



Non-pharmacological treatment of ankylosing spondylitis: Barriers to effective implementation of recommendations in Morocco

Abderrazak Hajjioui,^{1*} Maryam Fourtassi,² Mariam Atassi,³ Taoufik Harzy,⁴ Chakib Nejjar³

GJMEDPH 2014; Vol. 3, issue 3

¹ Faculty of Medicine and Pharmacy of Fez
Department of Physical medicine and Rehabilitation
Sidi Mohammed Ben Abdallah University
Fez, Morocco

² Faculty of Medicine and Pharmacy of Oujda
Department of Physical medicine and Rehabilitation
Mohammed Premier University
Oujda Morocco

³ Faculty of Medicine and Pharmacy of Fez
Epidemiology and Clinical Resear Department
Sidi Mohammed Ben Abdallah University
Fez, Morocco

⁴ Faculty of Medicine and Pharmacy of Fez
Rheumatology Department
Hassan II University Hospital
Fez 30070, Morocco

* *Corresponding Author*
Faculty of Medicine and Pharmacy of Fez
Department of Physical Medicine and Rehabilitation
Sidi Mohammed Ben Abdallah University
Postal address: BP 1893, Km 2200, Route de Sidi Hrazem
30000 Fez, Morocco.
Phone: 00212600600453
Fax: 00212535659707

ABSTRACT

This cross-sectional study aimed to describe non-pharmacological treatment modalities in Moroccan patients with ankylosing spondylitis (AS), and to approach physical therapy implementation barriers. 61 patients with AS according to New York classification criteria were included in the study. Socio-demographic data and clinical characteristics were collected and different therapeutic modalities, including physical therapy were investigated. The mean age of the patients was 38.20 (SD 12.36) years with a male/female ratio of 1.5.

55 (90%) patients received pharmacological therapy, 37 (60.7%) received physical therapy, 5(8.2%) underwent surgery and 36 (59%) tried at least one type of complementary medicine (medicine plants, sand baths, acupuncture, fire needles, and cupping). Patients' major expectations from physical therapy were improving their functional status (86.5%), and reducing their pain (59.5%). Most patients (86.49%) were satisfied of their physical therapy and 56.8% practiced home exercises. Reasons for nonattendance to physical therapy for the remaining 24 patients were nonprescription (58.3%), lack of financial resources (20.8%), geographical remoteness from rehabilitation centers (4%) and lack of motivation (17%).

Non-pharmacological treatment, especially based on exercise and education, is an integral part of the comprehensive management of AS. However, it is not efficiently implemented in Morocco and more effort should be made to develop this both efficient and relatively inexpensive component of AS treatment.

Key words: Ankylosing spondylitis, non-pharmacological treatment, patient education, physical therapy, Physical and Rehabilitation Medicine, Morocco

INTRODUCTION

Ankylosing Spondylitis (AS) is one of the most common rheumatic diseases with prevalence up to 0.9% worldwide.¹ It is a chronic disease causing pain, joint stiffness, progressive spinal mobility loss, and leading to a substantial functional impairment. AS management is based on both pharmacological and non-pharmacological interventions, as

recommended by the European League Against Rheumatism (EULAR), and the Assessments in Ankylosing Spondylitis International Society (ASAS).² Though pharmacological treatments have dramatically improved, with the advent of biologic therapy (anti-tumor necrosis factor), non-



pharmacological treatment, especially based on patient education and regular exercise, remains an important component of AS comprehensive care.³ While physical therapy optimal modalities for patients with AS are still debated, its efficiency in reducing pain, improving or maintaining spinal mobility, fitness and strength is established.^{3, 4, 5, 6}

This cross-sectional study aimed to describe the use of non-pharmacological treatments by Moroccan patients with AS, and to assess the implementation of physical therapy as the cornerstone of AS non-pharmacological treatment.

METHODS

Study population

This cross-sectional survey was carried out in the University Hospital of Fez, in Morocco. All of the patients with AS, found in the hospital database (from 2009 to 2012), received a phone call inviting them to participate in the survey and giving them a consultation appointment for this purpose. The inclusion criterion was the presence of pelvispondylitis according to the modified New York criteria for diagnosing AS.⁷ The exclusion criterion was the coexistence of other chronic or potentially disabling diseases. Among the 130 patients, selected from the database, 32 could not be reached by phone, 15 refused to participate because of their remoteness from the hospital (>150km), 19 did not attend their appointment despite a second reminder, and 3 had suffered from another chronic disease. Finally, 61 patients were included in the study.

