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Review Article

A contemporary clinical reasoning and multi-dimensional approach of Lower back pain management

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Abstract

The incidence rate of low back pain (LBP) is expanding in every clinical context as it is a common musculoskeletal illness affecting the overall population although the frequency of back pain and functional impairment increasing with age. This leads to tremendous strain as it represents one of the leading causes for growing disability and major socioeconomic burden in almost every healthcare system globally thus an efficient back pain management strategy is an urgent priority. This review is to outline the common causes, associated risk factors, clinical presentation and contemporary clinical reasoning including multi-dimensions of pain aspects to assess the patients with low back pain for achieving the precise clinical decision making as it would be a provision to implement potential tactics to lower the socioeconomic burden of this musculoskeletal disorder on the healthcare service providers.

INTRODUCTION

Lower back pain is a collective musculoskeletal illness affecting the overall population although frequency of back pain and dysfunction take place with aging. The previous research advocates that LBP occurrence increasingly takes place with aging and incidence may be recognized to work-related physical activities too. Population-based studies have indicated that LBP remains global concern thus it challenges every nation. The occurrence of LBP is 84%[1] as this common condition affecting individual at some point in their live consequently seen in both primary and tertiary care clinical settings. Moreover, the 1-year prevalence of LBP in aging people range from 13 to 50% similarly, up to 80%[2] experience this substantial musculoskeletal pain and follow long-term healthcare facility. If the LBP continues more than three months, this is considered to be as chronic lower back pain but there are number of studies advocate that chronic pain is lasting beyond the expected natural healing time period and neglecting the timeline-based classification. The differential diagnosis is crucial as it provides the underlying pathological causes because LBP is a disease not a symptom. The back pain represents one of the leading causes globally for growing number of disability and major socioeconomic burden in almost every healthcare system. According to the Global Burden of Disease Study evaluation revealed that LBP accountable for many years patient lived with disability[3]. Another study estimated that approximately 97% of people experience back pain at some time in their life while around 62% is mechanical nature or non-specific but between 5 and 10% of cases [4] develops chronic LBP then it seems to be the primary focus on seeking health care services. This eventually leads to a wider-range of negative consequences not only individual suffering from LBP but also causing negative impact on national levels. It minimizes the person's quality of life due to personal suffering and subsequent economic impact on health care system. In the long run, LBP leads to disability in the working population and severely impacts on their productivity subsequently loss their working days. The resultant

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cost and absenteeism from work along with LBP is a serious social concern.[5] The LBP has a wider-range of potential etiologies and the LBP symptomatology can be overlapped each other also depend on the patient population but among the mechanical nature and non-specific causes are most common. However, successful outcomes of LBP are dependent on precise differential diagnosis. It can be reached by detailed clinical history taking, knowledge of the regional anatomy, precise understanding of the pathology comprehensive physical examination and diagnostic studies. [6] A number of clinical guidelines show that potential success of conservative management for LBP approximately 70% [7] although in certain cases are required surgical intervention. Thus, the efficient LBP management strategy is an urgent priority as the alarming rate of socioeconomic burden of this musculoskeletal disorder for nearly all healthcare service providers in every nation in worldwide.

ETIOLOGY

There is a wider-range of potential causative factors for developing LBP in every population although these etiologies depend on the patient's medical history, examination and investigation. However, it is advocated that commonly mechanical or non-specific nature of LBP and among a large incidence of mechanical back pain due to lumbago, paraspinal hypertonicity, degenerative disease, facet joint and sacroiliac joint dysfunction while disc prolapse, inflammatory diseases, osteoporosis, malignancy, nerve root compression, canal stenosis and infection are all part of the differential diagnostic procedure.[8] Even though the majority of back pain is mechanical or non-specific nature and somewhere 12-33% [9] of people experience back pain due to either a true red flag like caudaequina syndrome then it need to be the immediate focus on medical management. At present, a growing number of researches contend that the pain occurs because of other aspect like cognitive behavioral factors, thus this dimension must be taken into the back pain diagnostic procedures. Differentiating the nociceptive pain from neuropathic pain and psychogenic pain is an essential step to make precise differential diagnosis as it is a high priority before initiating any therapeutic approaches.[10] The important trait of LBP management is identification of red flags to avoid delay of appropriate intervention and ensure patient safety.[11] It is vital to have comprehensive understand on clinical presentation of individual back pain cases and identifying the typical red flags associated with back pain such as loss of neurological functions, bowel or bladder incontinence and sleep disturbance could help to establish optimistic therapeutic management. There are several interventional approaches are being applied to cure the lower back pain suffering though the recent research report reveals that the majority of back pain cases resolve naturally with certain time duration.[12]

