The effects of an outreach effort on patients with acute back pain on the diagnosis of axial spondylitis

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ABSTRACT

The study aims to identify individuals suffering from Inflammatory Back Pain (IBP) by means of a public awareness campaign and to evaluate the effects of various forms of advertising.

Methods : AxSpA was promoted during a four-week awareness campaign that was carried out through a variety of communication media platforms. Patients with IBP were encouraged to get in touch with us by phone or email. They were offered an appointment if they satisfied the requirements for inclusion. HLA-B27 and magnetic resonance imaging were done if the patient did not meet the diagnostic criteria at the initial appointment.

Results : 900 patients in all responded—449 over the phone and 451 via email. 587 patients were included after discarded calls and emails that were not successful (226 from phone calls and 361 from emails); 61.5% of these patients responded following their viewing of a TV ad. 70% of patients from the call centre and 7.3% of patients via email who completed the initial questionnaire satisfied the requirements for inclusion. Out of the 157 scheduled appointments, only 80 (50.9%) were kept. 42 out of 80 patients (52.5%) met the inclusion criteria after a clinical evaluation. Nine patients received the AxSpa classification following clinical evaluations. Axial morning stiffness and a greater enthesis score were found to be significantly more common in the AxSpA group when comparing individuals with and without an AxSpA diagnosis.

Conclusion : Our population's AxSpA frequency in IBP patients was comparable to that found in published studies. The call centre was the most efficient means of contacting potential patients, and television was unquestionably the best medium for communication.

INTRODUCTION

The spine is the main organ affected by the chronic inflammatory disease known as axial spondyloarthritis, or AxSpA. The major histocompatibility complex (MHC) class I allele HLA-B27 is closely linked to it, especially in individuals who develop ankylosing spondylitis (AS) [1]. The significance of a thorough management of disease activity underpins the requirement for early AxSpA detection. This argument is supported by worse outcomes linked to delayed diagnosis and a higher response to anti-TNF alpha therapy in patients in the early stages of the illness. In patients with AS, disease activity was the primary factor linked to disability [2]. Additionally, it has been noted that disease activity influences the longitudinal progression of spinal radiography in AS, with an effect that is more pronounced in the disease's early stages3.According to one study, individuals with More radiographic progression, poorer functional disability, and increased disease activity are associated with an over 8-year delay in diagnosing axSpA[4]. As was recently demonstrated in a prospective AS cohort, early therapy prior to the development of permanent structural damage may also slow radiographic progression [5]. Ultimately, it was found that AxSpA patients responded better to anti-TNF alpha medication when their disease had been diagnosed earlier [6].

Regretfully, there is an intolerable delay in AS diagnosis despite these data. The median time for diagnosis in our 2008 cohort of 86 AS patients was 6.2 years [7]. The primary factors that could account for this delay in diagnosis are low disease prevalence, general practitioners' inadequate understanding of the disease's hallmark symptoms, the disease's early mild symptoms, the absence of particular diagnostic tests, the disease's slow radiographic progression, and restrictions related to conventional

diagnostic criteria.This diagnostic delay was somewhat shortened in 2009 [8] with the creation of the ASAS AxSpA classification criteria. Using the revised classification criteria, the median time to diagnosis was lowered to 3.5 years in a recent reevaluation of 190 AS patients from our cohort in 2014 (unpublished results).Inflammatory back pain (IBP), which affects 70–80% of individuals with AxSpA, is the hallmark symptom that non-rheumatologists typically fail to notice.

IBP has been defined by a number of different sets of criteria, all of which have comparable sensitivity and specificity [9–12]. When patients with chronic lumbar pain meet IBP criteria, the frequency of AxSpA increases from 5.8% to 33% [13–15]. Furthermore, imaging, laboratory, and clinical results are pertinent to establishing an early diagnosis of AS 8, and different approaches have been suggested to ascertain how best to apply them [16–23]. An additional factor contributing to diagnostic delay is the general public's, primary care physicians', and general practitioners' ignorance of disease characteristics. One of the key tactics needed to improve early diagnosis is medical education. With or without symptoms, the general public should be the target audience for this education.

