Homeopathy (2015) 104, 164–169

http://dx.doi.org/10.1016/j.homp.2015.02.004, available online at http://www.sciencedirect.com

ORIGINAL PAPER

Model validity of randomised placebo-controlled trials of individualised homeopathic treatment

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Background: **Though potentially an important limitation in the literature of randomised controlled trials (RCTs) of homeopathy, the model validity of homeopathic treatment (MVHT) has not previously been systematically investigated.**
Objective: **As an integral part of a programme of systematic reviews, to assess MVHT of eligible RCTs of individualised homeopathic treatment.**
Methods: **From 46 previously identified papers in the category, 31 papers (reporting a total of 32 RCTs) were eligible for systematic review and were thus the subject of the study. For each of six domains of assessment per trial, MVHT was judged independently by three randomly allocated assessors from our group, who reached a final verdict by consensus discussion as necessary.**
Results: **Nineteen trials were judged overall as 'acceptable' MVHT, nine as 'uncertain' MVHT, and four as 'inadequate' MVHT.**
Conclusions: **These results do not support concern that deficient MVHT has frequently undermined the published findings of RCTs of individualised homeopathy. However, the 13 trials with 'uncertain' or 'inadequate' MVHT will be a focus of attention in supplementary meta-analysis. New RCTs of individualised homeopathy must aim to maximise MVHT and to enable its assessment through clear reporting.** *Homeopathy* (2015) **104,** 164–169.

Keywords: Individualised homeopathy; Model validity; Randomised controlled trial; Systematic review

Background

In systematic reviews, the criteria for defining the quality of a randomised controlled trial (RCT) focus primarily on internal validity (freedom from risk of bias). However, in RCTs of homeopathy, which classically involves highly individualised prescriptions and a diversity of potentially relevant clinical outcomes, it is important to take into

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Received 13 March 2014; revised 16 January 2015; accepted 4 February 2015

account another key facet of study quality – *model validity (MV)*.[1,2] This attribute reflects the concordance between the trial study design and ideal practice for the intervention under investigation[3]; it is likely to be relevant to RCTs in any areas of medicine where complex interventions are evaluated.[4]

Inadequate MV in a substantial proportion of RCTs in homeopathy would give rise to concern that the literature does not contain sufficiently 'genuine homeopathy research' and thus runs the risk of portraying misleading results.[3,5] Indeed, if such a problem were revealed, it would potentially undermine the legitimacy of conclusions, whether positive or negative, from previous reviews of homeopathy RCTs. In the absence of any alternative approach, our group therefore created and tested a practical set of judgmental criteria to appraise RCTs for MV of homeopathic treatment (MVHT), which we define as the extent to which a homeopathic intervention and the main measure of its outcome, as implemented in an RCT, reflect best clinical practice in homeopathy.[6]

Objective

Here we apply our novel MVHT assessment method to the RCTs of individualised homeopathic treatment that are the subject of the first systematic review in a programme of work being carried out by the British Homeopathic Association (BHA).[7,8] In tandem with risk-of-bias assessments reported for the same RCTs,[9] our overarching objective is to achieve a more complete critical appraisal of relevant RCTs in homeopathy, whose overall findings are the subject of an additional paper for publication.[10]

Methods

Inclusion criteria for RCTs

We applied the MVHT method to papers reporting peer-reviewed, randomised, placebo-controlled trials of individualised homeopathic treatment, published up to and including 2013. Through formal literature search methods, 46 records were previously identified as being potentially eligible for systematic review in this RCT category.[9] After application of pre-defined exclusion criteria,[7] 31 records (reporting a total of 32 RCTs) remained eligible for systematic review and were, therefore, the material for the study.[9]

Assessment of model validity

The development of our criteria-based method for assessing MV has been described in detail elsewhere.[6] The assessment domains are as follows:

Domain I (Rationale): Would a significant body of accredited homeopaths support the rationale for the intervention used in the study?
Domain II (Principles): Is the specific intervention used consistent with homeopathic principles?
Domain III (Practitioner): Does the study have suitably qualified and experienced homeopathic practitioner input?
Domain IV (Outcome measure): Does the main outcome measure reflect the main effect expected of the intervention used?
Domain V (Outcome sensitivity): Is the main outcome measure capable of detecting change?
Domain VI (Follow-up): Is the length of follow-up for the main outcome measure appropriate to detect the intended effect of the intervention?

Relevant details of the 32 trials are shown in Appendix 1.

For each paper, three members of our group were randomly allocated to judge MVHT, ensuring that no individual was allocated to assess any of his/her own published papers. The papers' authorship was not anonymised. Results and Discussion sections were not masked, though assessors were asked not to read those texts unless essential for clarifying relevant methodological details. On an *Excel* spreadsheet designed for the purpose, each assessor recorded his/her answer to each domain's question: 'Yes', 'Unclear' or 'No'. For domain V (Outcome sensitivity), we added, *a priori*, some clarification of the statistical basis for the decision-making (see Appendix 2). The assessors sent their independent reports, by e-mail, to the study coordinator (RTM), who assimilated the findings in a master spreadsheet.

In an RCT for which no domain was judged 'No' by any independent assessor, and if no more than two domains presented minor discrepancies per domain (e.g. two 'Yes' and one 'Unclear' judgment), the recorded overall MVHT was accepted by default, using the majority vote for the domains indicated. For an RCT in which there were widely discrepant assessments in at least one domain (e.g. two 'Yes' and one 'No' judgment), or in which there were minor discrepancies in at least three domains, the final assessment per domain was reached through consensus discussion (via e-mail), arbitrated if necessary by the study coordinator.

Overall MVHT ratings and classifications

We rated MVHT for each trial across all six domains and using the following nomenclature[7]:

A = 'Yes', as above, in all six domains.
B*x* = 'Unclear', as above, in *x* domains; 'Yes' in all other domains.
C*y.x* = 'No', as above, in *y* domains; 'Unclear' in *x* domains; 'Yes' in all other domains.

Designating an RCT as 'acceptable', 'uncertain' or 'inadequate' MVHT:

As in the Cochrane approach to risk of bias,[11] an overall MVHT classification approach was used to ensure that the most important aspects of study quality prevailed. An 'A'-rated trial was automatically designated 'acceptable MVHT'. A 'B1'-rated trial was regarded as having 'acceptable MVHT' if it was judged 'Yes' for each of domains I, II, IV and V and 'Unclear' for domain III or domain VI;