of the ‘mother tincture’ and the result-
ing liquid is then diluted. “For example, homeopathic strengths of 30C are common,
which means that the original ingredient has been diluted 30 times by a factor of 100
each time. Therefore, the original substance has been diluted by a total factor of
1,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.
This string of noughts might not mean much, but bear in mind that one gram
of the mother tincture contains less than 1,000,000,000,000,000,000,000,000,000,000,000,000,000,
 molecules. As indicated by the number of noughts, the degree of dilution is vastly
bigger than the number of molecules in the mother tincture which means that there
are simply not enough molecules to go round.”\textsuperscript{322}

“The laws of chemistry state that there is a limit to the dilution that can be made with-
out losing the original substance altogether. This limit, which is related to Avogrado’s
number, corresponds to homeopathic potencies of 12C or 24X (1 part in \textsuperscript{1024}). Modern

\textsuperscript{320} WHO vaccines website. \url{http://www.who.int/topics/vaccines/en/} Last accessed on January 23\textsuperscript{rd},
2020.
\textsuperscript{321} Edzard Ernst. (2015): 9.
\textsuperscript{322} Edzard Ernst and Simon Singh. (2008): 98
proponents [of homeopathy] claim that even when the last molecule is gone, a ‘memory’ of the original substance is retained.”

Avogadro’s number is $6.023 \times 10^{23}$ and is the number of atoms or molecules in a mole of any substance. A mole is the molecular weight of the substance in grams. Meaning that when anything is diluted beyond Avogadro’s number, there are no more molecules of the original ingredient found in the substance. In a 30C solution, the number of molecules that one would need to consume to actually consume a molecule of the active ingredient would span the oceans of the globe. And again, so far all the research has not shown that water contains any lasting memory of any substance it ever touched. “Physicists have studied the structure of water very intensively for many decades, and while it is true that water molecules will form structures round a molecule dissolved in them at room temperature, the everyday random motion of water molecules means that these structures are very short-lived, with lifetimes measured in picoseconds, or even less. This is a very restrictive shelf life.”

Additionally, since the earth does have a closed water circuit, water would need to have a huge memory of all the molecules it ever touched. Homeopaths allege that the water memory is triggered by vigorously shaking the vial that contains the solution. They call it succussion, following Hahnemann. Yet again, it has never been scientifically proven that the shaking makes any difference. The homeopathic substance is either water or alcohol, nothing more. Most homeopathic remedies however are not given as water or alcohol, i.e. in their diluted form, but as little pills made from lactose, a milk sugar. These lactose pills are moistened with the diluted tincture and left to dry before they are given to the patient. Many placebo pills are made from lactose, since it is an easy to obtain and well-to digest compound. Only those patients being lactose-intolerant might have a reaction, but since the pills are so small, not even that is a real concern. So basically 90% of homeopathic remedies are just sugar with about 10% being water or alcohol.

Another important part of the methodology of homeopathy is the so-called ‘proving’. Remedies are given to healthy individuals and they have to record their symptoms for a number of days or weeks. These symptoms are then compiled and if they appear in multiple people, the remedy is believed to treat these symptoms in sick patients. Provings are done with between 2 and 200 people and the symptoms are not checked for different causes. Homeopaths claim that these provings

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323 Stephen Barrett. (2002) “Homeopathy’s ‘Law of Infinitesimals’”. in HomeoWatch Home Page. https://www.homeowatch.org/basic/infinitesimals.html. Last accessed on January 23rd, 2020.