RISK FACTORS

A greater number of studies claimed that varying evidence related to job demands such as lifting and twisting with weight, ethnicity, genetic predisposing factors and mental health issues are all associated with higher risk of back pain although there is a few evidence provided that women have a greater risk of lower back pain.[13] A recent cross-sectional study claimed that there is strong correlation between lower back pain and obesity have a strong relationship as obesity is one of the risk factor to develop back pain subsequent functional disability. However, it is contended that the incidence rate of lower back pain is high when there is high chance of psychological issues. [14] In addition to that this study postulated that there is high prevalence of lower back pain among people with sedentary lifestyle thus they conclude that physical activity help significantly to decrease lower back pain perception. The varying level literature evidence and the lack of a homogenous definition of back pain lead to challenge for clinicians to have definitive conclusion in related to back pain scenarios though the global survey testify that it is varied geographically.[15]

CLINICAL PRESENTATION

The type of pain can be classified easily in case of having clear picture of mechanism of injury like bruise of skin or broken bone unfortunately there are some type of pain mechanism seems to be vague particularly incase of chronic lower back pain. The lower back pain is classified as acute when it persists for up to six weeks period and it is considered as sub-acute when it is prolonged for up to three months. If the pain is persisted beyond three months is considered as chronic lower back pain because 3 months period is commonly required to natural healing.[16] The back pain is usually defined as local pain, spasmodic muscle tenderness between below the costal margin and above the inferior gluteal folds with or without having leg symptoms. The acute lower back pain is often occurred as the result of tissue injuries and patients suffer from acute back pain are unlikely to follow medical care because acute pain gets better on their own or with conservative treatment. The majority of cases are non-specific and this non-specific chronic lower back pain management needs a huge financial burden to every healthcare system globally. The diagnosis and treatment for patients with low back pain have variation within and between country's clinical practice guidelines.[17]

