



## EVALUATION OF THE EFFICACY OF TARGETED BLOCKADES IN THE TREATMENT OF SCIATICA

Alihodžić Almedina\*<sup>1</sup>, Lučkin Amina<sup>1</sup>, Mizdrak Alma<sup>1</sup>, Elmedina Mrkulić<sup>1</sup>, Adnan Papović<sup>1</sup> and Idrizbegović Amela<sup>2</sup>

<sup>1</sup>Clinic for Orthopaedics and Traumatology, University Clinical Center Sarajevo, Bolnička 25 Sarajevo, Bosnia and Herzegovina.

<sup>2</sup>JU Srednja Medicinska Škola- Jezero, Patriotske Lige 67a Sarajevo, Bosnia and Herzegovina.

\*Corresponding Author: Alihodžić Almedina

Clinic for Orthopaedics and Traumatology, University Clinical Center Sarajevo, Bolnička 25 Sarajevo, Bosnia and Herzegovina.

Article Received on 26/04/2021

Article Revised on 16/05/2021

Article Accepted on 06/06/2021

### SUMMARY

**Introduction:** Lumbar pain syndrome is an acute pain in the lower back which is one of the most common reasons why adults visit their family doctors. As a result, there is a need for treatments that can provide safe and predictable pain relief. **The aim** of this study was to evaluate the efficacy of targeted facet blockades (blockades with betamethasone and lidocaine) in the treatment of sciatica. **Subjects and methods of work:** This study included 100 patients with acute lumbar pain syndrome who were treated at the Spinal Department of the Clinic for Orthopaedics and Traumatology of the Clinical Centre of the University of Sarajevo (KCUS) in the period from 01.05.2013 - 01.07.2015. After meeting the criteria for inclusion in the study, the subjects' pain level was measured using the Wong Baker Scale (VAS-scale) immediately before the intervention. **Results:** In this study it is the representation of patients by gender structure, of which 41% were male and 59% female. When using the VAS scale before applying the blockade, the arithmetic mean of the pain intensity is  $\mu = 5.56$  and the standard deviation is  $\sigma = 1.520$ . When it comes to the use of the VAS scale after the application of blockades with betamethasone and lidocaine, the arithmetic mean of the pain intensity is  $\mu = 2.73$ , and the standard deviation is  $\sigma = 1.958$ . **We conclude** that lumbar pain syndrome is more common in women than in men. The most commonly compressed root was at the level of L5. By analysing the obtained results of pain assessment with the VAS scale, we came to the conclusion that pain was significantly reduced in the subjects after receiving the blockade.

**KEYWORDS:** lumbar pain syndrome; pain assessment, targeted blockade.

### INTRODUCTION

Lumbar pain syndrome is an acute pain in the lower back that is one of the most common reasons why adults visit their family doctors.<sup>[1]</sup> Back pain is a common symptom that occurs in almost 50% of the population every year. For most people, back pain goes away gradually - usually within a few weeks. However, many of them are returning to that pain. In 5% to 10% of the population, this pain develops in the long term and almost never stops. As a result, there is a need for treatments that can provide safe and predictable pain relief.<sup>[2]</sup> The types of acute pain that can occur are different. Discogenic pain occurs in the disc itself. The high pressure space inside the disc can often cause certain disturbances and even pain, especially during a long period of standing or sitting. The disc is also sensitive to shocks caused by walking. Inflammatory processes that accumulate in the disc also play a special role. These inflammatory processes can cause the contents of the disc to leak through cracks in the disc sheath, causing additional pain. Radicular pain occurs due to the support of the

spinal nerve - the root. There is pain and tingling, and sometimes weakness of the muscles of the arm or leg. This pain most often occurs in the distribution of the nerve roots of individual dermatomes. It can be a consequence of disc herniation or compression of the roots of the spinal nerves by osteophytes - osteophytosis. Facet pain or facet syndrome is a back pain that is activated or intensified when moving and is accompanied by tingling, decreased sensitivity and muscle weakness in the leg. The syndrome is caused by damage to the intervertebral joints. Sacroiliac pain occurs due to injuries of the sacroiliac joint and is one of the very common injuries and painful conditions in athletes, but also in everyday life. Muscle pain is most often caused by microtrauma that creates microscopic tears in the muscle fibres. Muscle pain occurs as a result of weight resistance, not when the weight is lifted. Spinal pain is most often caused by disc degeneration, disc herniation, spinal stenosis, muscle strain and many other diseases and injuries. In as many as 85% of cases, it is not possible to determine the clear cause of this pain.<sup>[3,4]</sup>

