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Analysis of the effectivity of aquatic physiotherapy in the treatment of patients with rheumatoid arthritis: a literature review

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Abstract: Rheumatoid Arthritis (RA) is an inflammatory, chronic, autoimmune systemic pathology. Patients with AR suffer several symptoms both local in the respective articles and systemic, making the affected person disabling. Hydrotherapy has

thermal and mechanical properties, providing several benefits to patients, such as relieving pain, improving blood circulation and reducing stress. The present study aims to analyzer and identify in the literature the positive and negative effects of aquatic physiotherapy in the treatment of patients with Rheumatoid Arthritis. Realized in the period of September 2021, the searches in the databases were performed using the following descriptors: hydrotherapy, rheumatoid arthritis, treatment. The search in electronic databases resulted in the identification of 27 articles, with only 13 selected, where 14 studies were evaluated and excluded for not presenting a theme consistent with the one addressed in this study. However, the scarcity of current studies on the subject is clear.

Keywords: Hydrotherapy. Rheumatoid arthritis. Treatment.

1. Introduction

Rheumatoid Arthritis (RA) is an inflammatory, chronic, autoimmune systemic pathology, which has its onset usually presenting polyarticular in the smallest joints, progressing to the larger ones, causing the degeneration of cartilage and bones of the joints, as well as the atimia of tendons and ligaments, can progressively increase the risk of cardiovascular diseases, respiratory, renal and affect also skin and eyes (BULLOCK *et al*., 2018).

Women are the most affected by AR about 2 to 3 times more than men, in general, AR affects 0.5 to 1% of the population, in an age group between 35 and 60 years, also affecting children and adolescents being classified as Juvenile Rheumatoid Arthritis (RJA). AR is often confused early with Osteoarthritis (OA) is initially differentiated by affected areas, with AR with onset usually in proximal and meta-carpo-phalangeal, interphalangeal articulations, while OA begins to affect interphalangeal joints (BULLOCK *et al*., 2018; KÜÇÜKDEVECI *et al*., 2019).

Patients with AR suffer from various symptoms both local in their joints as well as systemic manifestations, among them are edema, fatigue, rigids and pain making each day more the person affected disabling in their Activities of Daily Living (ADL) and their functional capacity, in addition these patients become conducive to trigger cardiovascular changes, such as harmful changes in the body structure, by ad rating the accumulation of adipose tissue and decreased lean mass, thus becoming increasingly disabling in their daily activities. However, it is not a surprise that 1/3 of patients lose their jobs (METSIOS *et al*., 2019).

Drug treatment for AR and other rheumatic diseases in general is fundamentally used non-steroidal, ante depressive, immuno modelers and immunosuppressive anti-inflammatory drugs, among others, in order to reduce pain, prevent the damage caused to joint, as well as systemic changes (JORGE *et al*., 2017).

It is of fundamental importance that a functional evaluation be performed in order to analyze how impaired the patient's health is, before introducing any therapeutic intervention, being very utilized for such evaluation the International Classification of Functionality, Disability and Health (ICF), aiming to achieve a uniform and standardized view of the functional state related to health. In the evaluation for AR, the deformities and functionality of body structures, perception and expectation of the patient, environments with obstacles and facilitators, limitation in activities, are observed, which are important to point out the functional activity of the individual with relevance (KÜÇÜKDEVECI *et al*., 2019).

Together with the pharmacologic treatment, physiotherapy enables positive effects for the improvement of rheumatic patients, assisting in the control of the progress and symptoms of pathologies, such as muscle strength gain and resistance, improving the functions of daily activities, pain reduction, resulting in a promotion in the quality of life of these patients, enjoying of various therapeutic resources such as, thermo electrotherapy, hydrotherapy and kinesiotherapy for example (JORGE *et al*., 2017).

Aquatic physiotherapy is cited as an ancient resource, bringing thermal and mechanical properties, such as hydrostatic pressure, density, fluctuation, heat, where they reduce stress, improve blood circulation, and digestive flow, decrease pain, excite the immune system, and stimulate sympathetic nervous system blockage, in AR a study showed positive results but showed resulted in adverse events, another study has minimally positive results, but statistically favored in the relief of pain and significant positive consequences in patients (COMELLA *et al*., 2015).

In the current literature, there is little research relating aquatic physiotherapy to patients with AR, making useful studies on its accuracy and use. Therefore, the present study aims to analyze and identify in the scientific literature the positive and negative effects of aquatic physiotherapy in the treatment of patients diagnosed with Rheumatoid Arthritis.

2. Methodology

This is a literature review study, descriptive of the qualitative type, descriptive as a study that constitutes a broader review methodology, which allows the inclusion of the theoretical literature, as well as studies with different methodological approaches - quantitative and qualitative. The study was developed through a process of analysis of the literature on the subject, following the format of literature review (CROSSETTI, 2012).

The scientific articles taken were found in the following electronic databases of scientific publications: Scientific Electronic Library Online (SciELO), Latin American and Caribbean Literature on Health Sciences (Lilacs) and US National Library of Medicine (PUBMED).