324 Ben Goldacre (2009): 35.

325 L. R. Milgrom. (2007). “Conspicuous by its absence: the Memory of Water, macro-entanglement, and the possibility of homeopathy.” in Homeopathy 96(3): 209-219.
are sufficient to show that the remedy is working and that standardised medical trials, like RCTs are insufficient in the case of homeopathy, because homeopathic remedies are individualised to the patient and cannot be tested outside their specific context. The homeopath together with the patient finds the appropriate remedy. There are very limited remedies specific to one symptom which can be given as a fail-safe. Arnica is one of the remedies that is given frequently to treat cuts and bumps from falls, especially in children, and to reduce pain and swelling. A useful remedy can be obtained from the plant arnica which does help against muscle pain and eases bumps from falls when administered as a cream. However, when arnica is used in herbal medicine, the remedy actually contains arnica as an active ingredient. Therefore there is a difference between arnica in homeopathy and arnica in herbal remedy. The former is not part of medicine, the latter however is. Since arnica is often the first homeopathic remedy patients get acquainted with, and since the effects of arnica are generally well-known, the placebo-effect easily kicks in and people believe that the homeopathic arnica remedy has the same effect as the actual herbal remedy.

Some homeopaths are also providing homeopathic ‘vaccinations’ and are claiming that they are sufficient safeguard against disease. These so-called ‘nosodes’ are made from viruses and bacteria causing the disease in question. But instead of them being weakened, but able to trigger the immune system, like a usual vaccine, these ‘nosodes’ again contain the material in such a diluted form that they do not trigger any response in the body and therefore cannot prevent any diseases.326

5.4 Homeopathy today

Homeopathy was significant at the time of its founder, since it did herald better results than what was in retrospect called ‘heroic medicine.’ Due to the advances in sciences, in not small thanks in Europe to Hahnemann, homeopathy fell into decline and only appeared again around the 1970’s, the time of the flower-power and back to nature movement.327

Only very recently, in July 2017, the NHS in the UK has stopped funding and payment for homeopathy on the grounds that is has no curative potential.328 The NHS is continuously short of money and in order to save resources, it has finally

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326 Edzard Ernst. (2016): 110.
327 Edzard Ernst. (2016):17.
328 NHS England. “ NHS England launches action plan to drive out wasteful and ineffective drug prescriptions, saving NHS over 190 million pound a year.” https://www.england.nhs.uk/2017/07/medicine-consultation/. Last accessed on January 23rd, 2020.
decided to not longer pay for homeopathic and some other over-the-counter remedies. In Germany and Austria, some insurances pay for homeopathic treatments but are under scrutiny that they are doing so. Their main argument is that it is the wish of the patients to be treated by homeopaths and to take homeopathic remedies and that it is therefore for the benefit of all if the insurances cover the cost.\textsuperscript{329} Since my main topic is not the cost-efficiency of insurance companies, but the scientific value of medical interventions and their effectiveness, I will not pursue this angle of inquiry, but only remark on it.

Homeopaths often argue, as described above, that regular medical trials can just not be performed on homeopathic treatments, because the remedies are individualised, and differ from homeopath to homeopath and from patient to patient. However, many eminent homeopaths, among them Peter Fisher, have claimed that they have conducted, and that there are many trials performed, according to EBM standards, that show the efficacy of homeopathy, and that the trial data is freely available.\textsuperscript{330} Homeopaths here actively contradict themselves, often depending on which school they belong to or if they are lay homeopaths or medical doctors as well. The truth is that many studies have been performed and that only a very few show the required rigorousness to be EBM worthy, and have positive results. Most homeopaths “cherry pick” these to further their argument. However, they neglect that a much larger number of trials, equally rigorous, have shown no benefit of homeopathy other than placebo.\textsuperscript{331} The rest of the available studies do not conform to the rigorous requirements of EBM. A few examples of flaws are that the patient base is much too small, the patients are not randomised, the homeopathic remedy is not tested against placebo or the evidence all together is just anecdotal. Anecdotal evidence is the evidence that is most cited with regard to homeopathy. However, when meta-analysis of these trials have been conducted, for example by Cochrane, none of these trials could, beyond a doubt, show the efficacy and effectiveness of homeopathy. Many of the trials were not rigorous enough, as described above and those that were rigorously conducted showed homeopathy to be not better than placebo. A large study was performed in 2015 in Australia, by the National Health and Medical Research Council (NHMRC) headed by Paul Glasziou, one of the eminent figures promoting EBM. He and his colleagues found that homeopathy does not have a discernible positive effect on any illnesses or diseases beyond the placebo effect.

