Annals of Physical and Rehabilitation Medicine 59 (2016) 216–226

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Review

Spa therapy and knee osteoarthritis: A systematic review

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ARTICLE INFO

Article history:
Received 16 November 2015
Accepted 25 January 2016

Keywords:
Osteoarthritis
Crenobalneotherapy
Spa therapy
Hydrotherapy
Mud
Radon

ABSTRACT

Background: Osteoarthritis (OA) is a public health problem that will probably increase in the future with the aging of the population. Crenobalneotherapy is commonly used to treat OA, but evidence from previous reviews was not sufficient. This systematic review aimed to identify the best evidence for the clinical effect of crenobalneotherapy for knee OA.
Methods: We systematically searched MEDLINE via PubMed, PEDRO and the Cochrane Central Register of Controlled Trials for articles published up to September 2015. Articles were included if trials were comparative, if one or more of the subgroups had knee OA with separate data, and if spa therapy or any hydrotherapy techniques involving mineral water or mineral mud was compared to any other intervention or no treatment. Statistical validity, external validity and quality of side effects assessment were evaluated by personal checklists. Risk of bias was assessed by the CLEAR NTP.
Results: Treatments (hot mineral water baths, mud therapy, hot showers, and sometimes massage and supervised water exercises) delivered in spa centers across Europe and the Middle East seem to improve symptoms in knee OA. They may be effective for pain and function. There are conflicting results about the effect on quality of life and drug consumption.
Conclusions: Improvements with spa therapy for knee OA appear to be clinically relevant until 3 to 6 months and sometimes 9 months.

1. Introduction

Osteoarthritis (OA) is a public health problem that will probably increase in the future with the aging of the population. We have many guidelines about the management of OA, but only a few cite spa therapy (crenobalneotherapy, balneotherapy). The last Osteoarthritis Research Society International (OARSI) recommendations for knee OA restricted spa use to a subgroup of patients with generalized OA and associated comorbidities because of lack of evidence [1]. European League Against Rheumatism (EULAR) guidelines for non-pharmacological treatment of OA did not recommend crenobalneotherapy [2]. A Cochrane review of 7 trials and 498 patients stated that "Balneotherapy might be beneficial, but the evidence is yet insufficient to make a definitive statement about its use" [3]. Some authors of the EULAR guidelines reported that the article selection for the guidelines may have excluded trials of balneotherapy and other non-pharmacological interventions that are relevant and for which evidence is available [4]. In fact, none of the previous authors included the most recent trials on the subject in the analysis. For example, the most recent trial analysed in the 2014 review of McAlindon et al. was published in 2009 [5].

However, spa therapy is usually prescribed for OA in the clinical practice of many European and Middle East countries. A recent meeting estimated the number of patients in spa centres at 2,000,000 to 1,900,000 in Germany, 1,300,000 in Hungary, 1,400,000 in Italy, 1,000,000 in Poland, 580,000 in Lithuania, 540,000 in France, 360,000 in the Czech Republic, 350,000 in Estonia, 250,000 in Spain, 130,000 in Latvia, and 100,000 in Portugal [6,7] and it is well known that many of them have OA.

We aimed to systematically review the highest evidence provided by published trials to estimate the clinical effect of crenobalneotherapy for knee OA.

2. Methods

We included reports of trials that were comparative, if one or more of the subgroups had knee OA with separate data and if spa therapy or any hydrotherapy techniques with mineral water was compared to any other intervention or no treatment. Studies were considered if the follow-up was > 3 months, taking into account that OA is responsible for chronic symptoms. According to the

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http://dx.doi.org/10.1016/j.rehab.2016.01.010
1877-0657/

OMERACT-OARSI initiative [8], studies should cover at least pain and/or function and/or patient global assessment. Articles describing only laboratory variables reported as outcome measures were not included.

2.1. Electronic search

We searched MEDLINE via PubMed for articles of knee OA and crenobalneotherapy published up to September 2015 with the following keywords therapy/Broad[filter] AND ((“osteoarthritis”[MeSH Terms] OR “osteoarthritis”[All Fields]) AND ((“balneology”[MeSH Terms] OR “balneology”[All Fields] OR “balneotherapy”[All Fields]) OR (“balneology”[MeSH Terms] OR “balneology”[All Fields]) OR (spa[All Fields] AND (“therapy”[Subheading] OR “therapy”[All Fields] OR “therapeutics”[MeSH Terms] OR “therapeutics”[All Fields])) OR (“hydrotherapy”[MeSH Terms] OR “hydrotherapy”[All Fields] OR (“water”[All Fields] AND “therapy”[All Fields]) OR “water therapy”[All Fields]) OR (“hydrotherapy”[MeSH Terms] OR “hydrotherapy”[All Fields]) OR (“climatotherapy”[MeSH Terms] OR “climatotherapy”[All Fields] OR “thalassotherapy”[All Fields]))). Then, we checked the Pedro database and the Cochrane Central Register of Controlled Trials to find additional references included up to September 2015. We added personal data obtained from our previous systematic review and known authors.