Treatment of lumbar pain syndrome can be realized in the following ways: naturally (acupuncture, acupressure, yoga), conservative methods of treatment (epidural steroid injections, deep tissue massage, ultrasound therapy) and surgery.<sup>[4]</sup> Facet blockades are injections of anaesthetics with a long-lasting effect of steroids (cortisone) that are injected into the joint surfaces. The articular surfaces are located in the back and neck at each spinal level. They are in pairs (left and right) and are surrounded by articular cocoons, as is the case on the finger joints.<sup>[5]</sup> Injecting steroid injections reduces inflammation in the lower back. It can reduce pain and other symptoms caused by inflammation, such as nerve irritation and joint inflammation. The injection process takes about 10 minutes with the possibility of mild or severe pain.<sup>[6]</sup>

**The aim** of this study was to evaluate the efficacy of targeted facet blockades (blockades with betamethasone and lidocaine) in the treatment of sciatica.

### SUBJECTS AND RESEARCH METHODS

This study included 100 patients with acute lumbar pain syndrome who were treated at the Spinal Department of the Clinic for Orthopaedics and Traumatology of the Clinical Centre of the University of Sarajevo in the period from 01.05.2013 - 01.07.2015, by X-ray guided application of steroids and anaesthetics. Criteria for inclusion were: clear clinical diagnosis of painful lumbar spine syndrome (lumbago) or radiculopathy (sciatica), MRI or CT finding indicating a clear pathological process, responsible for lumbosacral pain, negative response to non-invasive treatment (analgesics, physical therapy). After meeting the criteria for inclusion in the study, the subjects' pain level was measured using the Wong Baker Scale (VAS-scale) immediately before the intervention. The pain level is divided as follows:

- 0 points - no pain,
- 2 points small pain,
- 4 points slightly stronger pain,
- 6 points severe pain,
- 8 very severe pain,
- 10 strongest possible pain.

The intervention consisted of applying up to 3 mg of Betamethasone and 2 ml of Lidocaine to the area of the compressed nerve root (L3, L4, L5 or S1) of the arthritically altered facet joint, i.e. the epidural block with a 15 cm long needle guided by a mobile X-ray machine in the operating room. The degree of pain was measured in the same way 7 days after the intervention.

### RESULTS

In this study, the representation of patients by gender structure is made up of 41% of men and 59% women. The most common age structure of the respondents was between the ages of 50 and 70, 52% of the respondents, while the least represented age structure of the respondents was from 20 to 30 years of age, 4%. Subjects felt pain on the left, right, or both sides. The

representation of patients with pain on the left side is 38%, on the right 42%, and on both sides 20% of respondents. Root compression is most often present at the L5 root, in 60% of respondents, and the least represented compressed root is L3 at 7%. It should be noted that in some patients there were more compressed roots in different regions, but the most important was the clinical assessment of the individual root affection. When using the VAS scale before applying blockades, the arithmetic mean of the pain intensity is  $\mu = 5.56$ , and the standard deviation  $\sigma = 1.520$ . For the maximum value of pain intensity, a value of 9 was obtained, while the minimum value was 2. When it comes to the use of the VAS scale after the application of blockades with betamethasone and lidocaine, the arithmetic mean of the pain intensity is  $\mu = 2.73$ , and the standard deviation  $\sigma = 1.958$ . For the maximum value of pain intensity, a value was obtained 7, while the minimum value was 0 - no pain. By applying the t-test for dependent samples,  $t = 10.213$ ,  $P = 0.001 < 0.05$ , and there is a statistically significant difference between the samples. Thus, after application of blockades with betamethasone and lidocaine, the average level of pain in patients decreased significantly.

### DISCUSSION

As we have seen, the representation of respondents according to gender structure in this study is 41% men and 59% women. Similarities of this work with the work of *Crnković M. and Associates* in their study "Frequency of application of certain physiotherapeutic procedures in the treatment of chronic low back pain", on a sample of 100 medical histories came to the data that gender representation is 26% men and 74% women.<sup>[7]</sup> In this research, the most common age structure of the respondents was between the ages of 50 and 70, i.e., 52% of the respondents. Similarities of this work with the work of *Mandić M. and Associates*, came to the data that the representation of patients by age group on a sample of 70 subjects with acute lumbar pain syndrome was mostly from the age group 45 to 54 years, which is 39% of the total number.<sup>[8]</sup> It has been shown that lumbar pain syndrome affects both females and males equally, and that it occurs in all age groups in adults and especially after the age of 35, i.e., in the most productive working group of the population. The largest representation of patients with the painful side (legs) was on the right side, 42% of respondents. Root compression is most often present at the L5 root, in 60% of respondents, and the least represented compressed root is L3 at 7%. In comparison with the research work of *Pepić M. and Associates*, where it was concluded that in a sample of 60 subjects the most common disc herniation of the lumbar spine was: L3-L4 in 8.3%, L4-L5 in 46.7% and at the level of L5-S1 in 45% of subjects.<sup>[9]</sup> When using the VAS scale before applying blockades, the arithmetic mean of the pain intensity is  $\mu = 5.56$ , and the standard deviation  $\sigma = 1.520$ . For the maximum value of pain intensity, a value of 9 was obtained, while the minimum value was 2. Similarity of data between this work and the

