Abstract

Introduction. Osteoarthritis is a chronic joint disease, a progressive non-inflammatory arthropathy-type. Globally, around 1.7 billion people are affected by musculoskeletal and rheumatic diseases, which indicates an increase in the last 20 years of around 45%. Material and method. The objectives of the treatment of patients diagnosed with osteoarthritis were: decreasing the pain, increasing joint mobility, muscle strength, trophic and muscle tone, increasing the quality of life and reintegration into the social and family environment. Demographic data and the functional status were assessed using the VAS scale, the WOMAC scale, the QOL scale. Results and discussions. The pain, the most important symptom in osteoarthritis, was diminished in the patients from the group, the evaluation on the VAS scale, but also on the WOMAC scale has showed the value reduction and the statistical significance of this decrease. The quality of life in the group patients after the application of the complex recovery treatment, especially of the kinetotherapy program. Conclusions. The application of the individualized recovery treatment and adapted to the age group has allowed the improvement of the values of the parameters of pain, rigidity, functional capacity. The recovery of patients aged 55-65 is important to ensure the percentage of professionally active persons, to reduce medical costs, as well as those generated by absenteeism, and the socio-professional reintegration of these patients.

Key words: osteoarthritis, the quality of life, the complex recovery treatment, kinetotherapy.
The prevalence of obesity in a higher percentage in women has also determined the decrease of the quality of life in this population group (16, 17,18). The study presents the results from databases for 2 years, corresponding to patients diagnosed with osteoarthritis, noticing an increased opioid use in the treatment of the condition. Of the 2857999 patients with knee osteoarthritis, 12.2% have received opioid treatment as first treatment. The factors associated with osteoarthritis (depression or comorbidity) have represented the reason for the administration of these drugs (19,20).

Also, they should benefit from a proper quality of life, to delay the cognitive degeneration (21) as much as possible by interacting with their friends, participating in physical, social activities, maintaining control over their own lives (diet, weight, exercise, physical exercises, daily walks, avoiding sedentariness and isolation).

An observational and transversal study published in 2014 in which 1849 patients with gender and hip osteoarthritis over 50 were evaluated. The average age was 68.5 +/- 9.5 years. Of the patients, 61.5% had knee osteoarthritis, 19% hip osteoarthritis and 19.5% both, the latter also having a low quality of life (22). Globally, around 1.7 billion people are affected by musculoskeletal and rheumatic diseases, which indicates an increase in the last 20 years of around 45% (23).

The consequences of these conditions have an impact in the socio-economic field and are found in the absenteeism from the professional activity (50%) and in the incapacity for work and disabilities (60%), which leads to the early retirement of patients. This is why it is important to early diagnose and apply individualized and complex treatment (24,25).

The treatment for osteoarthritis of the joints of the hand, hip and knee takes into account the recommendations of the American College of Rheumatology (ACR) in 2012, the Osteoarthritis Research Society International (OARSI) in 2008 and 2014, but also the recommendations of the European League Against Rheumatism (EULAR) of the National Institute for Clinical Excellence (NICE) in England, as well as the American Academy of Orthopedic Surgeons (AAOS). (26,27,28,29).

For patients diagnosed with osteoarthritis, the recovery procedures must be individualized and involve the use of the two treatment possibilities, namely the pharmacological one which involves electrotherapy and kinetotherapy procedures. (26,30,31)

The therapeutic management of osteoarthritis has the purpose of reducing the pain and the inflammation, improving physical function, educating the patient to practice therapeutic exercise, weight control and use of support walking devices (32). Also, the administration of simple analgesics and NSAIDs for pain control and increase of the quality of life (33). Also, the recovery program in osteoarthritis includes a physical exercise program for increasing the muscle strength and endurance, increasing the joint mobility, maintaining muscle tone, as well as occupational therapy (34, 35).

In the recovery program, electrotherapy (36) is recommended by applying low and medium frequency currents and ultrasound (37,38,39). Taking into account the adverse effects at the cardiovascular and digestive level, NSAIDs represent the second step in the management of osteoarthritis, being useful for the improvement of the symptoms, but the guides recommend them on the short term (ACR, 2008), (26,40,41).

However, to reduce the occurrence of gastrointestinal complications, it is recommended the associate with a selective non-steroidal anti-inflammatory, COX 2 inhibitor, a proton pump inhibitor (42,43,44,45). Also, the administration of non-steroidal anti-inflammatory medicine under topical form is better tolerated than the oral administration (46,47,48).

Another review from 2019 had as purpose evaluating the effectiveness of physical exercise on pain, joint function and quality of life in a knee / hip osteoarthritis. From 9 electronic databases, were evaluated the results obtained from 6472 patients who confirmed the benefits of physical exercise for decreasing the pain, increasing the functional performance, increasing the quality of life in 8 weeks of treatment. The better results, especially the pain perimeter, were obtained in patients diagnosed with osteoarthritis, under the age of 60 (49).