Targeting general practitioners, primary care physicians, and other specialists (dermatologists, ophthalmologists, gastroenterologists, and orthopedists) is important when it comes to medical staff. It should especially emphasise patient referral strategies to rheumatologists. Nevertheless, in our nation, no guidelines for referral tactics have been established to help non-rheumatologist colleagues recognise these patients early. Undoubtedly, this could also be a factor in the delayed diagnosis. Both patient and physician awareness of a specific condition, like IBP, and access to specialists are essential for providing quality medical care. Information supplied to the public and physicians is what determines awareness.Prior research has demonstrated that AxSpA awareness campaigns provide the public with the opportunity to learn about the features of the disease, potentially leading to an early diagnosis [24, 25]. We created a National AxSpA "early detection" awareness programme in order to identify patients with IBP in the general public. To ascertain the campaign's diagnostic value, we additionally assess the influence of the various advertising mediums that were employed.

Material and Methods

The {Instituto de Rehabilitación Psicofísica¨ (IREP) in Buenos Aires and the {Hospital Señor del Milagro¨ in Salta were the two locations where this pilot study was carried out. A four-week awareness campaign named "MOVETE-YA" (or "MOVE-NOW") was introduced in November 2012. A TV spot that was aired on cable and several open network channels, as well as the press and internet (yahoo and Terra), were used to promote the advertisement. Informational pamphlets about the features of Low Back Pain (LBP) were mailed out to various city neighbourhoods. The goal of the advertisements was to increase public awareness of AS and to entice patients experiencing IBP to get in touch with us by phone at (0-800-moveteya) or email at www.moveteya.com, which is a 24/7 call centre.

Both the phone operators and the staff who received the emails had the necessary training. They were urged to use a pre-made questionnaire as a first filter in order to identify possible targets. This survey asked about sociodemographic information (gender, age, and date of birth) as well as the characteristics of back pain (BP) (duration, age at onset, and prior diagnosis). The primary aim of the survey was to ascertain whether the participants satisfied the inclusion requirements, which included being at least eighteen years old, experiencing back pain for a minimum of three months, having a pain onset age of at least fifty years, not having received an AS diagnosis previously, and meeting either the 4/5 ASAS LBP criteria or the 3+ Calin [10] or Berlin [11] LBP criteria, provided that they did not overlap with any of the three points specified in the ASAS criteria. Depending on where the patient lived, an appointment was scheduled for them in one of our participating centres if they satisfied the inclusion requirements. At a rheumatology centre, a rheumatologist conducted examinations and interviews with patients who met the criteria. The examinations covered topics such as sociodemographic information, medical history, treatment received, and the existence of IBP. A physical examination revealed the following: axial mobility scores (BASMI) [28], MASES enthesitis score (0-13)[27], presence of morning stiffness, number of swollen and tender joints (based on total 44 joint count) [26], and pain assessment (using a 0–10 cm Visual Analogue Scale (VAS)]. In order to measure the acute phase reactants (C Reactive Protein and Eritrosedimentation rate), blood samples were drawn. Additionally, a poster anterior pelvic X-ray was taken to check for sacroiliitis. In the event that a SpA diagnosis could not be established [29] during the initial consultation, HLA-B27 and Magnetic Resonance Imaging (MRI) (T1 and STIR sequences) were done on the sacroiliac joints. The modified New York criteria for AS [30] and the ASAS 2009 criteria for AxSpA [8] were used to classify the patients. The Instituto de Rehabilitacion Psicofísica's ethics committee approved the study, which was carried out in accordance with the Declaration of Helsinki's guidelines.

Analytical statistics: Inter Quartile Range (IQR), median, and frequencies were used in descriptive statistics. Depending on the sample distribution, the Chi-squared test or Fisher exact test was used to compare categorical variables, and the Mann Whitney and T tests were used to compare continuous variables.

