

ORIGINAL ARTICLE

Evaluation of outcomes in SPA-treated osteoarthrosic patients

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Key words

Osteoarthritis • SPA therapy • Quality of life

Summary

Introduction. Osteoarthritis is the most prevalent joints disorder and it is also the most frequent cause of physical disability in the elderly. When surgery is not indicated, symptomatic drugs are generally used. These treatments are frequently associated to balneotherapy. In fact, balneotherapy or spa therapy has been widely used in classical medicine as a cure for such diseases. The aim and significance of this study is to evaluate the impact of thermalism in subjects suffering from osteoarthritis.

Methods. We randomly selected 220 osteoarthrosic subjects (STs = spa treatment subjects), aged from 40 to 90, that usually undergone mud pack therapy and balneotherapy at least once a year. They were enrolled in thermal establishments in the Euganean Basin. We also recruited, as control group, 172 osteoarthrosic subjects (NCs = normal care subjects) that never underwent

any spa therapy. A questionnaire, comprehensive of a disability score, was administered by physicians to each subject.

Results. STs reported to suffer from osteoarthritis for more years than NCs. Furthermore STs significantly suffered more than NCs from pain in several joints, and they also showed a more elevated average number of painful joints. In spite of that, STs used less drugs than NCs, and showed a higher degree of disability due to osteoarthritis ($p < 0.001$).

Conclusion. The regular use of mudpack and balneotherapy seem to improve the wellness, and the spa treatment seems to help the achievement of this goal. In this regard it might be important to encourage new investigations in order to assess in which measure thermal therapy contribute to the wellness improvement.

Introduction and aim

Chronic-degenerative diseases are generally characterized by uncertain aetiology, multiple risk factors, a long latency period, a prolonged course of illness and slowly progress, functional impairment or disability. In more general terms, a chronic disease can be defined as a disease that has a prolonged course, that does not resolve spontaneously, and for which a complete cure is rarely achieved.

Osteoarthritis is one of the most prevalent chronic conditions in developed countries [1]. It is the most prevalent joints disorder [2] and it is also the most frequent cause of physical disability in the older adult population [3], with high costs for health care systems and society [4]. It is a chronic condition, characterized firstly by altered structure and function of the articular cartilage, then the changes occur in the joint as a whole, including bone and soft tissues [2]. It is a multifactorial disease with several risk factors influencing the normal repair mechanism of cartilage. Local symptoms are pain and functional limitations that can cause complete physical disability [5]. When surgery is not indicated, symptomatic drugs such as analgesics and non-steroidal anti-inflammatory drugs are generally used [6]. These treatments are frequently associated with balneotherapy. In fact, balneotherapy or spa therapy has been widely used in classical medicine as a cure for diseases [7]. Decreasing pain and improving function should be considered as the main indicators in

the effectiveness evaluation of thermalism. In particular mud-pack therapy is able to affect chondrocytes activity modulating seric cytokine production, and decrease of pain as consequence of anti-inflammatory action [8-10]. Mud bath treatment might exert beneficial effects on cartilage homeostasis and inflammatory reactions, influencing nitric oxide production and decreasing myeloperoxidase serum values [11]. The aim and significance of this study is to evaluate differences in health status between a sample of subjects suffering from osteoarthritis, who periodically undergo spa therapy vs those who have been treated with drugs.

Materials and methods

POPULATION

According to the protocol we randomly selected 220 osteoarthrosic subjects (STs = spa treatment subjects) coming from different Italian regions, aged from 40 to 90, who usually underwent mud pack therapy and balneotherapy at least once a year (STs): they were enrolled in thermal establishments in the Euganean Basin. We also recruited 172 osteoarthrosic subjects, in the same age span, that never underwent any SPA therapy normal care subjects (NCs), enrolled by general practitioners (GPs) in several Italian regions. All the subjects were enrolled after having obtained their informed consent.

METHODOLOGY

Physicians, specialized in thermal medicine and some randomly chosen GPs for NCs, administered a questionnaire to each subject in order to collect anamnestic data, thermal treatments, intensity and duration of articular pain and disability. The degree of disability was evaluated asking the subjects to attribute a score on the base of their difficulties in performing ten daily living activities [3]: Standing with arm up, Climbing 10 steps, Walking 2 blocks, Walking 3 blocks, Standing-up and sitting-down (chair), Standing-up and sitting-down (bed), Showering, Bathing, Doing light works, Doing heavy works. The statistical analysis was performed by unpaired Student's t-test and χ square test. The disability score has been standardised by age with direct method, using as standard population the whole recruited population.

Results

Sample characteristics have been reported in Table I. It is to mention that NCs are older and less educated than STs ($p < 0.001$). STs reported to have suffered from osteoarthritis for more years than NCs ($p < 0.001$). In

fact 33.8% of STs reported to have had pain in joints for more than 20 years vs 14.2% of NCs.

