PBK THERAPY IN THE TREATMENT OF LUMBAR-SCIATICA

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The target of the study is to compare the PBK therapy (PhyBack Biomedical System) with TENS, in terms of safety and clinical effectiveness, valued at short time (one month) and at medium time (three months) in a patients population with symptomatic disc hernia.

Methods.

30 patients have been enlisted, aged between 35 and 67 years (10 females and 20 males), suffering from lumbar-sciatic pain, of recent manifestation (≤ 30 days), addressing themselves to the Pain Therapy Centre, Civic Hospital San Salvatore, L'Aquila, between May 2005 and February 2006.

In the patients clinical folders, NMR records were reported, confirming the above mentioned diagnosis. Moreover the patients were administrated with Minnesota Multiphasic Personalty Inventory (MMPI), and subsequently the results were compared with the scores related to hypochondria (Hs) and hysteric tract (Hy). The criteria for including patients in the study were: 1) Acute arising of symptomatology (≤ 30 days); 2) Presence of sensor-motor neurological signs; 3) Positive NMR for disc hernia; 4) Presence of humour disturbance according to the above mentioned MMPI scores.

Moreover two blood sampling for seric VEGF dosage at T0 were done (before and after the application), plus other two blood sampling at T2 again before and after the application.

During the two follow up visits (at 1 month and at 3 months), we evaluated the outcome by means of a conversation that included these points: 1) VAS score; 2) work condition; 3) use of anti-pain drugs; 4) physical activity level.

Results

If we compare the average VAS values as initial scores (8,23+/-1,000, SEM=0,258 for PB Group; 8,130+/-0,600, SEM=0,155, t = 0,432, P = 0,669 for Group T) and VAS final scores (0,860+/-0,900, SEM=0,232, for Group PB; 3,200+/-0,400 SEM=0,103 for Group T) it is evident a statistically meaningful decrease (t=9,202; P=<0,001) for both groups. However it is clear a decrease remarkably higher for Group PB (7,37 VAS points, t = 21,217, P=<0,001) than that of Group T (4,8 VAS points, t=25,149, P<0,001). The comparison of average final VAS values showed a statistically meaningful difference between the two groups (P=<0,001, F=53,007; average difference = 2,46, t = 7,281), so indicating a better pain control in Group PB than in Group T, according to the applied treatment (PBK versus TENS).

An increasing trend of VEGF seric concentration was shown by means of the dosages at the beginning and at the end of the last application (final T2) with the registration of the averages and their comparison between the two groups under study (892,900+/-183,200, SEM=47,302 for Group PB; 225+/-62,200, SEM=16,060 for Group T; t=13,364, P=<0,001, with an average difference of 667,6 pg/ml).

The average total increase for Group PB was equal to 660,840 pg/ml (t = 13,245, P = < 0,001).

The analysis of the seric concentration of VEGF (T02f) of the two groups under treatment indicated the meaningful increase in the Group PB, depending on the kind of used treatment (F = 175,423, P<0,001; t = 13,245, average difference 660,84 pg/ml).

In the patients follow up, made after 30 days and 90 days after the end of the treatment, the results show, in all considered items, better percentages of antalgic and therapeutic success, in terms of VAS score and use of pain drugs, in Group PB than in Group T. Also better in Group PB than in Group T was the physical and working activity, as a consequence of the better general conditions presented by the Group PB. None of the two groups showed

undesired effects due to the methods under exam or to the drug treatments.

Conclusions

This reported clinical experience shows the optimal profile of effectiveness and safety of the new methodics under exam, in terms of positive results, analgesia and functional recovery, that it permits to reach in patients suffering from symptomatic discopathy. This is even more confirmed by the better parameters shown in comparison with a methodology widely used, validated and spread like TENS, in the muscle skeletal pain.

Bibliography

See Italian version of the article.