Malaysian Family Physician
Official Journal of the Academy of Family Physicians of Malaysia
and Family Medicine Specialist Association of Malaysia

REVIEW

Algorithm for the referral of patients with inflammatory back pain from primary care in Malaysia

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Lau IS, Gun SC, Yeap SS, et al. Algorithm for the referral of patients with inflammatory back pain from primary care in Malaysia. *Malays Fam Physician.* 2021;16(2);2–6. https://doi.org/10.51866/rv1206

Keywords:
Inflammatory back pain, 3R algorithm, primary care, referral, axial spondyloarthritis

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Abstract

Chronic low back pain, defined as back pain lasting for more than three months, can be divided into mechanical or inflammatory back pain (IBP). IBP typically starts in patients below the age of 40, is improved with activity and worsens with rest. IBP is strongly associated with axial spondyloarthritis. Early recognition of IBP among primary care physicians is essential for timely diagnosis and intervention to ensure the best outcomes for patients with axial spondyloarthritis. This paper describes the Malaysian Society of Rheumatology's recently developed Inflammatory Back Pain Referral Algorithm for primary care physicians, which aims to facilitate the early identification and referral of IBP patients to rheumatologists.

Introduction

Back pain is common worldwide. The prevalence of low back pain in developed countries has been estimated to range from 10 to 30%.[1] In Malaysia, the prevalence of back pain was found to be 12%, and it was the fifth and ninth most common complaint in the private and public primary healthcare settings, respectively.[2] The challenge in managing back pain is to differentiate between those with serious underlying pathology and those without. The Malaysian low back pain management guideline was first published in 2010 by the Malaysian Association for the Study of Pain in collaboration with the Spine Society of Malaysia.[3] These guidelines covered the management of low back pain in general, however, with no focus on chronic inflammatory back pain.

Chronic low back pain (CLBP) is defined as back pain persisting for more than three months. In comparison to acute back pain, the management of CLBP may last years. CLBP is associated with significant morbidity, as it may lead to diminished mobility and work absenteeism, in addition to increasing healthcare utilisation.[4] To reduce the adverse sequelae of CLBP, early diagnosis and treatment are essential.

Many patients with CLBP will present to primary care physicians (PCPs) as a first line. The purpose of the initial assessment by PCPs is to triage patients into those with specific pathology (up to 10%) and those with non-specific LBP (approximately 90%), after exclusion of possible pathology.[5] A subset of patients with CLBP have features suggestive of inflammatory back pain (IBP), so it is important to recognise that IBP usually presents with CLBP.[6,7]

Inflammatory back pain is the key clinical symptom for axial spondyloarthritis (axSpA), which includes ankylosing spondylitis and non-radiographic spondyloarthritis.[6] Symptoms of IBP are usually localised to the axial spine and sacroiliac joints and are differentiated from mechanical back pain. Symptoms of IBP include insidious onset of back pain, morning stiffness in the lower back for more than 30 minutes, improvement of back pain with exercise, no improvement with rest, awakening at night or in the early morning because of back pain and alternating buttock pain.[8] In primary care, it is estimated that 5% of patients with CLBP have axSpA. The presence of IBP symptoms increases the likelihood of axSpA by 9 – 11%.[7] Interestingly, it has been found that 36% of Asian populations with IBP also meet the criteria for spondyloarthropathy.[8]

This has led to the proposed development of a

referral tool with the aim to facilitate the early identification and referral of IBP patients to rheumatologists for further detailed assessment, ensuring that patients diagnosed with axSpA receive appropriate treatment early.

Methods

A steering committee meeting consisting of seven leading Malaysian experts in rheumatology (LIS, GSC, YSS, MMZ, HMY, SS and FY) and three independent scientific assistants (LSL, CBJ and SM) was convened in October 2019 in Kuala Lumpur, Malaysia. Each of the seven experts had over 10 years of experience treating patients with IBP and patients with axSpA. The experts aimed to develop a feasible referral tool to facilitate the referral of IBP patients based on evidence from the literature, along with their expert clinical opinions.

The panel of seven rheumatologists subsequently participated in further rounds of discussion via email, along with evaluation of all literature concerning IBP published up to and including October 2019. The steering committee discussed the results thoroughly, taking into account the feasibility of local clinical practice, until a consensus was achieved. This led to the formulation of the Inflammatory Back Pain Recognise – Review – Refer (IBP 3R) referral algorithm.

The algorithm was subsequently validated with input from a group of primary care physicians before being formalised. The referral tool focused on (1) adapting the most appropriate criteria for IBP use in the Malaysian setting, (2) using available resources and appropriate investigations to help with the referral process and (3) choosing the appropriate specialist when referring patients presenting with IBP.

Results

Consensus findings

Several main considerations were specified in the process of developing the referral algorithm. These were discussed in the three different key steps of the algorithm: (1) Recognise, (2) Review and (3) Refer (**Figure 1**).