Results

A total of 900 patients got in touch with us during the four weeks of the awareness campaign: 449 via phone and 451 via email. 226 (50.3%) of the phone calls and 361 (80.1%) of the emails that were screened initially satisfied the initial requirements. (Picture 1)After eliminating erroneous and repeated phone numbers, the demographics of all 727 initial contacts were analysed. The results showed that the median age was 41.5 years (IQR 34–50) and that women made up 421/727 (57.9%) of the contacts.When comparing contacts via phone or email, there were no appreciable variations in terms of age or sex. About the origins of the contacts, Buenos Aires accounted for 59%, other provinces for 33.4%, and Salta for just 7.7%. 61.5% of the patients who were recruited obtained their contacts from television, 15.1% from newspapers, 13.8% from the internet (Yahoo/Terra), and 9.6% from other sources. Following the initial screening (questionnaire), 70% of the The call centre contacts fulfilled the requirements for inclusion. By contrast, just 7.3% of the contacts that were reached through email were eligible for inclusion. Out of the 157 booked appointments, only 80 (50.9%) were kept. Merely 42 out of the 80 patients (52.5%) satisfied the inclusion criteria beyond a reasonable doubt following the clinical examinations by rheumatologists (second filter). Two of the forty-two patients were not included because they had already received an AS diagnosis. Nine patients were classified as AxSpa following the diagnostic examinations; seven of these patients matched the modified New York criteria30 for AS, and two of the patients satisfied the 2009 ASAS AxSpAcriteria8 for nr AxSpA. Of the remaining thirty-one patients, seventeen were lost to follow-up and fourteen received alternative diagnoses, primarily lumbar discarthrosis (Figure 2).Among the nine In patients with AxSpA, the median age was 39 years (IQR 31.5-41.5), the median age at the onset of LBP was 30 years (IQR 27.5-37.5), and the median duration of pain was 5.33 years (IQR 2.3-10.5). Of these patients, 66.6% were female.Reactive arthritis, inflammatory bowel disease (IBD), and/or psoriasis were not found in any cases. In analysing sociodemographic and clinical factors, patients with and without an AxSpA diagnosis showed younger age differences, although not to the point of statistical significance (37.6±6.7 vs. 45.4±10, p=0.054). When it came to sex

or the majority of IBP characteristics, we found no differences. Conversely, the AxSpA group experienced significantly higher rates of axial morning stiffness lasting longer than 30 minutes (77.7% vs. 37.7%, p=0.049) and longer morning stiffness duration (46.11±3.77 minutes vs P = 0.046; 16.21±11.26 minutes). In the AxSpA group, the MASES index was significantly higher (3.9±4.6 vs. 0.5±1, p=0.049). The AxSpA group exhibited numerically higher levels of acute phase reactants, erythrocyte sedimentation rate (ESD) and C-reactive protein (CRP) (Tables 1 and 2).

Discussion

In our nation, this is the first awareness campaign aimed at identifying IBP patients from the general population. AxSpA was found in 1.3% of the general population with IBP who was not aware of their diagnosis, and it was present in 22.5% of those with IBP. The primary source of recruits was television; the most productive contact was the call centre; and internet contacts yielded little. We chose to get in touch with patients who were presenting with intermittent back pain (IBP) based on the theory that the likelihood that a patient with chronic lumbar pain has AxSpA is only 5% [13–15]. The diagnostic probability of AxSpA increases to 14% in patients with IBP when the Berlin algorithm is used. In addition to SI imaging and the HLA-B27 antigen, the presence of at least three spondyloarthritis features raises the likelihood of the disease to 80–90% [16].

In order to rule out Ankylosing Spondylitis, we first evaluated patients in this study with a SI joint radiograph. If radiographic findings were normal or revealed low degrees of sacroiliitis, an MRI was then conducted. This decision was made based on cost considerations. Considering that 20–25% of patients with AxSpA have mechanical lumbar pain and that 70–80% of patients with AxSpA have IBP, the ASAS group changed the original Berlin algorithm by removing IBP as a requirement for admission. These changes have reduced specificity even though their sensitivity has increased [17].

Consequently, one might wonder, "Which reference parameter is best in patients with probable AxSpA?"The response would rely on a parameter that allows for the identification of the greatest number of patients while allowing for the lowest percentage of false negatives31. The best LR+/LR- ratio, when assessing the different parameters pertinent to an early AxSpA diagnosis, is associated with the presence of HLA-B27 and sacroiliitis as shown by MRI, both of which have a positive LR=9 and a negative LR=9. LR=0.11, corresponding to 90% specificity and sensitivity. Both trials, nevertheless, are expensive. With respect

to the remaining parameters under evaluation, IBP exhibits a positive LR of 3.1 and a negative LR of 0.33. IBP is therefore the primary metric that has to be assessed in patients who have suspected AxSpA. Other illness traits and symptoms have larger positive LR, but their sensitivity is lower because of their low prevalence [32].

