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# EFFICIENCY OF COLLAGEN INJECTIONS OF GUNA MD IN PATIENTS WITH GONARTHROSIS, ASSESSED CLINICALLY AND BY ULTRASOUNDS

## OBJECTIVE

This study has been planned to investigate the effectiveness of collagen injections of **GUNA MD-KNEE + GUNA MD-MATRIX** on pain and daily functioning in symptomatic knee osteoarthritis III-IV X-ray stages by Kellgren.

High frequency ultrasonography is an approved imaging technique for diagnosis of joint swelling and monitoring of the therapy.

were performed. All patients had sonographic examination of both knees with Mindray M5 (China) scanner with multi-frequency linear transducer (7.5-10 MHz) at beginning and 30 days after completion of the treatment. We applied a combination of GUNA MD-Knee and GUNA MD-Matrix **periarticularly**, 10 ampoules in the following scheme: during the first 2 weeks - 2 applications per week; during the next 6 weeks - 1 application per week in a single course of treatment 8 weeks.

## METHODS

We studied **25 patients** aged between 62 and 79. Inclusion and exclusion criteria are presented in [TAB. 1](#).

### INCLUSION CRITERIA

1. Gonarthrosis III-IV X-ray of Kellgren
2. Joint swelling, sonographically proven
3. VAS of pain > 25 mm
4. AFI of Lequesne > 7

### EXCLUSION CRITERIA

1. Inflammatory joint diseases
2. Autoimmune diseases
3. Gout
4. Malignant diseases
5. Previous trauma or surgical intervention of the knee
6. Concomitant chondroprotectives
7. Supporting physiotherapy

TAB. 1

All patients are clinically evaluated by joint assessment, as well as by standard X-Ray and Ultrasonography of the knee. Questionnaires completed by the patients before treatment, 60th and 90th day evaluation of pain at rest using a 10-point visual analog scale/VAS/, pain assessment during movement of the knee in 10-point VAS, assessment of the Lequesne Index on Gonarthrosis /algo-functional index/ and evaluation of the efficacy of the treatment according to the patient and the physician

## STATISTICAL ANALYSIS

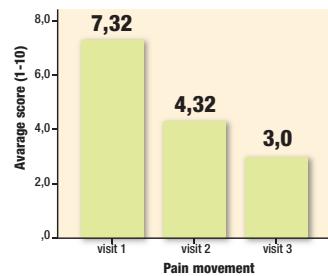
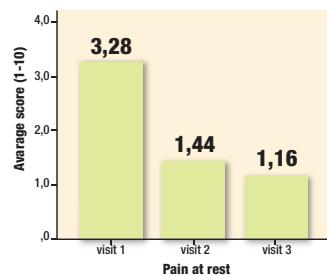
For the statistical processing of data and building graphics it was used the package IBM SPSS Statistics 19.

We used descriptive statistics and analysis with repeated observations (Repeated Measures Analysis).

## RESULTS

### - 10-point VAS

The average score for pain at rest decreased threefold at the end of treatment course /60 day/, the effect is maintained after treatment ([FIG. 1](#)). The mean score for pain on movement decreased almost twice at the end of treatment and continued to decrease 30 days after completion of the course ([FIG. 2](#)).



### - Algo-functional index of Lequesne

We observed improvements in all indicators of the index, but most significant are as follows:

- **Morning stiffness** decreased more than twice at the end of the course and the effect remained 30 days after therapy (FIG. 3).
- Average score of **pain on standing** was reduced threefold in the third visit - 90 days from the beginning (FIG. 4).

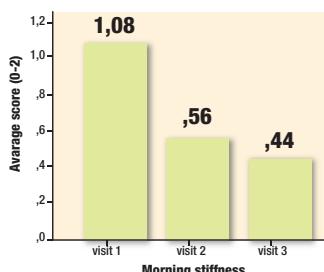


FIG. 3

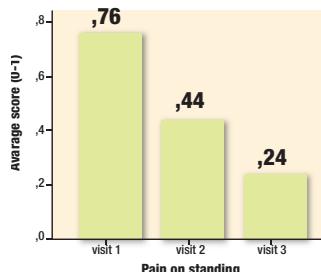


FIG. 4

- The mean assess for **pain during walking** decreased 1.5 times at the third visit compared with baseline (FIG. 5).
- The average score for the **maximum walking distance** was reduced 1.5 times at the third visit compared with baseline. This means that the actual distance that the patient can walk, thanks to GUNA MD-Knee and GUNA MD-Matrix, increased about 1.5 times (FIG. 6).

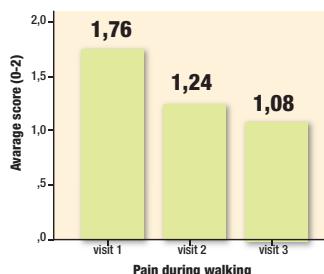


FIG. 5

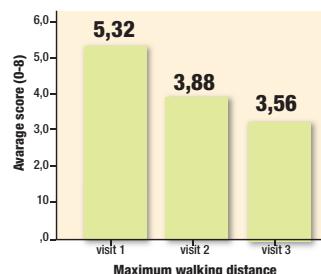


FIG. 6

- There were no side effects of application of collagen injections.

