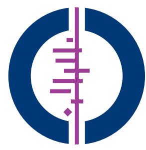

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Balneotherapy (or spa therapy) for rheumatoid arthritis (Review)

Verhagen AP, Bierma-Zeinstra SMA, Boers M, Cardoso JR, Lambeck J, de Bie R, de Vet HCW

Verhagen AP, Bierma-Zeinstra SMA, Boers M, Cardoso JR, Lambeck J, de Bie R, de Vet HCW.
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32. 30 not 31

33. 21 and 32

1. ((exp osteoarthritis OR osteoarthr$.tw. OR (degenerative adj2 arthritis).tw. OR arthrosis.tw.) OR (exp arthritis, rheumatoid/ OR ((rheumatoid or reumatoid or revmatoid or rheumatic or reumatic or revmatic or rheumat$ or reumat$ or revmarthrit$) adj3 (arthrit $ or artrit$ or diseas$ or condition$ or nodule$)).tw. OR (felty$ adj2 syndrome).tw. OR (caplan$ adj2 syndrome).tw. OR (sjogren$ adj2 syndrome).tw. OR (sicca adj2 syndrome).tw. OR still$ disease.tw. OR bechterew$ disease.tw.))

2. (exp Balneology OR balneo$.tw. OR Ammotherap$.tw. OR (bath or baths or bathe$ or bathing).tw. OR. Hydrotherapy/ OR hydrotherap $.tw. OR Climatotherapy/ OR climatotherap$.tw. OR thalassotherap$.tw. OR (water or aqua$ or climate or mud$ or spa).tw.)

3. (randomized controlled trial.pt. OR controlled clinical trial.pt. OR randomized.ab. OR placebo.ab. OR drug therapy.fs. OR randomly.ab. OR trial.ab. OR groups.ab.) NOT (animals not (humans and animals)).sh.

4. #1 AND #2 AND #3

PubMed:

1. ((osteoarthritis[mesh] OR osteoarthr*[tw] OR (degenerative arthritis)[tw] OR arthrosis[tw]) OR (rheumatoid arthritis[mesh] OR ((rheumatoid OR reumatoid OR rheumatic OR reumatic OR rheumat* OR reumat*) AND (arthrit* OR artrit* OR diseas* OR condition* OR nodule*))[tw] OR (felty* syndrome)[tw] OR (caplan* syndrome)[tw] OR (sjogren* syndrome)[tw] OR (sicca syndrome)[tw] OR still* disease[tw] OR bechterew* disease[tw]))

2. (Balneology[mesh] OR balneo*[tw] OR Ammotherap*[tw] OR (bath OR baths OR bathe* OR bathing)[tw] OR Hydrotherapy[mesh] OR hydrotherap*[tw] OR Climatotherapy[mesh] OR climatotherap*[tw] OR thalassotherap*[tw] OR (water OR aqua* OR climate OR mud* OR spa)[tw])

3. (randomized controlled trial[pt] OR controlled clinical trial[pt] OR random*[tiab] OR placebo[tiab] OR clinical trials as topic[mesh] OR trial*[ti]) NOT (animals[mesh] NOT humans[mesh])

4. #1 AND #2 AND #3

FEEDBACK

Points to consider when interpreting the results and conclusions of this review, 12 April 2017

Summary

We read with great interest the Cochrane review on balneotherapy (or spa therapy) for rheumatoid arthritis by Verhagen et al. [1]. However, we would like to address the points below that should be considered when interpreting the results and conclusions of this review.

1) The review authors considered the intervention of control group as a placebo in a trial included in the review, which tested mud compress therapy for the hands of rheumatoid arthritis patients [2]. However, the intervention of control group in that study was heated attenuated mud compress not a placebo [2]. Indeed, that study aimed to investigate whether mineral content of mud would have any additional benefit in the heated mud compress therapy. In other words, the control group received ‘heated’ attenuated mud compress; and since that therapy had thermal effect, categorizing that control therapy as a placebo was inappropriate. Therefore, the results and conclusions regarding the “balneotherapy versus placebo or no treatment” should be interpreted with caution. Nevertheless, this inappropriate reporting may be originated from lack of knowledge of basic characteristics of balneological interventions, which include balneotherapy (mineral water immersion), peloidotherapy/mud therapy (medical peloid or mud applications), hydropinotherapy (mineral water drinking), inhalation therapy (mineral water inhalation) and hydrotherapy (tap water immersion and exercise), if not from lack of caution to distinguish active from inactive control intervention. Furthermore, the results of the review do not match those from the original study in terms of response rate (improvement). The original paper reported statistically significant differences (please see Table 4 in original study) [2]; however, the review authors’ analysis revealed no significant differences. We believe that this discrepancy should have mentioned and explained in the review and needs clarification.

