МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ И СОЦИАЛЬНОГО РАЗВИТИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ

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To the Editor of
World Journal of orthopedics

« concerning the manuscript 32957 »

Dear Editor and Reviewer (s),

We highly appreciate the detailed valuable comments on our manuscript

"Benefits of Ilizarov automated bone distraction for nerves and articular cartilage in experimental leg lengthening"

"

by **N. Shchudlo, T.Varsegova, T. Stupina, M. Shchudlo, M. Saifutdinov, A.Yemanov**

We tried to do our best for response to all comments from Reviewer(s) point by point. The suggestions of Editor and Reviewer are quite helpful for us and we incorporate them in the revised paper.

Thank you for attention and time

Yours respectfully,

Authors

Here are the Reviewer(s)'comments and answers to Reviewer(s)' comments.

From ID 02699853

I have some concerns: 1. Please clarify the deadlines used in each of the stages of the study. It is expressed in a way that lends itself to confusion. 2. Why do you use 29 dogs? There is some statistical reason to do so? What is the power of the study? 3. Specify why have you performed the assessment of tissue response in the way you have done? 4. Who did this evaluation?

Response
1.   The animals were euthanized at three time-points: D28 – the end of distraction (15% increase the initial leg length in both groups),
F30 – 30 days of fixation in apparatus (bone regenerate consolidation in all animals of A-Group, but in M-Group consolidation was evident only in three animals), WA30 – 30 days without

apparatus (full weight bearing of the operated limb in M-Group, but in A-Group it was noted immediately after the apparatus removal).

2.　　　Minimal but sufficient for statistically significant difference number of involved animals was based on ethic and economic principles. We used statistical methods designed for small samples (n1, n2 ≥3). Of course, the main issue with a small sample size is low statistical power, but large changes would be statistically significant.

3.　　For numerical analysis the semi-thin (thickness 0, 5-1 micron) epoxy sections of enlarged area (4-8 mm^2 instead of standard 1 mm^2) were used. Such technology provided the cellular details visualization in the light microscope and the sample representativeness.

　　4.　Two calibrated experts conducted measurements and numerical analysis.

From ID 03068027

Some points need to be mentioned:

1)　　　Tittle needs to be changed
"Benefits of Ilizarov distraction for nerves and articular cartilage in experimental leg lengthening" does not reflect the conclusion regarding the advantages of automated bone distraction.

2)　　　The discussion section is short and needs to be expanded with more info

3)　　　Severe language improvement from professionals needed

4) Why did you use the D28, F30, WA30 points? Particularly you don t say anything about the F30 (bone regeneration consolidate?), please explain further when is the above point and why chosen.

5) Table 2 and 3, 4 do not support any significant difference between groups with automated vs manual distraction. Please comment on that

6) Same group 5 shows only partial advantage of automated distraction

Overall significant improvement needs to be done. Is really supported your conclusion that automated distraction is more advantageous or not?

Response:

1)　　　As requested title has been changed
"Benefits of Ilizarov <u>automated bone</u> distraction for nerves and articular cartilage in experimental leg lengthening"

2)　　　Discussion section has been expanded.

3)　　　Errors correction has been done.

4)　　　The animals were euthanized at three time-points: D28 – the end of distraction (15% increase the initial leg length in both groups), F30 – 30 days of fixation in apparatus (bone regenerate consolidation in all animals of A-Group, but in M-Group consolidation was evident only in three animals), WA30 – 30 days without apparatus (full weight bearing of the operated limb in M-Group, but in A-Group it was noted immediately after the apparatus removal).

5)　　　Nerve thickness, summary fascicular areas and numerical densities of microvessels are individually variable. The intergroup comparison of absolute meanings would not correct. Tables show the per cent difference between nerves of operated and nerves of contralateral or intact limb but information about statistical treatment was missed. In revised manuscript it has been incorporated.

6)　　　Yes, table 5 shows only partial advantage of automated distraction. But this partial advantage (smaller per cents of degenerated nerve fibers) means that in group with automated distraction thousands neurons don't lose their connections with periphery and survive. In group with manual distraction thousands neurons with degenerated axial cylinders enter into regenerative status and create new outgrowths but such active changes may lead to death many of them.

Automated distraction developed by Ilizarov (1 mm/day in 60 steps) is more advantageous because few alterations of nerves and cartilage structure than in manual mode (1 mm/day in 4 steps) provide better initial functional recovery and better functional prognosis.

From ID 03677503
… the text is difficult to follow and the key points are not emphasized. Beginning from the abstract, the readers cannot tell regarding the groups, methods and purposes of the study. At the Introduction section, the authors should provide the conflicts of the literature and what is missing for these to merit publication. The materials and methods should be reorganized and the results should be divided in respective paragraphs each of which should begin with a key statement of the important finding. The discussion should avoid any irrelevant generalities and focus on the methods for distraction. Illustrations are far too many; please reduce to the most interesting. In general, the text is too extensive for the information provided and should be shortened to 1/3.

Response:
1)   We have tried to write more perfect abstract regarding the groups, methods and purposes.
2)   At the introduction section we have underlined that in previous publications the peculiarities of structural response to leg lengthening with manual and automatic Ilizarov bone distraction
in nerves and articular cartilage were not revealed.
3)   The materials and methods have been reorganized.
4)   Results have been divided in paragraphs with key statements.
5)   Illustrations and texts have been shortened.

Again much thanks for journal and all reviewers efforts, attention and time!
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