\textsuperscript{329} Krankenkassen Deutschland. “Integrierte Versorgung mit klassischer Homöopathie.” https://www.krankenkassen.de/gesetzliche-krankenkassen/leistungen-gesetzliche-krankenkassen/wahl-tarife-besondere-versorgung/integrierte-versorgung-homoeopathie/. Last accessed on January 23\textsuperscript{rd}, 2020.

\textsuperscript{330} PubMed search. Search words: Peter Fisher homeopathy trials. 21 hits. Last accessed on January 23\textsuperscript{rd}, 2020.

\textsuperscript{331} Edzard Ernst. (2016): 56.
“Based on the assessment of the evidence of effectiveness of homeopathy, NHMRC concludes that there are no health conditions for which there is reliable evidence that homeopathy is effective.”\textsuperscript{332} In Germany the “Informationsnetzwerk Homöopathie”\textsuperscript{333} is an internet-based information resource about homeopathy and is headed mostly by physicians who were homeopaths, but are now trying to educate the public about homeopathy and its pitfalls.

One argument that is often used in favour of homeopathy is that very small children and animals are reacting positively to it and that they can have no understanding of the placebo effect. However, it can be easily shown that this phenomenon is a simple case of observation bias.\textsuperscript{334} Because the observer, i.e. the parent or carer, is aware of the treatment, he or she influences the participant and since in the case of children and animals, the parents or owners normally report on the symptoms, their opinion is heavily influenced by their beliefs.\textsuperscript{335} Parents and owners would need to be blinded to the treatment to really form an educated opinion. Expectation and hope are the two important words here. Many parents are very afraid of conventional medicine to treat their children and rely on homeopathy as the more gentle way of treating illnesses. As long as only minor illnesses are treated with homeopathy and therefore the body essentially is left in peace to get well on its own, the use of homeopathy is not dangerous. However, it quickly becomes dangerous when ‘active’ treatments for infections are denied or significantly delayed leading to bodily harm.

Since the bodies capability of ‘regression to the means’, meaning to heal itself from many illnesses, it means that most of the time we approach a cure when the symptoms are at their very worst and then quickly get better on their own. Therefore we attribute whichever cure is given at the peak to have provided the cure. It is called the post-hoc-ergo-propter-hoc fallacy, and many patients using homeopathy and homeopaths are falling for it, because they confuse the concept of ‘cause and effect’ with ‘spurious correlations.’\textsuperscript{336}

\textsuperscript{332} National Health and Medical Research Council, Australia. NHMRC Statement (2015). “Statement on homeopathy.” https://www.nhmrc.gov.au/sites/default/files/images/nhmrc-statement-on-homeopathy.pdf. Last accessed on January 23rd, 2020.
\textsuperscript{333} Informationsnetzwerk Homöopathie. https://www.netzwerk-homoeopathie.eu/. Last accessed on January 23\textsuperscript{rd}, 2020.
\textsuperscript{334} Katja Weimer, Marco D. Gulewitsch, Angelika A. Schlarb, Juliane Schwille-Kiuntke, Sibylle Klosterhalfen & Paul Enck. (2013). “Placebo effects in children: a review.” in Pediatric Research, 74: 96-102.
\textsuperscript{335} David Ramey. (2008). “Is There a Placebo Effect for Animals.” in Science Based Medicine: Exploring issues and controversies in the relationship between science and medicine. https://sciencebasedmedicine.org/is-there-a-placebo-effect-for-animals/. Last accessed on January 23\textsuperscript{rd}, 2020.
\textsuperscript{336} Steve E. Hartman. (2009). “Why do ineffective treatments seem helpful? A brief review.” in Chiropractic & Osteopathy.
However, even if the symptoms are not getting better right away when a homeopathic remedy has been taken, homeopaths have an explanation for this. They claim that one of the effects of homeopathic remedies is that they might, initially, make the symptoms worse and that that is a ‘normal’ effect of the remedies. So even if the illness or disease gets worse under the treatment, for homeopaths that does not seem to be a reason to take recourse to regular medicine.