Data collection

Socio-demographic data (age, gender, urban or rural origin, educational level, occupational status, and household income) were collected directly during the interview with the patients. Disease duration, pain, morning stiffness, treatment received and other non-conventional therapies tried by the patients were also determined. Disease

severity was approached using validated tools; disease activity was assessed using the Moroccan version of "Bath Ankylosing Spondylitis Disease Activity Index (BASDAI)"⁸ and functional status was assessed using the Moroccan version Bath Ankylosing Spondylitis Functional Index (BASFI)⁸ A semi-structured questionnaire was used to assess different aspects of physical therapy implementation in our patients such as therapy main objectives, level of attendance, level of satisfaction, home exercises practice and causes for non-attendance of physiotherapy sessions.

Statistical analysis

Free Epi-info software (3.5.1) was used for all statistical analyses. Descriptive statistics including size and frequencies for categorical variables, and means and standard deviations for continuous variables were used. The level of significance was accepted as p value < 0.05.

ETHICS

The study was carried out in agreement with Moroccan law and the Helsinki declaration on protecting human subjects. All patients included in this study were informed of its aims and characteristics and gave their informed consent to participate.

RESULTS

Table 1 summarizes the socio-demographic and clinical characteristics of the study population. The mean age of the patients was 38.20 (SD 12.36) years with a male/female ratio of 1.5. The disease mean duration was 10.30 (SD 7.26). 38 (62.3%) patients had more than 7 years academic education and 57 (93.4%) had an active occupational life. Most of the patients (54.1%) had a monthly household income of less than 200 United States dollars (USD). Pain was reported by 28 (45.9%) patients, with a means of 3.60 (SD 2.2) on the visual analog scale (VAS). The mean BASDAI score was 3.55 (SD 2.5) and the mean BASFI score was 3.49 (SD 2.66).

**Table 1. Characteristics of patients with AS**

Patients characteristics	Number of patients N = 61	%
Age (Years)	38.20 (12.36)*	15-68**
Gender: Male	37	60.7
Disease duration. years	10.30 (7.26)*	1-30**
Origin. Urban	53	86.9
Education level		
More than 12 years (University education)	17	27.9
7-12 years (High school level)	21	34.4
1-6 years (Primary school level)	8	13.1
No education	15	24.6
Professional/occupational status		
Student	7	11.5
House worker or domestic worker	13	21.3
Unemployed	4	6.6
Full time or partial time worker	37	60.7
Monthly Household income level		
Less than \$200	33	54.1
\$200 to \$499	13	21.3
\$500 or more	15	24.6
Pain	28	45.9
Global pain VAS (0-10cm)	3.60 (2.20)*	1-8**
Morning stiffness	39	63.9
BASDAI score	3.55 (2.50)*	0-8.2**
BASFI score	3.49 (2.66)*	0-9.8**

*Mean (SD); **Range; VAS: visual analog scale; BASDAI: Bath Ankylosing Spondylitis Disease ActivityIndex; BASFI: Bath Ankylosing Spondylitis Functional Index.

As shown in table 2, 55 (90%) patients received some kind of pharmacological therapy, especially based on NSAIDs (75.4%), whereas only 37 (60.7%) received physical therapy, 5(8.2%) had surgery and

36 (59%) tried at least one type of complementary medicine (medicine plants, sand baths, acupuncture, fire needles, and cupping).

Table 2. Pharmacological, non-pharmacological and alternative therapies in patients with AS

	Number of patients N = 61	%
Pharmacological treatment		
Analgesics	16	26.20
NSAIDs	46	75.40
DMARDs (methotrexate, sulfasalazine)	11	18.00
Corticosteroids	2	3.30
Anti-TNF therapy	10	16.40
No medication	6	9.80
Non-pharmacological treatment		
Physical therapy	37	60.70
Orthotics	10	16.40
Cure therapy	34	55.70
Surgery (Total hip arthroplasty)	5	8.20
Complementary medicine		
Medicinal plants	16	26.20
Sand bath therapy	13	21.30
Acupuncture	11	18.00
Fire needle therapy	8	13.10
Cupping therapy	7	11.50

NSAIDs : Non-steroidal anti-inflammatory drugs; DMARDs : Disease modifying anti-rheumatic drugs;



Table 3 displays different aspects of physical therapy implementation in our study population. The majority of the patients receiving physical therapy were attending public health rehabilitation centers (86.5%). Patients' expectations from physical therapy sessions were led by functional status improvement (86.5%), and pain reduction (59.5%). Surprisingly, 10 patients (27%) were attending physical therapy in the hope of curing their disease. Home-exercise programs were performed by 21(56.8%) patients with different durations and frequencies. Most of the patients were satisfied of their physical therapy and all of

them wished to continue practicing it. On the other hand, 24 (39.3%) patients did not receive any kind of rehabilitation support and the reasons for that were the following: nonprescription of physical therapy by the referent physician (58.3%), lack of financial resources (20.8%), geographical remoteness from rehabilitation centers (4%) and lack of motivation (17%). Furthermore, most patients (91.8%) never visited a Physical and rehabilitation medicine (PRM) specialist, especially because they were not advised to see one in 90.2% of cases.