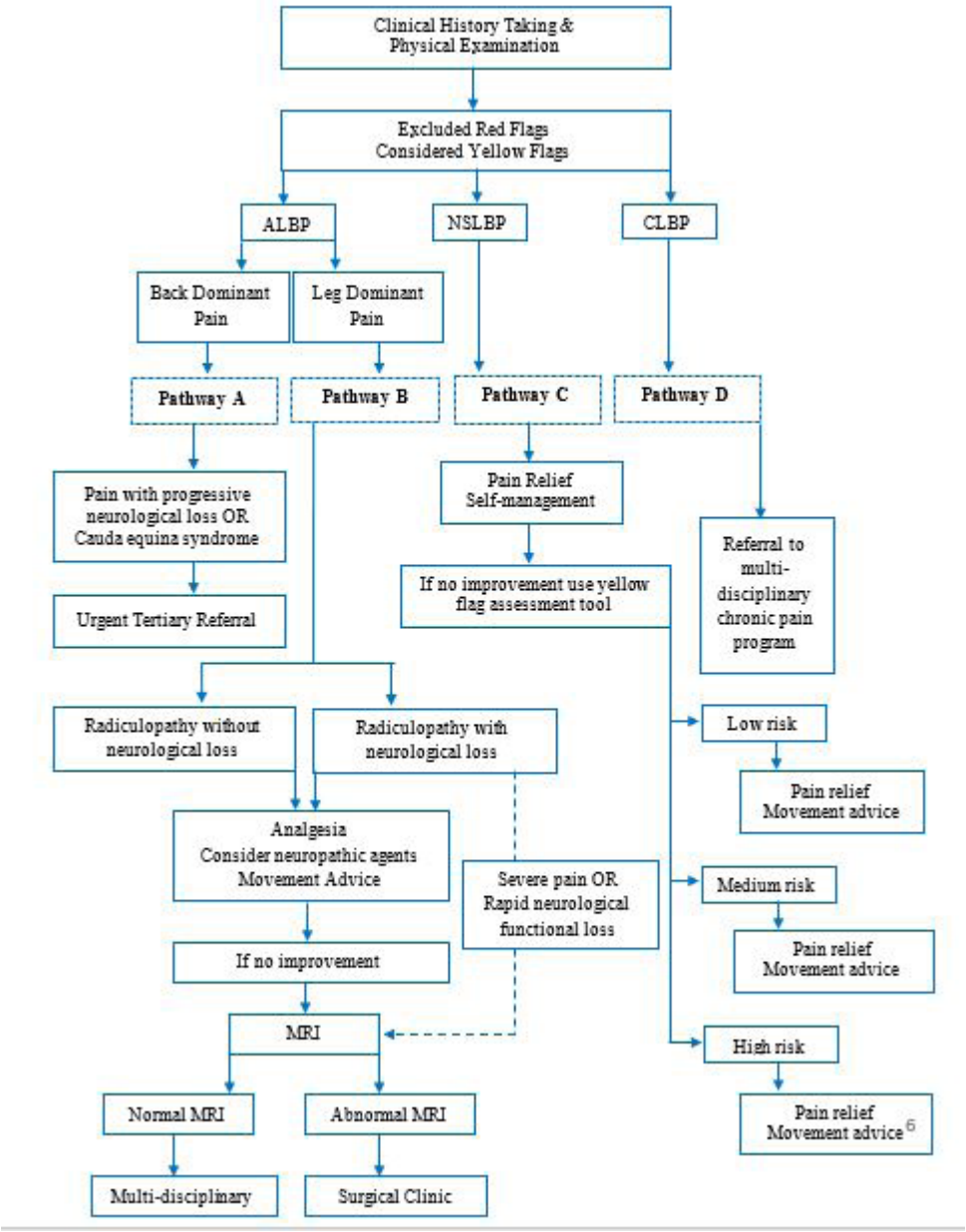

Figure 1: *Lower Back Pain Clinical-Decision Making Process [20]*

CLINICAL DIAGNOSIS

The clinical history taking and comprehensive clinical examination are the most important tools for assessing lower back pain to narrow down the potential root causes of lower back pain subsequently arriving precise differential diagnosis.[18] The goal of diagnosis in lower back pain is to describe the root causative factor of anatomic pain unambiguously as possible also concentrating on wisely classified clinical subgroups with the understanding of pain nature. This is essential to organize the appropriate clinical questions, active listening and mapping out the location of the lower back pain. These are the key areas in the medical history taking helps to identify the present pain location and any changes since its onset.[11] Also it is needed to find out easing and aggravating of pain factors because these are important keys to arrive a precise differential diagnosis. Thus, it is essential for clinicians to have clear understanding on the difference between somatic and visceral pain nature. However, if pain does not fit to any known diagnostic profile there may be other factors like psycho-social issues need to be considered.[19]

INTERVENTIONS

The biopsychosocial model has pragmatic clinical care guide to achieve potential prognosis among the chronic