In another study published in 2019, it allowed a review of the effects of physical exercise on pain, physical function, quality of life, progress of disease in people with osteoarthritis on the lower body. For a period of 7 years, the published studies were analyzed and it was found that performing physical exercises for 150 min per week allowed the decrease of pain, the improvement of physical function and the quality of life for a period of up to 6 months (50).
The purpose of the study was to evaluate the quality of life after applying a medical recovery program in patients diagnosed with degenerative disorders.

Material and method: The study was performed over a period of 6 months, under ambulatory regime. 72 patients were evaluated at the beginning and the end of the treatment, as well as at the examination performed eight weeks after the end of the treatment. The study inclusion criteria were the following:

- patients diagnosed with degenerative disorders (clinically and radiologically)
- over 50 years of age
- a diagnosis of degenerative disorder for at least 6 months
- agreement to take part in the study

The study exclusion criteria were:

1. patients diagnosed with degenerative disorders, but with arthroplasty (hip, knee)
2. associated, decompensated comorbidities
3. neuro- psychiatric disorders
4. patients who did not consent to take part in the study

The objectives of the treatment of patients diagnosed with osteoarthritis were: decreasing the pain, increasing joint mobility, muscle strength, trophic and muscle tone, increasing the quality of life and reintegration into the social and family environment.

Demographic data (sex, age, weight, height, body mass index) and the functional status were assessed using the VAS scale (for pain), the WOMAC scale (for pain, rigidity, disability), the QOL scale (for the quality of life). At the clinical evaluation, the symptoms represented by pain (assessed with the VAS scale (0 = minimum pain, 10 = maximum pain) and joint rigidity accompanied by limited mobility (assessed with the goniometer) were used. Also, questionnaires were used to evaluate the functional joint capacity (WOMAC for supporting joints, Lequesne Index). The WOMAC scale evaluates the pain parameter (static and while moving), joint rigidity (at different moments) and functional capacity. The Lequesne functional index evaluates the pain that occurs during the first movements, as well as the discomfort that occurs during joint mobility.

During the study period (10 days) all the patients received pharmacological treatment (selective non-steroidal anti-inflammatory drugs, pain-killers) and performed kinetotherapy under the supervision of the physiotherapist, and, at home, they continued the recovery program (3 times a week). Electrotherapy has also been applied: low frequency currents (TENS), ultrasound.

Conventional TENS - electric current with frequency of 50-100 Hz, duration of 30-200ms, I = 10-40mA. The effect quickly installs (10-15 min) and lasts for several hours. The ultrasound was applied due to their physiological effects, that is: pain-killer (effect similar to that of the low-frequency currents), muscle relaxant (which is explained by the vibrational action of ultrasonic waves on tendon and muscle proprioceptors and which reacts to frequencies of 150 Hz), hyperaemic (activating blood circulation), anti-inflammatory (due to metabolic and vasomotor action) and fibrolytic (38,29). The chosen coupling form was direct, using the ultrasonophoresis process to allow the anti-inflammatory action of the applied gel (Voltaren gel in our case) (36). The application of ultrasound in impulse regime was preferred (the impulse duration/ pause duration rapport being 1: 4) in order to reduce the thermic effect and to potentiate the decontracting effect, allowing therefore to avoid the adaptation and the overloading of the tissues on which they were applied. In the study, the impulse frequency of 1 Hz, that is 60 impulses/min was used, and the impulse period was 1 second (Physiologic with ultrasound).

All the applied procedures took into account application indications and contraindications. The kinetotherapy program lasted for 30 minutes per session and included passive, active and active with resistance mobilizations, coordination exercises, maintaining static and dynamic balance (25).

During the recovery program, but also at home, the patients received indications regarding the healthy lifestyle that involves: healthy diet, weight loss or maintaining their weight, avoiding exposure to coldness and moisture, avoiding prolonged standing, walking on uneven ground, lifting heavy weights (51).

Statistical analysis

The data obtained from the evaluation were processed statistically (median, standard deviation) using Microsoft Excel 10. The t-student test was useful for comparing the obtained results and verifying the working hypothesis. The statistical significance level is established at 5% (p <0.05)

Results

The study group consisted of 72 patients aged over 55 (the average was 58).

Table 1. Distribution of group according to sex an age

<table>
<thead>
<tr>
<th>age/sex</th>
<th>55-64 years</th>
<th>65-74 years</th>
<th>&gt;75 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>21</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>male</td>
<td>14</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>

90
Of these, 58.34% were female and 41.66% male.

Fig. 1. Distribution of group according to sex and age

It is worth mentioning the patients’ origin environment. Thus, it is observed a higher percentage of the urban area (57.14% in women and 53.34% in men) in both sexes compared to the rural area (42.86% in women and 46.67% in men).