Numerous reference strategies have been developed by single and multicenter studies with excellent outcomes based on these parameters. In 35 percent of cases, they enable the diagnosis of AxSpA, with 24–49% of those cases being non-radiologic AxSpA [18–23]. As previously stated, we decided to use IBP as the primary reference parameter in our investigation, and we discovered that individuals with IBP had a 22.5% AxSpA. This frequency is consistent with the 16–33% that have been documented in earlier research [15, 18, 19, 21]. It would be interesting to assess if the study's use of no conventional IBP criteria affected the study's sensitivity and/or specificity for identifying AxSpA patients. It is significant to remember that no studies on the prevalence of AxSpA have been conducted in Argentina as of yet, but we Expect that it may be lower than in other nations where the Anglo-Saxon population is larger Of the 40 patients with IBP, nine satisfied the AxSpA classification requirements. Since 14 of the 40 patients (or 35%) did not meet the AxSpA criteria, there was another possible reason for the IBP. Degenerative Disc Disease (DDD) affected all 100%. Modic I disc diseases can present with IBP characteristics, even though DDD typically presents with chronic mechanic lumbar pain [33, 34]. Furthermore, DDD is not linked to acute phase reactant changes and is more commonly detected in older patients. In comparison to the nine patients with AxSpA, the fourteen patients in our study were older and had numerically lower acute phase reactant values. It has not been demonstrated that any IBP characteristic has enough sensitivity or specificity to be used independently [11]. Nonetheless, the parameter with the best sensitivity/specificity relationship is morning stiffness lasting longer than thirty minutes [11]. Gran JT found that morning stiffness lasting longer than thirty minutes is associated with AS, with 64% sensitivity and 58% specificity [35]. One important finding from our study was that patients with IBP and AxSpA diagnosis had a significantly longer morning stiffness duration (>30 minutes) than patients with IBP who were not diagnosed with AxSpA. This finding held true when analysing IBP characteristics separately. In a similar vein, patients with AxSpA had considerably longer morning stiffness. The 42.5% (17/40) loss to follow-up that occurred in our study was a significant limitation; this was also noted in other disease awareness campaigns [36].

Regretfully, we were unable to get in touch with these people again. Socioeconomic barriers, like the challenges of conducting research and the inability to attend appointments due to work or transportation constraints, may be the cause of this. It is imperative to take into account that the TV advertisement yielded the highest contact rate. This can be explained by the fact that television is a historically novel, extensively used form of communication that is watched by a sizable portion of the populace in order to satisfy their needs for entertainment and information [37]. Television dominates other forms of communication and permeates people's homes and daily routines because of its audiovisual stimuli [38].

Even though most people in Argentina have free access to both the internet and phones, the call centre proved to be the most efficient method of contact when it came to recruiting. Conversely, those who went to the website completed the survey, but they subsequently chose not to show up for the appointment. Furthermore, compared to just 7.3% of Internet encounters, 70% of callers from the call centre satisfied the inclusion requirements. This discrepancy could be explained by the fact that a significant portion of visitors to the website were merely looking for information.In summary, our population's AxSpA frequency among IBP patients was consistent with published literature. Clearly, the best way to communicate was through television, and the most efficient way to get in touch with potential patients was through a call centre.

Disclosure Statement

References

1. Citera G. Espondiloartropatías seronegativas. Chapter 31. In Reumatología/Maldonado Cocco JA, Citera G. 1st Edition. 2010

2. Marengo MF, Schneeberger EE, Gagliardi S, Maldonado Cocco JA, Citera G. Determinantes de discapacidad funcional en pacientes con espondilitis anquilosante en Argentina. Rev ArgReumatol. 2009;20(3):20-25.

3. Ramiro S, van der Heijde D, van Tubergen A, Stolwijk C,

Dougados M, van den Bosch F, et al. Higher disease activity leads to more structural damage in the spine in ankylosing spondylitis: 12-year longitudinal data from the OASIS cohort. Ann Rheum Dis. 2014;73(8):1455-1461. DOI: doi: 10.1136/annrheumdis-2014-205178.