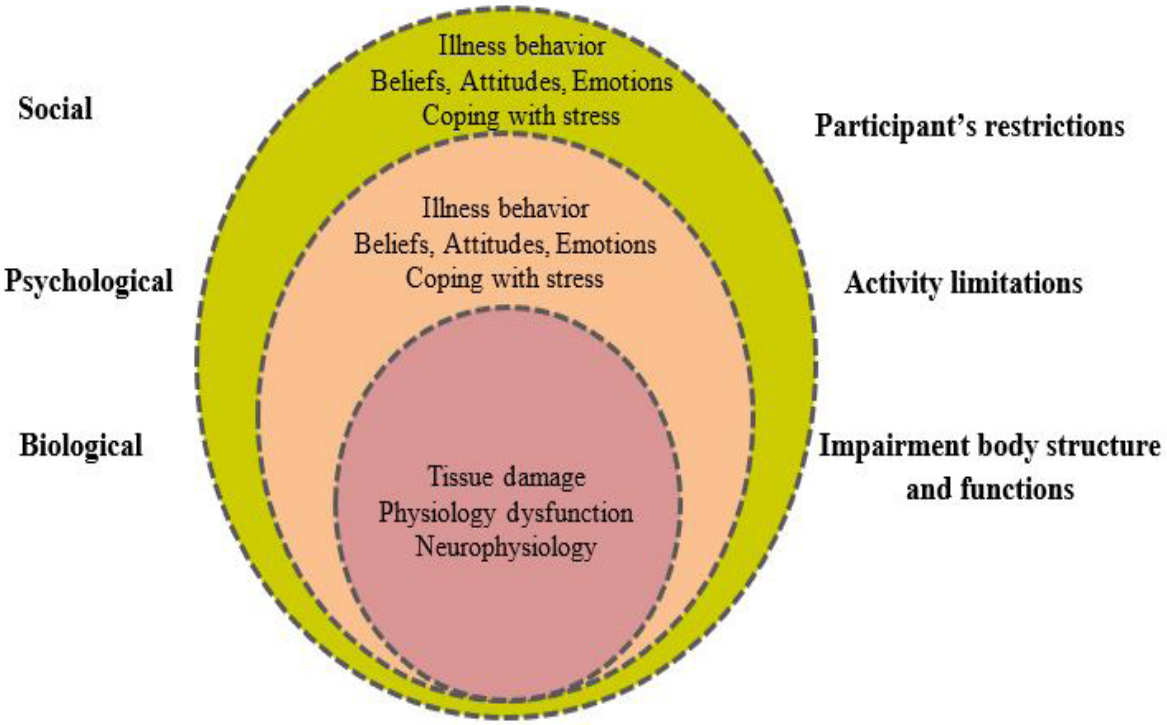

Figure 2: *Biopsychological model for chronic musculoskeletal pain [23]*

musculoskeletal pain cases. Unfortunately, the majority of healthcare providers follow the biomedical focused clinical practice. This approach relies on the structural model as it is generally assumed that the cornerstone of musculoskeletal pain management is governed by the structural changes in the human body.[21] However, the biopsychosocial model focuses on both biomedical element and potential psychological and social effect to analysis individual patient's back pain. This would help to achieve the optimistic clinical outcomes with shared-clinical decision making with patient ideas, expectations and concerns rather than solely on clinician's decision. According to the Institute of Pain Medicine, chronic musculoskeletal pain has been acknowledged as association of nervous system instead of completely relies on structural changes.[22]

CONCLUSION

Biopsychosocial model is concentrated a lot of effects on pain related psychosocial factors because people thought, feeling somatosensory experience and social dimensions contribute to development of pain. However, it is an enormous energy paid out to understand structural chances that relates to pain over the decades indeed still chronic musculoskeletal disorders are magnifying an alarming rate consequently burden to almost every healthcare system. Therefore, identification of psychosocial factors involvement and interpretation related to chronic musculoskeletal painful scenarios can contribute to implementation of cost-effective successful pain management strategies and innovation of drugs that help us to cut down socio-economic burden regard to chronic musculoskeletal pain. Therefore, it is essential to shift from biomedical structural model treatment approaches to manage chronic musculoskeletal pain by considering the psychosocial component in every contact of low back pain scenario. Therefore, practicing efficient multimodality chronic lower back pain management pragmatic approaches based on biopsycosocial model is an urgent priority to reduce the socioeconomic burden to almost every healthcare provider as a result of pain reduction, avoid fear of movement and minimize pain catastrophizing would be achieved far better off quality of life in lower back cases.

AUTHOR'S CONTRIBUTION

The author has critically reviewed and approved the final draft and is responsible for the manuscript's content and similarity index.

ETHICAL APPROVAL

The authors confirm that this review has been prepared

in accordance with COPE roles and regulations. The Institutional Review Board review was not required because of the nature of this review.

Declaration of patient consent

There is no patients participation in this study thus consent is not required.

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Conflict of interest

There is no conflict of interest.

