COMBINED THERAPY OF EXUDATIVE AND STENOSING TENOSYNOVITIS

Sandra Živanović¹, Milorad Jevtić², Ljiljana Petrović Rackov³
¹Health Centre Kragujevac, ²Military Medical Academy Belgrade and Medical Faculty University of Kragujevac, ³Physical Medicine and Rehabilitation Centre, Clinical Centre Kragujevac and Medical Faculty, University of Kragujevac, Kragujevac, Serbia

ABSTRACT

It is considered that every person older than 40 suffers from some form of out-joint rheumatism. The purpose of the study is to prove the significance of the early introduction of combined therapy - local periarticular corticosteroid, conventional anti-rheumatic and physical therapy (polarized light) of tenosynovitis. The survey was based on the sample of 65 adult patients with clinical signs of the out-joint rheumatism, with a dominant tissue damage. The control group was provided with anti-rheumatic and nonsteroidal anti-inflammatory drug, the experimental group was provided with corticosteroid and conventional antirheumatic drug, and the control group was provided with antirheumatic and physical therapy (polarized light). The comparison of the tenderness of the tendons m. supraspinatus through the first and the second examination, as well as the comparison of the protective muscle reaction after therapy, the difference is not significant. The significant difference is present in tennerness of the tendon m. supraspinatus through the first and the second examination (p=0.022), as well as the protection of the protective muscle reaction through the first and the second examination (p=0.020). After the therapy, the value of Hawkins’ test was different (p=0.005), as well as the exterior rotation extent (p=0.001) and the interior rotation extent (p=0.006). The difference in the personal evaluation of the health condition of the patients of the experimental and the control group after ten days therapy treatment was significant (p=0.002). Analysis of the results shows that early introduction of the combined therapy is more efficient in the recovering process.

Key words: tenosynovitis, glucocorticoids, therapeutics.

INTRODUCTION

Out-joint rheumatism or regional rheumatic painful syndrome covers several groups of locomotor apparatus soft tissue diseases. According to some statistics more than one third of all rheumatic diseases belong to this group. Namely, it is estimated that every person older than 40 suffers from some form of the out-joint rheumatism. That is usually degenerative and inflammatory disease of joint-surrounding structures, mostly tendons, which is marked as tendonitis, tendinosus or tendinopathy (1), whose mutual characteristic is musculoskeleton pain and functional disturbances. Usually effected are rotator cuff tendons (2), medial and lateral epicondils of the elbow, patellar, Achilles' tendon and trigger finger (3). Although these diseases have mostly mild course, positive outcome and most often they do not lead to severe functional disturbances and invalidity, they represent important social and economical problem, due to its frequency work days loss which they can lead to, and severe functional breakdowns which can be noticed in some cases (4).

Periarticular ligaments, i. e. ligaments which surround the shoulder joint actively stabilize the joint and insure its stamina. They are actively involved in obtaining contact between the joint bodies, they coordinate movements in the joint by muscle contraction and they tighten the joint capsule in every position and in appropriate strength and length. Because of such role which they have, they are easily injured, degenerated and ruptured (2).

Diagnosis is set on the basis of anamnestic data, clinical examination which includes inspection, palpation, questioning the extent of active and passive movements and special tests, as well as the laboratory, radiographic examinations, ultrasound insight and magnetic resonance (1). Throughout the functional survey it was established that active and passive movements, especially abduction and exterior and interior rotation are limited. The purposes of the therapy are pain reduction (3), function preserving and clearance of the emphasising precipitating factors. In the acute phase of the disease the rest is recommended, with the prescribed analgetics (Analgin, Paracetamol) and non-steroid, anti-inflammatory drugs.
(NSAID) (11,8). The depo-corticosteroid local therapy has proved very successful (10) and usually from 1 to 3 injections in the interval of 1 to 3 weeks is necessary. As for the other therapy procedures, the physical therapy is used very often (9), and in some chronic cases which do not respond to conservative therapy, the surgical therapy is used (1).

The purpose of the study is to prove the importance of early introduction of combined therapy, i. e. local periarticular corticosteroid therapy (conventional anti-rheumatic therapy and physical therapy (polarised light is applied by „Zepter Bioptron“ lamp) in the therapy of excudative and stenosing tenosynovitis.

In accordance with the general goal, the concrete tasks were defined:

1) Examination of the applied therapy influence on the painful sensitivity of the shoulder joint and tendon m. supraspinatus and m. biceps brachi.
2) Questioning the extent of movement of the shoulder joint before and after therapy.