STs significantly suffered more than NCs from pain in different joints, as reported in Table II, and moreover they showed also a higher frequencies of painful joints (8.78 ± 4.68 vs 6.43 ± 4.03 – $p < 0.001$). In spite of that, STs used less drugs than NCs (mostly symptomatic drugs such as analgesics or non-steroidal anti-inflammatory drugs) (Tabs. III and IV). Furthermore NCs used physiotherapy more than STs, even if the difference was not significant, and showed a higher degree of disability due to osteoarthritis. Table V shows the score that subjects given by STs and NCs on the basis of the difficulties to perform activities of daily living. The higher degree of disability ($p < 0.001$) in NCs might affect their quality of life. No significant difference has been found by age-standardization.

Discussion and conclusion

The current therapy of osteoarthritis is largely symptomatic and based on analgesics and nonsteroidal anti-inflammatory drugs, because the primary goal is to provide relief of the symptoms [8].

Tab. I. Sample description.

	Spa treatment subjects		Normal care subjects	
	n.	%	n.	%
Sex				
Male	98	44.5	50	29.0
Female	122	55.5	122	71.0
Age				
Mean (\pm sd)	63.39	(10.05)	67.63	(10.50)
Origin (213 treated and 169 controls)				
North Italy	138	64.8	72	42.6
Centre Italy	47	22.1	32	18.9
South Italy	20	9.4	65	38.5
From abroad	8	3.8	0	0
Years of school (212 treated and 167 controls)				
Less than 9	102	48.1	121	72.5
More than 9	110	51.9	46	27.5
Years with Osteoarthritis (210 treated and 169 controls)				
Less than 10	63	30	78	46.2
11 - 20	76	36.2	67	39.6
More than 20	71	33.8	24	14.2
Total	220	56.1	172	43.9

Joints	Spa treatment subjects		Normal care subjects		
	n.	%	n.	%	
Neck	190	88	110	64	***
Back	199	90.9	122	71.3	***
Right Shoulder	161	73.9	89	51.7	***
Left Shoulder	150	68.2	93	54.1	*
Right Elbow	105	48.6	49	28.5	***
Left Elbow	106	49.1	49	28.7	***
Right Wrist	107	49.8	52	30.2	***
Left Wrist	109	50.7	54	31.6	***
Right Hip	126	58.6	92	53.8	
Left Hip	123	57.2	95	55.6	
Right Knee	151	70.2	112	65.1	
Left Knee	150	69.4	114	66.3	
Right Ankle	107	49.8	40	23.3	***
Left Ankle	109	50.9	41	23.8	***

* p < 0.05; *** p < 0.001
Missing data are not included in the count.

Drugs	Spa treatment subjects		Normal care subjects		
	n.	%	n.	%	
Yes	111	50.5	151	87.8	***
No	109	49.5	21	12.2	
Physical therapy					
Yes	96	44.9	93	54.7	
No	118	55.1	77	45.3	

*** p < 0.001

Analgesics	Spa treatment subjects		Normal care subjects		
	n.	%	n.	%	
Yes	8	3.6	25	14.5	***
No	212	96.4	147	85.5	
Fans					
Yes	83	37.7	79	45.9	
No	137	62.3	93	54.1	

*** p < 0.001

The results of our study show a lower use of drugs and physiotherapy in STs than in NCs, although STs reported a higher prevalence of pain and more years of disease. This might partially explain the decision to undergo thermal treatment in STs: further reasons

could be hypothesized, as a younger age and a higher socio-economical status. Furthermore the level of disability, lower in NCs, evidences that a better control of disease is present in STs. A limitation of our study is the different number of STs and NCs. Actually,

Tab. V. Age-standardised means and \pm sd of disability score in STs and NCs.

	STs	NCs	
Mean	7.81	12.89	***
\pm sd	5.99	6.53	
*** p < 0.001			

data collection has not been always accurate: we have had to exclude 57 subjects (mostly controls), because of not properly filled questionnaires. Another limitation is that this study, being cross sectional, cannot establish the effect of spa treatment in comparison to usual care. In fact a randomised trial is necessary for getting efficacy results. This study might suggest a hypothesis which should be evaluated by experimental studies.

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The balneotherapy, along with mud-pack therapy, is one of the oldest form of therapy for osteoarthritis. The minerals in the water, together with increased buoyancy, may be of therapeutic value [7]. Furthermore mud-pack therapy improves serum physiological antioxidant defences, reducing oxygen radical damage on cartilage [12, 13]. Our results, in agreement with those of other Authors, show that the regular use of mud-pack therapy and balneotherapy seem to be beneficial because less analgesic drugs and physiotherapeutic treatment are required notwithstanding the higher prevalence of painful joints. The spa environment might strongly contribute to the achievement of this goal [14-23]: many factors are positively involved, such as change of living environment, the spa scenery, physical and mental relaxation, and the absence of work duties [7]. In this regard it might be important to encourage new investigations in order to assess in which measure thermal therapy contribute to the quality of life.

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