As we have seen, homeopathic remedies do not contain any measurable active ingredient. Nonetheless scientists have conducted trials to establish if these remedies go beyond the placebo effect. However, all the trials done by scientists have not shown a discernible effect of homeopathic remedies above and beyond the placebo effect. The foremost research unit in the UK was at Exeter University, lead by Professor Edzard Ernst who, as a medical doctor had learned homeopathy in Germany as an established part of medicine and who was very interested in providing the evidence that homeopathy and other alternative medicines could be a part of medicine. However, during the course of his research, Ernst and his large team of scientists had to conclude over and over again that most ‘alternative’ treatments are no ‘alternative’ to evidence-based medicine but can only be understood as parts of pseudoscience.337 Since the ‘alternative’ community, with their figurehead the Prince of Wales was not happy with Ernst’s findings, the funding for his research unit was dried up and the unit ultimately closed down. Only in 2017 does the NHS seriously consider to drop homeopathy from its agenda as being a useless treatment regimen that only costs money without discernible benefits.

5.4.1 A defence of homeopathy — or is it?

The defence of homeopathy that is taken into account here is a defence formulated by practising medical doctors, who also are dealing with or researching homeopathy. Many scientists and authors who are dealing with homeopathy cannot, and will not, refute the amount of patients who feel better with homeopathic treatment and who believe in its effectiveness. Therefore some of them try to argue that homeopathy actually fulfils a need for patients. The main patient-friendly aspect of a consultation with a homeopath is ‘time’. A homeopathic first-time consultation can last up until three hours and homeopaths are trained in the art of active listening and encouraging the patient to talk about all parts of their lives, not just the symptoms that are bothering them.338 Active listening is something that the regular GP can hardly ever do because of the number of patients he has to see in a single day and because of the amount of paperwork that needs to be dealt with for each

337 Edzard Ernst. (2015): Chapter 7: Kindle Version: Off with his head.
338 Natalie Grams. (2015): 34.
patient. However, through active listening, a vital part also of psychotherapy incidentally, the patient feels that all his feelings are being taken seriously and that all experiences are valuable. He feels understood and often can phrase the problem at the end of a consultation.\(^\text{339}\) Being able to talk about the problems and having somebody who listens and is sympathetic is already an overall acknowledged part of the treatment-, and often, healing process. That is true for all medicine, but the homeopaths have a lot more time on their hands to really be there for the patient. Some homeopaths who have turned critical and acknowledge that there is nothing in the actual remedies, are still saying that the process of talking and interacting with the patient alone might be sufficient to cling to homeopathy as an area of medicine.\(^\text{340}\) However, if it wants to be a proper part of medicine, homeopathy has to forgo its main principles that ‘like cures like’ and that water has a memory and has to acknowledge that it cannot be treatment option based on actual medication, but only based on the positive homeopath/patient relationship. It would be worthwhile, according to Grams, to look closely at that route and to maybe establish homeopathy as an option of diagnostics, situated between EBM and psychotherapy and being able to send the patient in either direction, once it is established if there is a problem beyond bodily symptoms.\(^\text{341}\)

Another argument often formulated in favour of homeopathy is that even if the remedies and diagnostic sessions are just triggering a placebo response, it would still be worthwhile. It is even possible to measure a placebo response and see changes in the brain or measure how pain lessens, because of the patients expectations. The placebo response is often used to advantage in combination with an actual treatment. The expectation of the patient that a pain reliever will work is part of the process of administering such a treatment. The patient knows what he will receive and the body starts responding accordingly. For Ernst this is the ideal way to administer treatments, by utilising both, the real and the expected results.\(^\text{342}\)

For homeopathy to fit into the realm of medicine, it has to not only follow the scientific rules that are prevalent in the natural sciences, it also has to maintain the same ethical standards as medicine, for example to ‘do no harm.’ The authors of a 2013 paper,\(^\text{343}\) writing about such an ethical defence of homeopathy suggest that “homeopathy is ethical as it fulfils the needs and expectations of many patients; may be practiced safely and prudentially; values care and the virtues of the thera-