4. Seo MR, Baek HL, Yoon HH, Ryu HJ, Choi HJ, Baek HJ, et al. Delayed diagnosis is linked to worse outcomes and unfavourable treatment responses in patients with axial spondyloarthritis. ClinRheumatol. 2015;34(8):1397-1405. DOI: doi: 10.1007/s10067-014-2768-y.

5. Haroon N, Inman RD, Learch TJ, Weisman MH, Lee M, Rahbar MH, et al. The impact of tumor necrosis factor α inhibitors on radiographic progression in ankylosing spondylitis. Arthritis Rheum. 2013;65(10):2645-2654. DOI: doi: 10.1002/art.38070.

6. Rudwaleit M, Listing J, Brandt J, Braun J, Sieper J. Prediction of a major clinical response (BASDAI 50) to tumor necrosis factor α blockers in ankylosing spondylitis. Ann Rheum Dis 2004;63(6):665-670.

7. Collado MV, Marengo MF, Schneeberger EE, Correa MA, Rosemffet M, Citera G, et al. Incapacidad laboral en pacientes con Espondilitis Anquilosante: Puntos de corte y capacidad de discriminación de los principales cuestionarios de autoevaluación. Rev Argent Reumatol 2008;19(4):19.

8. Rudwaleit M, Landewé R, van der Heijde D, Listing J, Brandt J, Braun J, et al. The development of Assessment of SpondyloArthritis international Society classification criteria for axial spondyloarthritis (part I): classification of paper patients by expert opinion including uncertainty appraisal. Ann Rheum Dis. 2009;68(6):770-776. DOI: doi: 10.1136/ard.2009.108217.

9. Dougados M, van der Linden S, Juhlin R, Huitfeldt B, Amor B, Calin A, et al. The European Spondylarthropathy Study Group preliminary criteria for the classification of spondylarthropathy. Arthritis Rheum. 1991;34(10):1218-1227.

10. Calin A, Porta J, Fries JF, Schurman DJ. Clinical history as a screening test for ankylosing spondylitis. JAMA. 1997;237(24):2613-2614.

11. Rudwaleit M, Metter A, Listing J, Sieper J, Braun J. Inflammatory back pain in ankylosing spondylitis: a reassessment of the clinical history for application as classification and diagnostic criteria. Arthritis Rheum. 2006;54(2):569-578.

12. Sieper J, van der Heijde D, Landewé R, Brandt J, Burgos-Vagas R, Collantes-Estevez E, et al. New criteria for inflammatory back pain in patients with chronic back pain: a real patient exercise by experts from the Assessment of SpondyloArthritis international Society (ASAS). Ann Rheum Dis. 2009;68(6):784-788. DOI: doi: 10.1136/ard.2008.101501.

13. Underwood MR, Dawes P. Inflammatory back pain in primary care. Br J Rheumatol. 1995;34(11):1074-1077.

14. O'Shea FD, Boyle E, Salonen DC, Ammendolia C, Peterson C, Hsu W, et al. Inflammatory and degenerative sacroiliac joint disease in a primary back pain cohort. Arthritis Care Res (Honoken). 2010;62(4):447-454. DOI: doi: 10.1002/acr.20168.

15. vanOnna M, Gorter S, van Meerendonk A, van Tubergen A. General practitioners' perceptions of their ability to identify and refer patients with suspected axial spondyloarthritis: a qualitative study. J Rheumatol. 2014;41(5):897-901. DOI: doi: 10.3899/jrheum.131293.

16. Rudwaleit M, van der Heijde D, Khan MA, Braun J, Sieper J. How to diagnose axial spondyloarthritis early. Ann Rheum Dis. 2004;63(5):535-543.

17. van den Berg R, de Hooge M, Rudwaleit M, Sieper J, van Gaalen F, Reijnierse M, et al. ASAS modification of the Berlin algorithm for dianosing axial spondyloarthritis: results from the SPondyloarthritis Caught Early (SPACE)-cohort and from the Assessment of SpondyloArthritis international Society (ASAS)-cohort. An Rheum Dis. 2013;72(10):1646-1653.

18. Brandt HC, Spiller I, Song IH, Vahldiek JL, Rudwaleit M, Sieper J. Performance of referral recommendations in patients with chronic back pain and suspected axial spondyloarthritis. Ann Rheum Dis. 2007;66(11):1479-1484.