2) The review authors wrongly defined one of the investigated interventions of a study as balneotherapy. However, the tested intervention in reality was hydrotherapy since tap water was used not mineral water [3]. In fact, that study aimed to investigate whether hydrotherapy in form of aquatic exercise would result in a greater therapeutic benefit than hydrotherapy in form of seated passive immersion, land exercise or progressive relaxation [3]. Therefore, classification of that intervention as balneotherapy was ill-chosen since the water used was not a mineral water. We think that this inaccurate classification additionally must have contributed the heterogeneity of the balneotherapy interventions observed in the review. Thereby, the results and conclusions regarding the “balneotherapy versus other

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treatments" should be interpreted with caution. Nevertheless, this approach is not well-structured definition, and once again, may indicate lack of interpretation of even the basic characteristics and application modes of balneological interventions. (see above).

3) The conclusions of the review authors on two radon therapy studies [4, 5] should also be read with caution: "adding radon to carbon dioxide baths did not improve pain intensity at three months but may improve overall well-being and pain at six months compared with carbon dioxide baths without radon, but this may have happened by chance." However, they failed to explain why the results of these two studies with low risk of bias might have happened by chance. The review authors should have explained the scientific rationale and evidence for attributing the differences to the chance. On the other hand, the radon studies by Franke and colleagues are spa therapy trials, in which both groups stayed in a spa resort and received balneotherapy (either baths with natural mineral water rich in radon and carbondioxide or artificially produced carbondioxide baths of the same carbondioxide concentration to maintain the blinding of patients and to investigate specific effects of radon), diseases-specific exercises, physiotherapy, massage therapy, hydrogalvanic baths and were offered occupational therapy, leisure time sports and relaxation therapy [4, 5]. In other words, the groups have undertaken the same package of multiple interventions plus balneotherapy (radon+carbondioxide or only carbondioxide); this may explain why the expected effect size would be small which was correctly reported in those two studies.

4) The review authors wrongly stated that information about adverse events was not reported in a radon spa therapy study [5] and a balneotherapy study [6], in plain language summary section. However, these studies have reported the adverse events. We believe that that information should be mentioned to provide more comprehensive information on harms of balneotherapy or spa therapy.

5) Due to concerns raised above, the results and conclusions of the Cochrane review on balneotherapy (or spa therapy) for rheumatoid arthritis may mislead the readers. The Cochrane Handbook states that review teams must include expertise in the topic area being reviewed [7]; accordingly we would suggest review teams should include expertise in the balneological interventions when further reviews on the safety and effectiveness of any balneological intervention will be being conducted, particularly for distinguishing active from inactive control intervention or hydrotherapy (tap water immersion) from balneotherapy (mineral water immersion), which were confused in this review.

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Reply

Thank you very much for your thorough reading of the review and your comments. We know that these comments come from people that are warm advocates of balneotherapy and we respect their opinion.

Question 1:

The comments concern here are the subgrouping used in our review, the definition of 'balneotherapy' and the results from the Codish study.

First, we had preplanned stratified analyses that included: a) versus no treatment or waiting list controls; b) versus other types of balneotherapy; and c) versus other treatment(s). We classified the study of Codish et al under a) as it compared mineral rich versus mineral depleted mudpacks. The latter we considered a placebo as the authors described that they did their best to make both interventions look like the same (The appearance, size, weight, and texture of both compress types were identical), but we agree that that was our own decision. I agree with Mr Karagulle that the using the term 'placebo' might not be correct for the intervention in the control group. Nevertheless, we do think this study is in the correct subgroup. Only the wording would change, not the results.