Recognise

There have been several criteria developed previously to measure and assess IBP to identify patients that may require a more detailed assessment of axSpA. These include the criteria developed by Calin in 1977,[9] the Amor criteria in 1990,[10] the Berlin criteria in 2006[11] and the most recent ASAS criteria for IBP in 2009.[12] The expert group agreed that the use of the ASAS IBP criteria in assessing IBP in Malaysia was most appropriate, as it has been found to be robust and easy to apply, with good specificity and sensitivity.[6,12,13] The five ASAS criteria for IBP are (1) onset of pain at age <40 years, (2) gradual onset, (3) improvement of pain with exercise, (4) no improvement with rest and (5) pain at night. If at least four out of these five parameters are fulfilled, a sensitivity of 77.0% and a specificity of 91.7% are implied for the presence of IBP, but not for the diagnosis of axSpA.[12,14] Patients who fulfil these criteria should then be evaluated further, as stipulated in the 'Review' step.

Review

This step takes into account feasibility within local practice. The expert group agreed that additional information including further clinical history, further basic blood and/or radiographic investigations, and any significant associated features of spondyloarthritis present should be obtained. Information regarding clinical history and symptoms include the location, nature and duration of pain, any family history of rheumatological disorders and treatment used for IBP.

The steering committee also agreed that key investigations that should be considered include inflammatory markers such as erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP). Although CRP may not be readily available in certain healthcare facilities in Malaysia, the use of ESR as an alternative was considered acceptable by the expert group. This takes into consideration that an objective measure of inflammation is indicative of active inflammation that could be due to axSpA.[15] This is also useful because ESR and/or CRP are components used to assess disease activity scores in axSpA.[16,17,18]

Radiographic assessments have been used in the modified New York Criteria for the diagnosis of ankylosing spondylitis.[19] In contrast, the availability of MRI for assessment of inflammation has been adapted into the ASAS 2009 classification criteria.[20] Taking into consideration the limited access to MRI in certain regions of Malaysia, the steering committee agreed that an x-ray of the sacroiliac (SI) joints is an acceptable assessment that can be requested by the referring physician.[21]

It is important to note, however, that a normal X-ray of the SI joints does not rule out the possibility of a diagnosis of axSpA.[22] Further detailed assessments by MRI may be requested by the rheumatologists as part of their detailed assessment. In addition, patients with 'red flag' symptoms (including acute onset pain, fever, unexplained weight loss, incontinence, history of malignancy, unilateral SI joint pain likely consistent with infection) should be referred urgently to the respective secondary care specialists for further assessment.[23]

Refer

In the final step of the algorithm, patients with suspected inflammatory back pain should be referred to a rheumatologist for further investigation and management. A comprehensive list of hospitals with rheumatology services across Malaysia can be obtained from the Malaysian Society of Rheumatology website (https://msr.my/rheumatology-services/list-of-hospitals/). A link for this has been embedded in the referral IBP 3R algorithm in the form of a QR code (**Figure 1**). The steering committee agreed, however, that patients who are to be referred may receive non-steroidal anti-inflammatory (NSAIDs) treatment and physiotherapy prior to attending a rheumatology specialist clinic.

The application of the proposed referral algorithm is believed to be easily administered by primary care physicians, orthopaedic surgeons and even other specialties to determine whether a patient's IBP is indicative of axSpA.