### - Joint swelling, sonographically assessed:

We present some of the sonographic images of the knee prior to treatment with GUNA MD-Knee and GUNA MD-Matrix and 30 days thereafter (FIGG. 7a, b; 8a, b).

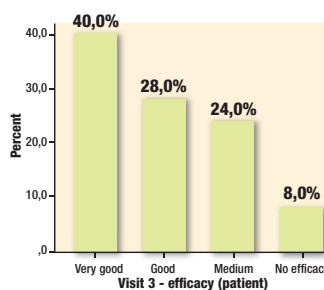


FIG. 10

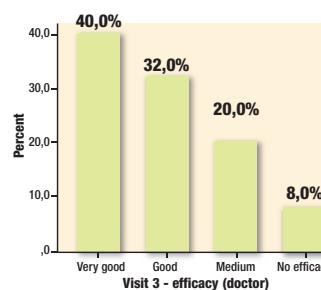


FIG. 11

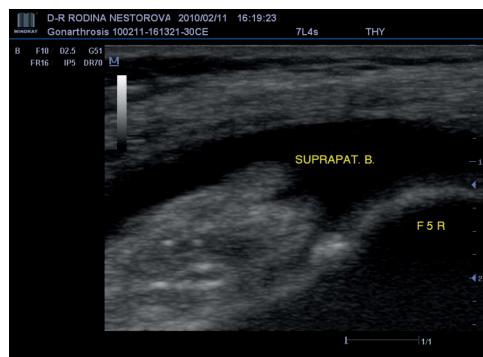


Fig. 7 a

**Suprapatellar bursa was enlarged and swollen before treatment.**



Fig. 7 b

**Marked reduction of swelling after treatment.**

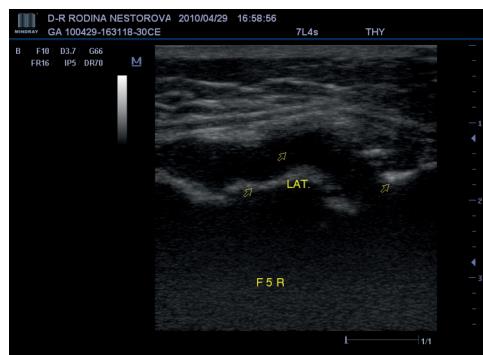


Fig. 8 a

**Swelling of the joint space /lateral access/ prior to treatment.**



Fig. 8 b

**Lack of edema after treatment.**

Sonographic evaluation of swelling of the knee joint 30 days after treatment with the combination GUNA MD-Knee and GUNA MD-Matrix shows that 60% of the patients were without edema, and 30% were with reduction of swelling (FIG.9).

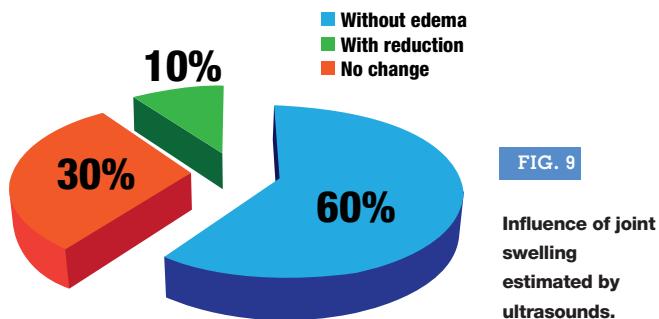


FIG. 9

**Influence of joint swelling estimated by ultrasounds.**

### Efficacy of treatment according to patient and physician

Assessment of the patient and the physician of the efficacy of treatment with injectable collagen GUNA MDs on the 60th and 90th day matches, with the highest percentage is the highest rating, namely "very good".

**FIG.10** and **FIG.11** show the effect of treatment at visit 3 /90 day/. 68% of the evaluations of patients and 72% of doctors' assessments of the efficacy of treatment are "very good" and "good".

## CONCLUSIONS

1. Periarticular administration of GUNA MD-Knee and GUNA MD-Matrix in Gonarthrosis III-IV X-Ray stage improves the status of the knee and thus improves the quality of life of patients due to:
  - \* Statistically significant reduction in pain at rest and pain on movement.
  - \* Statistically significant improvement in all indicators of the algo-functional Index of Lequesne.
  - \* Improvement in swollen syndrome in 90%, sonographically proven.
2. The effectiveness of GUNA MDs continues after stopping treatment.
3. The products have a very good safety profile.
4. 68% of the evaluations of patients and 72% of the evaluations of physicians on efficacy of the treatment have been defined as "very good" and "good".
5. Arthrosonography remains a proven technique for joint swelling assessment and monitoring of the therapy. ■

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