PATIENTS AND METHODS

The survey was carried out in Health Centre in Kragujevac, in the years of 2004–2005. The patients have had clinical picture of the out-joint rheumatism with the dominant tendons and their outline deterioration. The examination is based on the 65 adult patients, with the age over 19.

Diagnosis is set in accordance with: anamnesis, clinical examination, X-ray pictures and laboratory tests.

The control group of patients (30 persons) was provided with anti-rheumatic: tbl. diclofenac natrium 2x100 mg or tbl. nimesulid 2x50 mg depending of the gastrointestinal tolerance and tbl. diazepam 2x5 mg as a miorelaxant and anxiolytic.

The experimental group (35 persons) was provided with corticosteroid injection (combination of the betametasone, Na-phosphate and betametasone dipropionate) periarticular and anti-rheumatic per os, and for the following 10 days the disease localisation has been treated with polarized light („Bioptron“ lamp).

The needles 0.5 x 25 mm are used for the periarticular application of the corticosteroids.

The base-case group consist of treated patients, but with the separate observation of the experimental and control group patients. The objective and subjective findings of the patients are used as parameters. The special application with the foreseen controls is provided for the data entry. As for the data analysis, the statistic software – SPSS 7.5 for Windows is used. The results of the survey are shown graphically.

RESULTS

The survey was carried out on the sample of 65 patients, age over 19, which were 39% male and 61% female (Figure 1).

The largest percent of the patients, 55% is between 50 and 59 years old, which is the commonest period for out-joint diseases occurrence (Figure 2).

Treated patients were mostly physical workers (42%), clerks (27%), retireds (12%), unemployed (12%) and farmers (6.5%). The obtained results are in accordance with many other results which also confirm the fact that with the excessive muscle usage in every day life and work increase the percent of ligament and outline diseases (Figure 3).

Diagnosis of the humeroscapularis periarthritis is set with the total of 65 patients, from which 35 are in the experimental group, and the 30 are in the control group.

Positive sign of the painful skipping, which point out the tendon lesion m. supraspinatus, was present with many other results which also confirm the fact with the excessive muscle usage in every day life and work increase the percent of ligament and outline diseases (Figure 4).
Positive test according to Yergason, which points out to the tendon lesion of m. biceps brachi, was present with the 14 patients or the 40% in the experimental group through the first examination. Through the second examination it was present with 4 patients or 1.4%. In the control group the first examination showed positive Yergason’s test with 13 patients or 43.3%, and with second examination 11 patients or 31.4%. The statistically important difference is present with the number of the recovered patients after therapy, namely far less patients in the experimental than in the control group which had the positive sign of the painful skipping and the positive test according to Yergason ($\chi^2=7.972 \text{ df}=1 \ p=0.05$) (Figure 5.).

In our patients, intensive suffering due to microcrystal effect of the corticosteroid was present in 17.1%, but the suffering was gone after 1 or 2 days. Tenderness of the tendon m. supraspinatus with the first examination is confirmed with 60% of the examinees in the experimental group. After the therapy there were only 11.4% of the examinees with it. The control group had it present in the 56.7% through the first examination, and through the second it was still present in 46.7% of the patients ($\chi^2=5.275 \text{ df}=1 \ p=0.022; 022$), the obtained difference is significant (Figure 6).

Through the first examination the tenderness of the tendon m. biceps brachi was present in the total of 40% of the experimental group patients. On the second examination it was present in only 11.4%. In the control group, through the first examination, the tenderness of the tendon m. biceps brachi was confirmed in 43.3% of the patients, and through the second examination with 36.7% ($\chi^2=7.972 \text{ df}=1 \ p=0.005$) (Figure 7).

Protective muscle reaction through the first examination was present in 94.3% of the patients of the experimental group, but after the therapy in only 22.8%. In the control group, at first examination muscle reaction was present in 90% of the patients, and in the second 66.7%. According to the obtained results it can be concluded that the experimental group had less frequent protective muscle reaction in comparison with the control group. However, that difference was not statistically impressive ($\chi^2=5.455 \text{ df}=1 \ p=0.20$) (Figure 8.).

