Short and Long Term Effect of High Intensity Laser Therapy in Treatment of Patients with Plantar Fasciitis: Preliminary Results

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Background

Plantar heel pain is a common condition in adults. The pain is worst when taking first steps after period of rest and may cause significant discomfort and disability. The most common cause of heel pain is plantar fasciitis, estimated to affect 10 % of the general population in their lifetime. It is known that lasers are used to reduce pain and manage tendinopathies.

The aim of this study is to investigate clinical effects of High intensity laser therapy (HILT) in patients with plantar fasciitis.

The purpose of this poster is to describe the preliminary results of an ongoing study that evaluates the effect of laser therapy in treatment of patients with plantar fasciitis.

Methods

The study started in January, 2017, at the Rehabilitation department of Lithuanian University of Health Sciences. Subjects with unilateral plantar fasciitis received a course of 8 treatments over 3 weeks. HILT was applied to anatomical site of entheses of plantar fascia using the BTL-6000 High Intensity Laser 12W with the following parameters:

- wavelength = 1064 nm,
- mode = continuous (biostimulation),
- power = 7 W,
- dose = 120 J/cm²,
- spacer = 10 mm,
- total time = 7 min. 8 sec.

Subjects were also asked to perform stretching exercises for plantar fascia at home.

The outcome was evaluated by measuring pain intensity using Visual Analogue Scale (mm) and measuring pressure pain threshold using algometry. These measures were taken before, immediately after and one month after treatment. Subjects were asked to evaluate the effect of treatment in a scale of 0 (no effect) to 100 % (cured) immediately after treatment.

All statistical analyses were performed using SPSS for Windows. A two-sided *P* value < 0.05 was considered to be statistically significant.

Results

There were 37 subjects who participated in this study. Of the total study population, 83.8 % were female and 16.2 % were male. The mean age of the total group was equal to 53.46±1.801 (ranging from 22 to 83) years. 19 of the subjects were reevaluated after one month.

The treatment was started meanly 5.31±0.52 months after the pain first showed up. 20 of the subjects tried other treatment methods (other physical agents, nonsteroidal anti-inflammatory drugs) unsuccessfully.

Chart 1.

Pain intensity during the day and for the past week (VAS, mm).

According to VAS, the pain of the first step in the morning decreased significantly after treatment (by 31.32 mm; from 67.41 mm to 36.08 mm) and kept significantly decreasing after one month (by 15.21 mm; from 32.11 mm to 16.89 mm). VAS also showed that the pain of the first step after prolonged sitting decreased significantly after treatment (by 28.24 mm; from 64.43 mm to 36.19 mm) and kept significantly decreasing after one month (by 11.16 mm; from 32.42 mm to 21.26 mm). According to VAS, the pain after a long walk also decreased significantly after treatment (by 27.89 mm; from 74.95 mm to 47.05 mm).

Chart 2.

Pressure pain threshold assessed over the calcaneus bone (Algometry, kg)

Before the treatment pressure algometry revealed a significant difference between a healthy (mean = 13.15±0.48 kg) and a painful heel (mean = 9.39±0.55 kg). According to the results of pressure algometry, the mean difference between a healthy and a painful heel decreased significantly after treatment (by 1.1 kg; from 3.8 to 2.6 kg) and kept decreasing after one month (by 1.1 kg; from 2.1 to 1.0 kg). After one month pressure algometry showed no significant difference between a healthy (mean = 12.5±0.6 kg) and a painful heel (mean = 11.5±0.7 kg).

According to the subjects' ratings, the effect of treatment was 55.27±4.06 % (individual ratings ranging from 0 to 90 %).

Conclusions

High intensity laser therapy is effective in reducing heel pain.

Acknowledgements: authors thanks Aistė Urbonaitė and Urtė Jokubauskienė for the help in carrying out the research.

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