work of Čulafić S. *et al.* 2008 on the topic of treatment of chronic lumbar pain of degenerative origin by fluoroscopically guided epidural injection of the procaine-corticosteroid combination is that 50% of patients had a reduction in pain by two points on the VAS scale. When it comes to the use of the VAS scale after the application of blockades with betamethasone and lidocaine, the arithmetic mean of the pain intensity is  $\mu = 2.73$ , and the standard deviation  $\sigma = 1.958$ . For the maximum value of pain intensity, a value was obtained 7, while the minimum value was 0 - no pain. From the initial group of subjects, 60% of them had a clinical, and an even higher percentage a radiological indication for surgery. When using the VAS scale before applying blockades in this subgroup, the arithmetic mean of the pain intensity is  $\mu = 5.80$  and the standard deviation is  $\sigma = 1.400$ . For the minimum value of pain intensity, a value of 2 was obtained, while the maximum value was 8. Applying the t-test for dependent samples gives  $t = 9.054$ ,  $P = 0.001 < 0.05$ , and there is a statistically significant difference between the samples. Thus, after the application of blockades with betamethasone and lidocaine, the average level of pain in patients already planned for surgery decreased significantly. By using blockades with betamethasone and lidocaine, 50 of them (83.33%) avoided surgery, or at least delayed it for several months, while 10 of them (16.67%) underwent surgery in the next month. Similarity of data from this research and the research of Čulafić S. *et al.* 2008, on the topic of treatment of chronic lumbar pain of degenerative origin by fluoroscopically guided epidural injection of the procaine-corticosteroid combination, resulted that 42% of respondents stated that they benefited from the procedure and would receive the injection again.<sup>[10]</sup> The disadvantage of this study could be that it included a small number of subjects in heterogeneous groups and a relatively short follow up, however some future research using the same methodology can eliminate these shortcomings.

## CONCLUSION

We conclude that lumbar pain syndrome is more common in women than in men. The most commonly compressed root was at the level of L5. By analysing the obtained results of pain assessment with the VAS scale, we came to the conclusion that pain was significantly reduced in the respondents after receiving the blockade.

## REFERENCE

1. Norfolk D. Bol u leđima. (Back pain) Esotheria, str., 2011; 113–155.
2. Wyatt T. Low Back Pain And Sciatica - The Differences, Causes, And How To End The Pain. Amazon Digital Services, Inc., 2014.
3. Manchikanti L, Slipman W. Interventional Pain Management: Low Back Pain – Diagnosis and Treatment. ASIPP Publishing, 2012.
4. Goodman E, Park P. Foundation: Redefine Your Core, Conquer Back Pain, and Move with Confidence. Rodale Books; 1 edition, 2011.
5. George F. Sciatica Exercises & Home Treatment: Simple, Effective Care For Sciatica and Piriformis Syndrome. CreateSpace Independent Publishing Platform, 2013.
6. Veritas Health LLC. Lumbar Herniated Disc: The Essential Guide to Finding Back Pain Relief. CreateSpace Independent Publishing Platform, str., 2014; 20-40.
7. Crnković M, Jakuš L, Znika M. Učestalost primjene pojedinih fizioterapijskih postupaka u liječenju kronične križobolje. Međunarodni kongres fizioterapeuta" Jučer, danas, sutra 2012. (Frequency of application of certain physiotherapeutic procedures in the treatment of chronic low back pain. International Congress of Physiotherapists "Yesterday, today, tomorrow 2012.)
8. Mandić M, Rančić N. Laseri male snage u terapiji akutnog lumbalnog bolnog sindroma. (Low power lasers in the treatment of acute lumbar pain syndrome). Military Medical and Pharmaceutical Journal of Serbia, 2011; 68(1): 57.
9. Papić M. *et al.* Relation between grades of intervertebral disc degeneration and occupational activities of patients with lumbar disc herniation. Vojnosanitetski pregled, 2016; 306-306. (Military medical examination, 2016; 306-306.
10. Čulafić S. *et al.* 2008. Lečenje hroničnog lumbalnog bola degenerativnog porekla fluoroskopski vođenom epiduralnom injekcijom kombinacije prokain-kortikosteroid. Vojnosanitetski pregled, 2008; 65-507. (Treatment of chronic lumbar pain of degenerative origin by fluoroscopically guided epidural injection of the procaine-corticosteroid combination. Military Medical Review, 2008; 65-507.