\(^{339}\) Natalie Grams. (2015): 7.
\(^{340}\) Natalie Grams, et.al. Informationsnetzwerk Homöopathie. https://netzwerk-homoeopathie.info. Last accessed on January 23rd, 2020.
\(^{341}\) Natalie Grams. (2015):167.
\(^{342}\) Edzard Ernst. (2016): 49.
\(^{343}\) David Levy, Ben Gadd et.al. (2013) “A Gentle Ethical Defence of Homeopathy.” in Bioethical Inquiry.
The authors however are not interested in the epistemological or scientific aspect of homeopathy, but only in its ethical aspect. Those who condemn homeopathy as ‘quackery’ are making, in their view, an error in ethical judgement, because even if it is quackery, it does help the people.

The authors claim, and as we have seen, rightfully so, that not all conventional therapy is based on definitive evidence as ‘prescribed’ in EBM. Even though that assessment is correct, there is a huge difference between treatments that are based on less rigorous evidence than RCTs and treatments that are not based on anything at all and cannot be measured because of the lack of active ingredients. Homeopathic treatments firmly belong in the latter category.

The authors go so far as to claim that “There is no ethical requirement for definitive explanations of mechanisms, knowledge of molecular effects, or epidemiological “proof” from large-volume RCTs for consent to any health care intervention to be valid, and the notion that the absence of these things makes homeopathy by definition deceptive, coercive, or unethical is morally and clinically incoherent.” The quote, in its essence, is correct. Often we do not know the mechanism of a treatment or its molecular effects, but due to rigorous tests we do know that these interventions either work or that they do not work. There is the possibility to detect an effect beyond the placebo-effect, be it positive or negative. In homeopathy there is no effect detectable in the treatments beyond the placebo-effect. Claiming however that homeopathic remedies work because they are ‘energised’ by succussion is not testable and therefore a form of deceit and arguably unethical. Since homeopaths themselves believe in the validity of their claims, it might be possible to not accuse them of unethical ‘behaviour,’ because they act according to the mistaken belief to really help the patient. However, that does not exonerate homeopathy as such.

Many medical interventions which we deem necessary today have at their very core the goal to heal the patient or to alleviate suffering by dealing with certain symptoms. However, EBM is not first and foremost a ‘feel-good’ medicine. Many remedies might not be pleasant in the short term, although they do help in the long run. Their risk/benefit ratio is in favour of the treatment. In homeopathy that is not always the case, especially if and when necessary treatment with ‘allopathic’ drugs, i.e. chemotherapy as cancer treatment, has been delayed or even forgone together. There are multiple cases of cancer patients who went to the hospital too late after having attempted homeopathic treatment first. Another risk might be the taking of the mother tincture or a low potency remedy. Since if it

344 David Levy, Ben Gadd, et.al. (2013): 5.
345 Skyler B. Johnson et.al. (2018). “Use of Alternative Medicine for Cancer and Its Impact on Survival.” in Journal of the National Cancer Institute. 110(1).
contains any poisonous material or actual germs, it can be dangerous and even, in the case of arsenic, deadly. The claim that homeopathy is entirely without risk is therefore not maintainable.\(^\text{346}\)

### 5.5 Acupuncture

Acupuncture is an ancient treatment that involves thin needles that are inserted into the skin at certain, pre-specified, points. Acupuncture initially came from China. The needles are supposed to hit a life force, the Ch’i which flows through the body via so called meridians and these meridians can be manipulated through needling.\(^\text{347}\) By controlling the Ch’i, the body is supposed to go back into a kind of healthy balance. Since it was not allowed to conduct post-mortem examinations on human bodies in ancient China, the meridians were just assumed to be there and their number was established to be exactly twelve, like the number of main rivers in China.\(^\text{348}\) The Ch’i as a life-force was merely postulated. Since the needles were, and still are, only inserted in the outer layer of the skin, acupuncture was fairly safe, even though the needles could be contaminated, but most often were warmed before the treatment and the heat killed a lot of the bacteria.