2.2. Study selection

As a first step, a reviewer (RF) removed articles that were not related to OA and crenobalneotherapy, narratives or systematic reviews of OA, open studies, case reports, and studies of water exercises performed without mineral water by reading the titles and abstracts. The final evaluation was completed by reading the full text of the remaining articles, when available. We used only full reports for the systematic review. We analyzed only trials of knee OA. Reports of trials were eligible if they had data for pain and/or function and/or stiffness and/or quality of life and drug intake if available.

2.3. Data collection

Data were extracted from the full text by one of the authors (RF) and reviewed independently by another (AF). We did not contact any of the authors of the trial.

2.4. Assessing the quality of individual studies

Statistical validity, external validity and quality of side effect assessments were evaluated by personal checklists described in Appendix 1. Risk of bias was assessed by the CLEAR NTP, a checklist for non-pharmacological trials developed by experts who used a Delphi consensus method [9]. This list has 10 items and for each question the answer could be Yes, No or unclear [10,11] (Appendix 2). According to our experience, we decided that scores between 10 and 8 corresponded to low risk of bias, 7 and 5 median risk of bias and < 5 high risk of bias. We analyzed only studies with medium to high risk of bias that performed a between-group comparison. We summarized the results of the quality assessment with a global score for 20 items and 4 subscores.

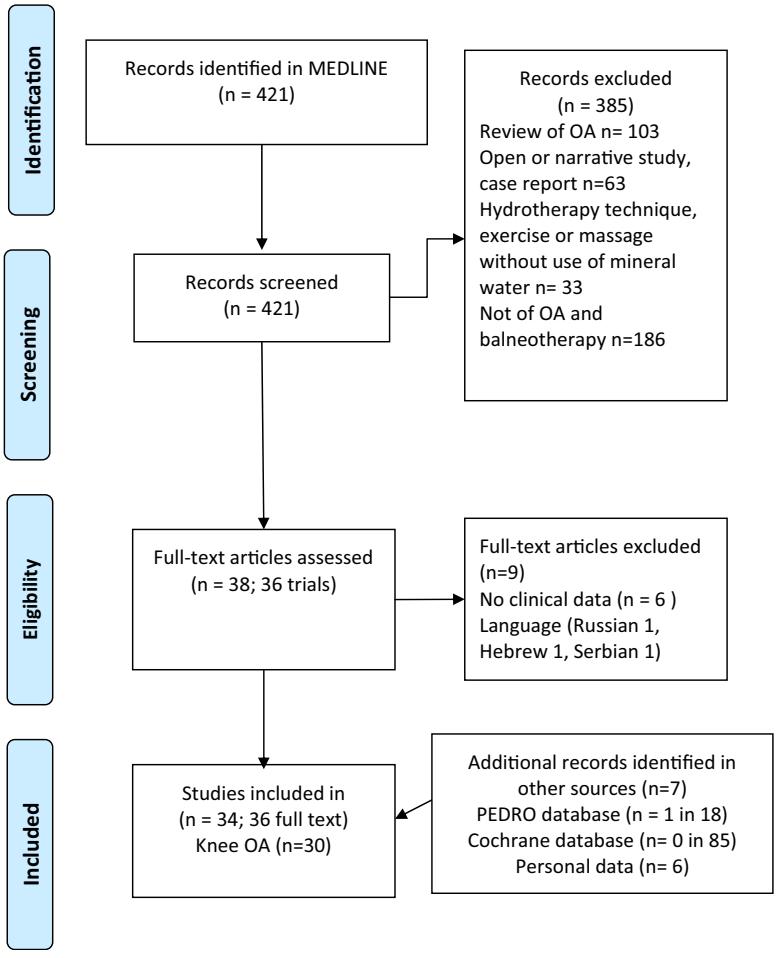

Fig. 1. Flow of articles in the study [14].