The special muscle tests, such as Hawkin’s test were used in this survey, where the patient feels the pain in the shoulder area with every movement, if he/she stands with the shoulder in abduction of 90 degrees and the interior rotation. Through the first examination the positive Hawkin’s test in the experimental group was present with 91.4% of the patients, while in the second examination the test was positive with the 40%. In the control group through the first examination, Hawkin’s test was present with 86.7% of the patients, while through the second examination it was positive with 76.7% of the patients. It is proven that this statistical difference is significant between the patients of the experimental and control group ($\chi^2=7.989 \text{ df}=1 \ p=0.005$) (Figure 9).
After ten days long therapy, the evident improvement of the extent of the exterior rotation occurred in the experimental group patients – 63.31 degree, while the control group patients had insignificant improvement – 48.15 degrees. The difference is significant ($\chi^2=11.976$ df=9 $p=0.001$) (Figure 10).

After the ten days therapy, the evident improvement of the interior rotation extent occurred with the patients in the experimental group – 80.43 degrees, while the improvement in the control group was far less – 62.4 degrees. The difference is statistically significant ($\chi^2=9.789$ df=6 $p=0.002$) (Figure 11).

Figure 12. Subjective evaluation of the health condition of the patients of the experimental and the control group after ten days therapy $\chi^2=6.857$ df=1 $p=0.002$ The difference between the experimental and the control group after therapy is statistically significant.

DISCUSSION

The most frequent age of the patients in our study was at sixth decade, which is the commonest period for outjoint diseases occurrence, according also to the other authors (2). Other demographic variables were also typical for this condition as described in previous literature. The treatment with a steroid antiinflammatory drug during our trial was effective. Many surveys show that the local injection of the corticosteroids is minimally invasive, the most tolerated and efficient as a pain-reliever for patients (6, 5, 12), more efficient than the oral non-steroid antiinflammatory drugs (8, 14, 15). Nevertheless, there are complications with this kind of therapy (7). Negative side effects are rare, but possible, such as: pain enhancing over the next few hours, due to the microcrystal effect of the corticosteroids, hypersensitive reaction with the sensation of warmth, facing swelling and peripheral vasodilatation localised in the spot of the therapy administration, skin atrophy, ligament rupture and multifocal osteonecrosis. Tendon and fascial ruptures are frequent complications of injected corticosteroids, reported Nichols and John (17), whereas tibial stress fractures and multifocal osteonecrosis were described with systemic corticosteroids.

The obtained results by anamnesis, and results of the objective tests, which include tenderness, measuring of the movement extent as well as the special tests, explicitly point out the fact that therapy, which we introduced with the experimental group on the first visit (periarticular injection amp. Diprophos, antirheumatics per os and the usage of the polarized light), gave evidently better results than administration of the NSAID alone. For example, normal extent of the exterior rotation with the elbow positioned alongside the body is 70 degrees (15). This extent was at first diminished with the patients of both groups 37.05 degrees with the experimental and 40.7 degrees with the control group but later improved. Similar was true with inferior rotation. Normal extent of the interior rotation is 90 degrees (15). This extent was diminished at the start of the therapy with the patients of both groups 51.27 degrees with the experimental and 53.5 degrees with the control group but later also improved in experimental group.

Many meta-analyses, which included corticosteroid injections in tendon lesions on the first contact between doctor and patient with painful shoulder, showed similar results (12). Subacromial injections of corticosteroids are effective for improvement of rotator cuff tendonitis up to
a 9-month period. They are also probably more effective than NSAID medication. Higher doses may be more effective than lower doses for subacromial corticosteroid injection for rotator cuff tendonitis, as shown by Arroll and Goodyear-Smith (8).

However, early study of White, Paull and Fleming, twenty years ago, suggests that there is essentially no difference in the short term efficacy of oral nonsteroidal therapy compared to local corticosteroid injection(s) triamcinalone acetonide in the treatment of rotator cuff tendinitis (14). Recent study showed different results, that local corticosteroid injections give good short-term results in prolonged or subacute cases that do not respond to the conventional conservative treatments (3). There is a need for further trials investigating (according Buchbinder, Green and Yould) efficacy of corticosteroids, the physical procedure and the physical procedure with the usage of the polarised light with the treatment of the tenosynovitis, as one of the forms of out-joint rheumatism, comparing with classic treatment with the non-steroidal and anti-inflammatory drugs leads to:

1. Significant decrease of the subjective pain with the movements of the diseased tendon m. supraspinatus and m. biceps brachi (p=0.022; p=0.05),
2. Important diminution of tenderness of the diseased tendon m. supraspinatus and m. biceps brachi (p=0.022; p=0.005),
3. Immense increase in movements – the extent of the exterior and the interior rotation of the shoulder joint (p=0.001; p=0.002),
4. By evaluation of the treated patients it leads to the significant improvement of the personal condition and the loss of the suffering (p=0.002).

REFERENCES