Before the patient is ‘needled’ the acupuncturist will examine the patient according to five techniques “namely inspection, auscultation, olfaction, palpation and inquiring. Inspection means examining the body and face, including the colour and coating of the tongue. Auscultation and olfaction entail listening to and smelling the body, checking for symptoms such as wheezing and unusual odours. Palpation involves checking the patient’s pulse: importantly, acupuncturists claim to be able to discern far more information from this process than any conventional doctor. Inquiring, as the name suggests, means simply interviewing the patient.”\(^\text{349}\)

Chairman Mao was the one to reinvent traditional Chinese medicine, because he wanted and needed affordable health care for everyone, and did not care if the medical system worked or not. Medicine needed to be home-grown instead of being expensive and influenced by the west. It is strikingly similar to the push of homeopathy in Germany in the 1930’s and 1940’s by the Nazis as being German medicine.\(^\text{350}\) If it would not have been for a political trip of President Nixon and before him Henry Kissinger and the journalist James Reston who suffered from appendicitis and was operated on, acupuncture would probably have vanished in the West. Reston received acupuncture after his operation to deal with abdominal

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346 Edzard Ernst. (2016): 52.
347 Edzard Ernst and Simon Singh. (2008): 43.
348 Edzard Ernst and Simon Singh. (2008): 43.
349 Edzard Ernst and Simon Singh.(2008): 44.
350 Edzard Ernst. (2016): 95.
pain and the treatment helped him. He wrote an article about his experience in the New York Times and all of a sudden acupuncture was back on the map. A number of years later, the Americans were naive enough to believe films about operations that were allegedly done without anaesthesia and solely using acupuncture as pain medication. Specialists however could and did see in the films that the patients must have received drugs beforehand to numb them and to deal with the pain. The needles were only window dressing. However, the interest in using acupuncture as pain management in surgery has resurfaced because of the overall costs of healthcare. So, today some clinics in Shanghai and mainland China are using acupuncture in addition to other pain medication but are operating without general anaesthesia.

5.5.1 Acupuncture under trial

As with all medical treatments, acupuncture can be tested, and has been tested, with the EBM methodology. Since acupuncture does become increasingly more popular, even many GPs are interested in having scientific proof that the treatment works. A sham needle has been developed that looks and feels like a real acupuncture needle but that retreats back into the shaft, much like a stage dagger, when it is put on the skin. It therefore does not penetrate the skin, even though the sensation for the patient feels the same. These sham needles allow at least for the patient to be blinded as to which treatment he or she is receiving. The acupuncturist however is impossible to blind so that a certain amount of bias needs to be taken into account when interpreting the results. Still, unlike with homeopathy, the trial results concerning acupuncture are not universally negative. In some cases of pain, acupuncture is proven to work quite well, at least in the short term. Osteoarthritis of the knee is one of those areas where acupuncture, at least as a short term solution, shows to be effective. However, Ernst and Singh in their book claim that the more science and EBM advances, the less likely will it be that acupuncture will have positive results beyond a placebo response.

The Cochrane Collaboration has produced multiple meta-analyses about acupuncture, but most of them show that either more evidence is needed or that the

351 A. White and E. Ernst. (2004). “A brief history of acupuncture.” in Rheumatology, 43(5):662–663.
352 Zhou J, et al. (2011). “Acupuncture anaesthesia for open heart surgery in contemporary China.” in International Journal of Cardiology. (150:1).
353 Elizabeth Tough, Adrain White, et.al. (2009). “Developing and validating a sham acupuncture needle.” in Acupunct Med, BMJ. (27):118.
354 Edzard Ernst and Simon Singh. (2008): 81.
355 C Witt, B Brinkhaus, et.al. (2005). “Acupuncture in patients with osteoarthritis of the knee: a randomised trial.” in The Lancet. 366: 136–43.
356 Edzard Ernst and Simon Singh. (2008): 85.
actual RCTs were not rigorous enough. Some conclude that acupuncture helps in the short term, but yet again that its long-term benefits are questionable. The overall results are inconclusive.\footnote{Cochrane Evidence. https://www.cochrane.org/search/site/acupuncture. Last accessed on January 23rd, 2020.}