Table 3. Aspects of physical therapy implementation

	Number of patients N = 37	%
Total number of physical therapy sessions	13 (9)*	[2 -48]**
Physical therapy sector		
Private health sector	5	13.50
Public health sector	32	86.50
Patients' expectations		
Maintaining and improving function	32	86.50
Reducing pain	22	59.50
Curing disease	10	27.00
Preventing complications	2	5.40
Individual physical therapy	37	100 %
Home exercise programs	21	56.80
Less than 30min/day	19	90.50
More than 30min/day	2	9.50
Every days	6	28.55
6 to 3 days a Week	6	28.55
Less than 3 days a Week	9	42.90
Satisfaction of physical therapy	32	86.49
Wish to continue physical therapy	37	100.00

DISCUSSION

Morocco is a developing country with a resource limited health care system. Thus, the implementation of international guidelines for chronic diseases management, such as AS, is not always feasible and often unaffordable.⁹ Concordant with this fact, only 16.4% of our patients, with AS received anti-TNF therapy. According to our experience, this limited use of biologic therapy is mainly due to its high cost, unaffordable for the majority of Moroccan patients because of their low household income.

On the other hand, non-pharmacological treatment and especially physical therapy, is considered as a relatively inexpensive treatment that can be more efficiently implemented in less economically developed countries like Morocco.^{9, 10} However, our findings revealed that only 60.7% of the patients received physical therapy. This rate seems overestimated as a substantial number of AS patients (15) refused to participate in the study because of their geographical remoteness from the hospital and it is most likely that these patients did



not receive physical therapy for the same reason. The most common explanation for patients' nonattendance to physical therapy sessions was nonprescription of physical therapy by the referent physician. This might be due to the lack of awareness amongst Moroccan physicians to the place of physical therapy in the management of AS. We believe that introducing rehabilitation and physical activity as a modal in the medical curricula of Moroccan schools of medicine might help increase physicians' understanding of this important aspect of non-pharmacological treatment.

Another barrier to the implementation of physical therapy, as an important component of AS management is the lack of human resources (physiotherapists, PRM specialists) and rehabilitation facilities where physical therapy can be delivered. Indeed, 24.8% of patients not receiving physical therapy live far from public health rehabilitation centers and/or cannot afford travel costs or private rehabilitation care. Thus, developing both inpatient and outpatient rehabilitation facilities, seems to be crucial to offer Moroccan patients with AS and other rheumatic diseases an optimal, though less expensive medical support. Furthermore, group physical therapy has been found as much effective in patients with AS as individual therapy,¹¹ but was practiced in no one of our patients. So, encouraging group physical therapy for patients with AS, might optimize the limited human resources, and provide rehabilitation support for a larger number of patients.

The third barrier seems to be rather cultural. 17% of our patients not receiving physical therapy pointed out their lack of motivation for such a treatment and only two patients, out of the 37 who had received physical therapy, continued to perform regular and effective home exercise programs (30min/day, at least 4 days/week).¹² Patients expectations from physical therapy should be heard and corrected to reasonable objectives, as difficulty in achieving these goals might be frustrating for the patient and discouraging him/her from following the therapy. In our study, a non-negligible number of patients (10) expressed unrealistic expectations from physical therapy such as curing the disease, which highlights the lack or inadequate information about the disease. Structured and organized

therapeutic education, that is expected to explain the importance of different therapeutic modalities to patients with AS,¹³ is still very uncommon in Moroccan medical institutions and often limited to the physicians' explanations during follow-up visits. Some advance, in recent years, has occurred in this area with the introduction of therapeutic education workshops for patients with chronic rheumatic diseases in some of the Moroccan university hospitals, thanks to the effective collaboration between rheumatologists and PRM specialists.

Whereas physical therapy adherence is not yet satisfactory, complementary medicine seems to be more popular amongst the Moroccan population suffering from rheumatic diseases. In a previous study, up to 70% of Moroccan patients with Rheumatoid arthritis used some kind of complementary medicine to relieve their symptoms¹⁴ like 59% of our patients with AS. This might be explained by socio-cultural, economical and religious factors, and on the other hand, by the easy access to this traditional medical practice and the mistaken belief of its harmlessness.¹⁴ Hence, more effort should be made in developing multidisciplinary collaboration between medical teams in order to enlarge patients' education coverage in Moroccan institutions. This is the only way to increase patients' adherence to conventional treatments and to prevent the recourse to potentially dangerous practices. Patients associations, still rare in Morocco, can be a major help to the medical system in achieving effective therapeutic education.²

CONCLUSION

Non-pharmacological treatment, especially based on exercise and education, is an integral part of the comprehensive management of AS and should be optimized and developed especially in limited resources regions of the world, where access to the most effective pharmacological treatment is not an option for every single patient.



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