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Next Dr Karagulle states he is not happy with our definition of ‘balneotherapy’. I know there is no universally accepted definition of balneotherapy and the one Dr Karagulle proposes is broader than the one we used. We followed an international consensus that declared: “One of the core elements of balneotherapy is the use of (natural) mineral waters, gases and peloids (including packs = local application of peloids)”. This is why we defined balneotherapy as follows: “Balneotherapy is defined as bathing in natural mineral or thermal waters (e.g. mineral baths, sulphur baths, Dead Sea baths), using mudpacks or doing both.” Although our definition is less broad compared to the one proposed by Dr Karagulle, the fact remains that Codish et al evaluated the effectiveness of additional minerals in mudpacks, which methodological will always need to be categorized in the subgroup: versus no treatment or waiting list controls.

Lastly Dr Karagulle states that Codish et al found statistical significant differences in response rate as outcome. This is correct, but we used in our analysis the data under the para of ‘patient global assessment’. This outcome measure is recommended as a core outcome in many studies, so future trials can add to this outcome. The response rate in Codish et al is a difficult rating system, including the physician rating. We consider this responder definition unique (definitely not corresponding to the recommended definition by the OARSI) and incorrect. Therefore we refrained from using this outcome.

Question 2:

Here the comments concern the inclusion of a study that, according to Dr Karagulle, should not be included. I know that the aim of the study of Hall et al was to evaluate the effectiveness of hydrotherapy, which we did not consider balneotherapy. Nevertheless one of the original control arms of Hall et al fell within our definition of balneotherapy, namely: “bathing in mineral or thermal waters” (seated immersion). This (control) intervention arm became therefore our intervention under study.

Inclusion of this study was, nevertheless, under heavy debate within our group, so I can understand the comments of Dr Karagulle et al. Nevertheless, our conclusion about the heterogeneity of balneotherapy interventions concerned all included studies, excluding this one would not change our conclusion.

Question 3

This comment addresses the statement of us: “this may have happened by chance”, and the difference in interventions in both studies of Franke et al.

First, we made this statement “by chance”, only in the plain language section as we needed to reflect the fact that these results are not very firm. We are willing to choose another formulation next update.

Second, indeed the patients in the studies of Franke et al received a multimodal treatment package, with the only difference between groups was the addition of radon. Therefore this radon can be held responsible for the treatment differences, exactly what the authors state they would like to know. The small effect sizes are therefore not due to the multimodal treatment package as everyone received it.

Question 4

Dr Karagulle is right, we meant to state in the plain language summary that there were no side effects reported in the study of Franke 2007, not that the information about side effects was lacking, as the authors indeed stated there were no side effects. We have adjusted the text in the plain language summary.

Question 5

We respectfully disagree with dr Karagulle, I do not think that our conclusions are unjustified and may mislead the reader. We also included two experts in the topic area: J Lambeck and J Cardoso, so I think we followed the Cochrane handbook.

Nevertheless, the biggest challenge in this area is that we need large studies with low risk of bias, and we hope and encourage Dr Karagulle and his team to fill this gap of knowledge.

Contributors

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WHAT'S NEW

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Date	Event	Description
23 June 2017	Feedback has been incorporated	Feedback incorporated; minor correction in the plain language summary

HISTORY

Review first published: Issue 3, 1999

Date	Event	Description
30 December 2014	New citation required but conclusions have not changed	Updated the methods
30 December 2014	New search has been performed	Conducted new search yielding 2 new included studies
21 May 2008	Amended	Converted to new review format. CMSG ID C010-R
23 August 2007	New search has been performed	In this update. we included 1 extra study comparing mineral baths with drug treatment (Cyclosporin A). The study consisted of 57 participants and reported that mineral baths were more beneficial. The strength of the evidence identified in this systematic review remains limited
28 August 2003	New citation required and conclusions have changed	Substantive amendments made

CONTRIBUTIONS OF AUTHORS

Arianne P Verhagen (APV) and Henrica CW de Vet (HCWdV) initiated the review; APV wrote the first draft of the review. APV developed the search strategy, and APV and Sita MA Bierma-Zeinstra (SMAB-Z) performed study selection and analysis and wrote the review. Rob A de Bie (RAdB) and HCWdV performed the quality assessment, and Jefferson R Cardoso (JRC) and APV performed data extraction. In this update, Johan Lambeck (JL) helped with the search for and selection of studies.

SMAB-Z, RAdB, JRC, Maarten Boers (MB) and HCWdV all critically reviewed successive drafts of the review. APV served as the guarantor of the review.

DECLARATIONS OF INTEREST

None known.

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External sources

- No sources of support supplied

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

None known.

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