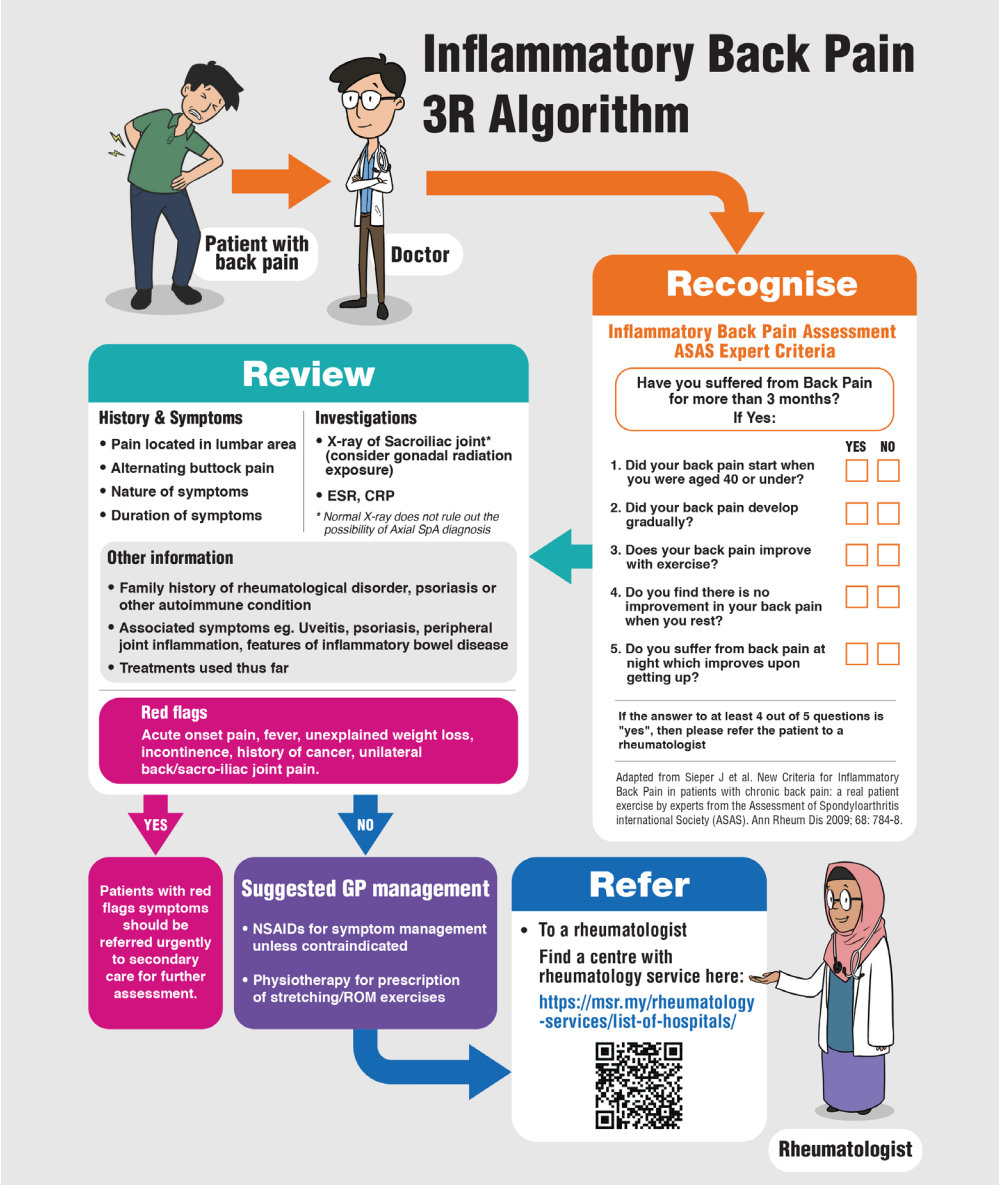

Figure 1: Inflammatory Back Pain 3R (Recognise-Review-Refer) algorithm

Discussion

Patients with IBP usually present in their mid-20s[24], thus affecting individuals at the prime of their lives. A delayed diagnosis may also potentially lead to unfavourable socioeconomic consequences. Patients will suffer pain, stiffness, fatigue, and a loss of spinal function and mobility, leading to a reduction in quality of life[25], work productivity[26], and an increase in direct and indirect medical costs.[27] Studies have shown that there is an unacceptably long delay, averaging eight to 11 years[6], between the onset of symptoms and the time to diagnosis of axSpA. Such a long delay in diagnosis will lead to poor functional outcomes among patients. Early diagnosis of axSpA is therefore crucial to ensure timely treatment, which is associated with improved outcomes.

The steering committee sought to leverage the knowledge and clinical experience of local experts who treat patients with IBP as part of their daily clinical practice in the development of a referral tool that is both feasible and easy to use. In the past few years, the use of new treatments such as biologics can effectively control signs and symptoms of arthritis whilst delaying disease progression.[28,29] This has led to significantly improved treatment outcomes of axSpA. In view of the importance of early treatment, the IBP 3R Algorithm is introduced with the aim of facilitating primary care physicians and other specialties in the early identification and referral of IBP patients to rheumatologists for further investigation and management.

Axial spondyloarthritis has been well established to be associated with the presence of the genetic marker HLA-B27.[30] A positive HLA-B27 test with no clinical features does not, however, indicate the diagnosis of axSpA. HLA-B27 genetic testing is thought to be of relevance if patients develop IBP symptoms; however, the relatively high cost and limited availability of HLA-B27 testing in certain regions of Malaysia are seen as challenges to incorporating the HLA-B27 parameter into the IBP 3R algorithm. For now, it may be more practical for HLA-B27 testing to be requested by the rheumatology specialist, although other specialists or primary care physicians may request it if they have the available resources to do so.

Conclusion

In view of the importance of early treatment of axSpA in achieving better outcomes, efforts to reduce the delay in disease diagnosis are imperative. One such way is to encourage early referral to rheumatology specialist clinics via the use of a feasible tool such as the IBP 3R algorithm to facilitate early IBP identification among patients with back pain. This ensures timely assessment and proper disease intervention, which can significantly improve overall prognosis.

Conflicts of Interest

The authors declare no conflicts of interest.

Authors' Contributions

All the authors have contributed to and approved the content of the paper.

Acknowledgments

The expert panel discussion and the preparation of this manuscript were funded by Novartis (Malaysia). The authors acknowledge manuscript writing assistance from Siew Li Lai, Bao Jing Chen and Suryaprakash Mishra.

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