The search in the database was performed using the following key words: hydrotherapy, rheumatoid arthritis,

treatment. The *uni* terms or descriptors were previously identified in the Descriptors in Health Sciences (DeCS) and Medical Subject Heading (MeSH), being: 'hydrotherapy', 'rheumatoid arthritis', 'treatment'.

Then, a combination was made through Boolean connectors: hydrotherapy AND rheumatoid arthritis AND treatment; rheumatoid arthritis AND treatment AND hydrotherapy; treatment AND rheumatoid arthritis AND hydrotherapy. Data analysis was produced in September 2021. Where it will be organized into tables, through Word, for descriptive analysis.

3. Results and Discussion

At the intersection of the three terms, in the three combinations, hydrotherapy AND rheumatoid arthritis AND treatment, rheumatoid arthritis AND treatment AND hydrotherapy; treatment AND rheumatoid arthritis AND hydrotherapy ("Hydrotherapy", "Rheumatoid Arthritis", "Treatment"), with the Boolean operator AND using 3 databases, SciELO, Lilacs and PUBMED, in the three crosses, the same studies were found, in a total of 26 publications, of which all studies were in English. Among these 26, 7 were selected to make up the analysis and categorization proposed in this study. Thus, 15 studies were evaluated and excluded because it does not present a theme consistent with the one addressed in this study.

Table 1. Themes of the studies "Hydrotherapy", "Rheumatoid Arthritis", "Treatment".

Thematic of the studies "Hydrotherapy", "Rheumatoid Arthritis", "Treatment".	No.
Hydrotherapy	4
Rheumatoid Arthritis	2
Treatment	1
Total	7

Source: Prepared by the researcher based on the studies found in the studies.

From this evaluation of the publications, the following articles were obtained for discussion:

Table 2. Selected Articles.

Nº	Origin	Article title	Authors	Year	Considerations/ thematic
01	Rheumatic Diseases	Role of hydrotherapy in improving the oxidant-antioxidant state in patients with rheumatoid arthritis	MATEEN, S. *Et al.*	2017	The results of this study show that hydrotherapy created an antioxidant environment due to which oxidative stress parameters were found to be improved. So in addition to the conventional drugs, the AR treatment strategy should also include hydrotherapy as a powerful physical therapy intervention.
02	Journal of Public Health	Cost-effectiveness of hydrotherapy versus terrestrial therapy in patients with musculoskeletal disorders in Singapore	TENG, M. *Et al*	2017	The findings of this research showed that hydrotherapy is beneficial to improve patient function by reducing the need for THR (total hip replacement) and TKR (total knee replacement) have a double effect on the disease and on the economic burden. Our model designed that, despite a variation of ICERs in all individual MSDs (Musculoskeletal Disorders), hydrotherapy was a cost effective treatment for MSDs in Singapore.
03	Elsevier Ltd. All rights reserved	Having complementary therapies have shown efficacy in	COMELLA, N *et al*.	2015	This study reported that most trials reported positive results, but were methodologically defective to some extent, and withdrawn due to adverse events have not been reported. Another systematic review found evidence that aquatic exercises had small but statistically significant effects pain relief and related results in AR.
04	Rev Chil Pediatría	Implementation of Watsu therapy in patients with arthritis juvenile idiopathic. A parallel, randomized, controlled and blind clinical trial.	RAMÍREZ, N *et al*.	2019	Watsu therapy improves hrQoL (health-related quality of life) in the short term related to physical functioning, pain sensation, deficiency index and functional health status compared to conventional hydrotherapy, we jiA patients in the acute or subacute phase.

05	Elsevier Ltd. All rights reserved	Non-pharmacological treatment in established rheumatoid arthritis	KÜÇÜK DEVECI, A *et al*.	2019	The findings of this study show that positive results are based on pain, general well-being and the number of sore joints have been reported in most studies, the authors. concluded that the general evidence was insufficient.
06	ABCS Health Sci	Physiotherapeutic activity in an individual with systemic lupus erytheama associated with rheumatoid arthritis and fibromyalgia	JORGE, M *et al*.	2017	The study reported that although it addressed only general kinesiotherapy (which also included balance and coordination exercises) and respiratory exercises in concomitance with hydrokinesiotherapy, good results were also found regarding pain reduction and improvement of the individual's quality of life.
07	Systematic Reviews and Implementation Reports	Efficacy of non-pharmacological and non-surgical interventions for rheumatoid arthritis: a comprehensive review	SANTOS, E. *Et al*.	2019	Based on the results of the items analyzed in this study, they found that there is no significant effect compared to other treatments.

Source: Prepared by the researcher with data collected.

4. Conclusions

Hydrotherapy is a resource of ancient considered physiotherapy, which has as its propositus, improve blood circulation, relieve pain and stress, as well as improve the fluidity of the movement, flexibility, proprioception and muscle strength. A technique widely used in patients with musculoskeletal disorders, as well as for AR. Based on the studies found, the vast majority of positive results related to aquatic physiotherapy in the treatment of AR usually associated with soil physiotherapy and medication use were found, however no reports were found on negative effects. However, the scarcity of current studies on hydrotherapy in the therapeutic approach of patients with rheumatoid arthritis is clearly clear, and a greater focus related to theme is necessary.

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