Table 2. The distribution of groups according to sex and environment

<table>
<thead>
<tr>
<th>sex/environment</th>
<th>urban</th>
<th>rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>male</td>
<td>16</td>
<td>14</td>
</tr>
</tbody>
</table>

Fig. 2 The distribution of groups according to sex and environment

The pain evaluation on the VAS scale shows a statistically significant evolution at the 3 evaluation moments, and the t-student test is statistically significant with p <0.05. Also, for the pain parameter evaluated by the WOMAC scale, the results are statistically significant at the 3 evaluation moments, with p <0.05.

Table 3 The evolution of the pain

<table>
<thead>
<tr>
<th>scale</th>
<th>moment</th>
<th>initial</th>
<th>final</th>
<th>control</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
<td></td>
<td>7±1.42</td>
<td>5±1.22</td>
<td>3±0.67</td>
</tr>
<tr>
<td>t-student test</td>
<td>0.0215</td>
<td>0.0491</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 The evolution of the parameters of the WOMAC Index

<table>
<thead>
<tr>
<th>scale</th>
<th>moment</th>
<th>statistically</th>
<th>initial</th>
<th>final</th>
<th>control</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOMAC</td>
<td>pain</td>
<td>15±1.49</td>
<td>11±1.18</td>
<td>8±0.92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>rigidity</td>
<td>6±0.68</td>
<td>3.5±0.06</td>
<td>2±0.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>functional capacity</td>
<td>55±2.97</td>
<td>39±3.55</td>
<td>25±2.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>73±4±0.9</td>
<td>53±4±3.81</td>
<td>35±2.75</td>
<td></td>
</tr>
</tbody>
</table>

The evaluation of the parameters of articular rigidity, but also the functional capacity using the WOMAC scale allowed to obtain significant data, for each parameter and at the 3 moments of evaluation, the t-student test being statistically significant, with p <0.05.

By analyzing the results of the evaluation on the three parameters of the WOMAC Index, it is found a favorable evolution after the applied treatment, materialized by obtaining statistically significant data, with p <0.05.

Table 5 WOMAC Index – The analysis of the data in the study group

<table>
<thead>
<tr>
<th>scale</th>
<th>QOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>moment</td>
<td>initial</td>
</tr>
<tr>
<td>VAS</td>
<td>81±9.91</td>
</tr>
<tr>
<td>t-student test</td>
<td>0.0018</td>
</tr>
</tbody>
</table>

Also, the parameter for the quality of life evaluated using the QOL scale has pointed a good evolution of the studied patients, with statistically significant results, p <0.05

Table 6 The evolution of the quality of life

Discussion

The study group has predominantly female patients (as shown by some published studies), especially from the urban area. By age groups, there is a higher percentage for both sexes in the 55-64 age group (50% in women and 46.66% in men), as well as in the 65-74 age group (28.57% in women and 33.34% in men). In this context, we can also think about the medical-socio-economic impact of degenerative diseases. The pain, the most important symptom in osteoarthritis, was diminished in the patients from the group, the evaluation on the VAS scale (a 28.5% reduction at the end of treatment and a 57.1% reduction at the control examination), but also on the WOMAC scale (26.66% reduction at the end of the treatment and with 46.66% at the control examination) has showed the value reduction and the statistical significance of this decrease. Also, the joint rigidity was reduced by 41.6% at the end of the treatment and by 66.7% at the control examination. The functional capacity has improved by 26.41% at the end of treatment and by 52.83% at control examination.
examination. The quality of life in the group patients after the application of the complex recovery treatment, especially of the kinetotherapy program, improved by 11% at the end of the treatment and by 23.45% at the control examination.

Conclusions
The application of the individualized recovery treatment and adapted to the age group has allowed the improvement of the values of the parameters of pain, rigidity, functional capacity. The decrease of the pain and the increase of mobility and functional capacity allow a functional status proper to the age. The improvement of the values of the evaluated parameters has allowed the increase of the patients’ quality of life, values appreciated based on the QOL questionnaire.

In the recovery of patients over 55 with degenerative diseases, the non-pharmacological treatment (physical therapy and physical exercise) as well as pharmacological therapy, according to age, was also important. The recovery of patients aged 55-65 is important to ensure the percentage of professionally active persons, to reduce medical costs, as well as those generated by absenteeism, and the socio-professional reintegration of these patients.

Declaration of conflict of interests: The authors declare no conflict of interests and no sponsorship. All authors have read and approved this publication and had equal scientific contribution in publishing this material.

Informed consent: An informed consent was obtained from the patients included in this study.

References