References

1. Wong AY, Karppinen J, Samartzis D. Low back pain in older adults: risk factors, management options and future directions. Scoliosis Spinal Disord. 2017;12:14-16.
2. Balagué F, Mannion AF, Pellisé F, Cedraschi C. Non-specific low back pain. Lancet. 2012 ;7:482–91.
3. Dueñas M, Ojeda B, Salazar A, Mico JA, Failde I. A review of chronic pain impact on patients, their social environment and the health care system. J Pain Res. 2016;9:457–67.
4. Delitto A, George SZ, Van Dillen L, Whitman JM, Sowa G, Shekelle P, et al.; Orthopaedic Section of the American Physical Therapy Association. Low back pain. J Orthop Sports Phys Ther. 2012;42:51–57.
5. Varrassi G, Moretti B, Pace MC, Evangelista P, Iolascon G. Common Clinical Practice for Low Back Pain Treatment: A Modified Delphi Study. Pain Ther. 2021;10:589-604.
6. Barros G, McGrath L, Gelfenbeyn M. Sacroiliac Joint Dysfunction in Patients with Low Back Pain. Federal practitioner: for the health care professionals of the VA. DoD, and PHS. 2019;6:370–5.
7. Simula AS, Malmivaara A, Booth N, Karppinen J. A classification-based approach to low back pain in primary care - protocol for a benchmarking controlled trial. BMC Fam Pract. 2020 ;21:61.
8. Dansie EJ, Turk DC. Assessment of patients with chronic pain. Br J Anaesth. 2013 ;11:19–25.
9. Casiano VE, Sarwan G, Dydyk AM, Varacallo M. Back Pain. StatPearls. StatPearls Publishing; 2022.
10. Enthoven WT, Geuze J, Scheele J, Bierma-Zeinstra SM, Bueving HJ, Bohnen AM, et al. Prevalence and "Red Flags" Regarding Specified Causes of Back Pain in Older Adults Presenting in General Practice. Phys Ther. 2016;9:305-12.
11. Diallo SY, Mweu MM, Mbuya SO, Mwanthi MA. Prevalence and risk factors for low back pain among university teaching staff in Nairobi, Kenya: a cross-sectional study. F1000 Res. 2019;8:80-8.
12. Refshauge KM, Maher CG. Low back pain investigations and prognosis: a review. Br J Sports Med. 2006 ;40:494–8.
13. Vrbanić TS. Low back pain--from definition to diagnosis. Reumatizam. 2011;58:105–7.
14. Petersen T, Laslett M, Juhl C. Clinical classification in low back pain: best-evidence diagnostic rules based on systematic reviews. BMC Musculoskelet Disord. 2017;18:188.
15. Thiruvarangan S, Srigrishna P, Thileebphan B. A trial of conservative care for restoring scapular dyskinesis. A clinical series. Journal of Novel Physiotherapy and Rehabilitation. 2020;4:11–5.
16. Ravishankar K. The art of history-taking in a headache patient. Ann Indian Acad Neurol. 2012;15:7–14.
17. Moloney RD, O'Mahony SM, Dinan TG, Cryan JF. Stress-induced visceral pain: toward animal models of irritable-bowel syndrome and associated comorbidities. Front Psychiatry. 2015;6:15.
18. Meints, S. M., & Edwards, R. R. Evaluating psychosocial contributions to chronic pain outcomes. Progress in neuro-psychopharmacology & biological psychiatry.2018; 8:168–182.
19. Institute of Medicine Committee on Advancing Pain Research, Care, and Education. The National Academies Collection. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. Washington (DC): National Academies Press; 2011.
20. NSW Agency for Clinical Innovation. Management of people with acute low back pain: model of care.(2016) Chatswood; NSW Health,39.
21. George SZ, Bishop MD. Chronic Musculoskeletal Pain is a Nervous System Disorder Now What? Phys Ther. 2018;98(4):209–13.
22. Louw A, Zimney K, Puentedura EJ, Diener I. The efficacy of pain neuroscience education on musculoskeletal pain: A systematic review of the literature. Physiother Theory Pract. 2016;32(5):332–55.
23. Nakao M. Somatic manifestation of distress: clinical medicine, psychological and public health perspectives. Biopsychosoc Med. 2017;11(1):33.