19. Hermann J, Giessauf H, Schaffler G, Ofner P, Graninger W. Early spondyloarthritis: usefulness of clinical screening. Rheumatology (Oxford). 2009;48(7):812-816.

20. Muñoz-Fernández S, de Miguel E, Cobo-Ibáñez T, Carmona L, Steiner M, Descalzo MA, et al. Early spondyloarthritis: results from the pilot registry ESPIDEP. ClinExpRheumatol. 2010;28(4):498-503.

21. Poddubnyy D, Vahldiek J, Spiller I, Buss B, Listing J, Rudwaleit M, et al. Evaluation of 2 screening strategies for early identification of patients with axial spondyloarthritis in primary care. J Rheumatol. 2011;38(11):2452-2460. doi: 10.3899/jrheum.110070.

22. Braun A, Saracbasi E, Grifka J, Schnitker J, Braun J. Identifying patients with axial spondyloarthritis in primary care: how useful are items indicative of inflammatory back pain? Ann Rheum Dis. 2011;70(10):1782-1787. doi: 10.1136/ard.2011.151167.

23. Sieper J, Srinivasan S, Zamani O. Comparing 2 referral strategies to diagnose axial Spondyloarthritis: RADAR. Ann Rheum Dis. 2011;70(Suppl 3):81.

24. Song IH, Sieper J, Rudwaleit M. Diagnosing early ankylosing spondylitis. CurrRheumatol Rep. 2007;9(5):367-374.

25. Juanola Roura X, Collantes Estévez E, León Vázquez F, Torres Villamor A, García Yébenes MJ, Queiro Silva R, et al. Recomendations for the detection, study and referral of inflammatory low-back pain in Primary Care. ReumatolClin. 2015;11(2):90-98.

26. van der Heijde DM, van der Linden S. Measures of outcome in ankylosing spondylitis and other spondyloarthritides. BaillieresClinRheumatol. 1998;12(4):683-93.

27. Heuft-Dorenbosch L, Spoorenberg A, van Tubergen A, Landewe R, van der Tempel H, Mielants H. Assessment of enthesitis in ankylosing spondylitis. Ann Rheum Dis. 2003; 62(2):127-132.

28. Jenkinson TR, Mallorie PA, Whitelock HC, Kennedy LG, Garrett SL, Calin A. Defining Spinal Mobility in Ankylosing Spondylitis (AS) The Bath AS Metrology Index. J Rheumatol. 1994; 21(9):1694- 1698.

29. Brower A. Disorders of the sacroiliac joint. Radiology. 1978;1:3-26.

30. van der Linden S, Valkenburg HA, Cats A. Evaluation of diagnostic criteria for ankylosing spondylitis. A proposal for modification of the New York criteria. Arthritis Rheum. 1984;27(4):361-368.

31. Manterola DC. Cómo interpretar un artículo sobre pruebas diagnósticas. Rev Med ClinCondes. 2009;20(5):708-717.

32. Poddubnyy D, Rudwaleit M. Early spondyloarthritis. Rheum Dis Clin North Am. 2012;38(2):387-403. doi: 10.1016/j.rdc.2012.04.007.

33. Bailly F, Maigne JY, Genevay S, Marty M, Gandjbakhch F, Rozenberg S, et al. Inflammatory pain pattern and pain with lumbar extension associated with Modic 1 changes on MRI: a prospective case-control study of 120 patients. Eur Spine J. 2014;23(3):493-497. doi: 10.1007/s00586-013-3036-6.

34. Cecchetti S, Pereira B, Roche A, Deschaumes C, Abdi D, Coudeyre E, et al. Efficacy and safety of pamidronate in Modic type 1 changes: study protocol for a prospective randomized controlled clinical trial. Trials. 2014;15:117. doi: 10.1186/1745-6215-15-117.

35. Gran JT. An epidemiological survey of the signs and symptoms of ankylosing spondylitis. ClinRheumatol. 1985;4(2):161-169.

36. Daniel Capurro N, Luigi Gabrielli N, Luz MaríaLetelier S. Intention to treat and follow up are important in assessing validity of a randomized clinical trial. Rev Méd Chile. 2004;132(1):1557-1560.

37. Fernández F. Clase social, exposición a la televisión y percepción de la violencia en la televisión. Estudiossociales. Chile. 1994;12.

38. http://ww11.brinkster.com7telebasura7index.asp