As are the results of the WHO report on acupuncture of 2003. “Acupuncture: Review and analysis of reports on controlled clinical trials.”\footnote{WHO report on acupuncture. (2003). http://www.acucentre.com.au/Clinic/WHOConditionsTx.pdf. Last accessed on January 23rd, 2020.} However, Ernst and Singh allege that the WHO report included incorrectly conducted trials and therefore lacked in quality control.\footnote{Edzard Ernst and Simon Singh: (2008): 71.} They argue, quite strongly, that trials conducted in China should be excluded from the overall meta-analysis because their results were repeatedly too good to be true.\footnote{Edzard Ernst and Simon Singh: (2008): 72.}

\subsection*{5.5.2 Acupuncture and safety}

Acupuncture has been shown, different to homeopathic treatments, to have, at least in some cases, an effect beyond placebo, at least as the evidence stands so far. It can help in cases of pain and nausea and other very minor ailments. For many unspecific pains the evidence is not yet conclusive.\footnote{Edzard Ernst and Simon Singh: (2008): 77.} Strict safety procedures however have to be adhered to. The needles must be sterile and only used once on each patient. The safety catch in acupuncture can be that not all practitioners use simple rules of hygiene. Unclean or non-sterile needles have already led to infections in patients and the incorrect use has also lead to the puncturing of arteries and even to collapsed lungs.\footnote{Michael Stenger, Nicki Eithz Bauer and Peter B. Licht. (2013). “Is pneumothorax after acupuncture so uncommon?” in the Journal of Thoracic Disease. 5(4): 144–146.}

If it is done correctly and in an hygienic environment, and the expectations are curbed to its long-term effects, acupuncture does not lead to active harm, provided it is used only as an addition to other treatment. That, in effect, takes acupuncture, for the moment, out of the realm of alternative medicine and into the realm of EBM, even with the effectiveness caveats attached. However, as also Ernst and Singh are pointing out, there are many conventional treatments which help with pain and nausea which are proven beyond a doubt to actually work and which are in essence more cost effective and proven to be safe. Acupuncture sessions can cost up to 25 pounds or 30 Euros each and need to be administered repeatedly, because of their short term effect.\footnote{Edzard Ernst and Simon Singh. (2008): 85.}
5.6 Conclusion

The EBM methodology has shown beyond a doubt that homeopathy does not have an effect beyond the placebo response, if at all. The actual treatments, at least in the high potencies favoured by homeopaths, do not contain any active ingredients and the only measurable success is in the time given to the patient to express the ailments and to talk about their health and associated worries. The lack of active ingredients in the treatments lets homeopathy firmly fall outside the realm of medicine and is not a valid alternative to it. Some of its methodology in terms of patient interaction could fall into psychotherapy and even be adapted for conventional medicine, but again that has nothing to do with the homeopathic treatments. The rigorous methods of EBM have not been employed to discredit homeopathy, as alleged by those promoting homeopathy, but to ensure that any treatment is save and effective in curing disease, or at least alleviating symptoms, to lead to a better quality of life for the patient. The same is true when EBM is employed to assess acupuncture, and although in the moment it looks as if acupuncture can help to alleviate certain symptoms and might be used in conjunction with conventional medicine, the actual verdict is still out if it really belongs in the realm of EBM or if it needs to be abandoned as a pure placebo treatment that is more expensive and more invasive, due to the needling, than conventional therapies for the same ailments.

EBM however could learn from patients, from their views and their opinions, and could incorporate it into its own methodology. The success of the ‘alternative treatment movement’ has little to do with the overall success of its pseudomedical treatments, but everything with the time and care that alternative practitioners offer their patients. Most practitioners are kind and caring, take time to listen and to understand. The patient ‘feels’ to be in good hands. In clinical medicine, the patient has to intellectually understand to be in good hands and to receive the best care possible. Often there is simply not enough time or energy on the part of the clinician to be as compassionate as the patient would wish for. If it would be acknowledged on both sides that the clinician cannot devote an hour to each patient every day, but that he at least listens to the immediate concerns and demonstrates to be looking for an answer, then maybe those who are trusting alternative medicine today will in future trust EBM even more.

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