

## **APPLICATION OF DENS THERAPY IN PATIENTS WITH ACUTE TRAUMA**

A.G.Dukhin  
Regional Diagnostic Center  
Ust-Kamenogorsk, Kazakh Republic

Recently, application of dynamic electrical neurostimulation (DENS) in traumatological patients has become urgent in our situation. This is especially evident in a severe trauma and its consequences, when the application of DENS therapy to the injured area results in fast relieve of the pain syndrome, decrease of the bruise area and tissue edema.

To great surprise of the patients, who had undergone conventional treatment in various city hospitals, in two or three days of DENS therapy they experienced dramatic improvement so that they quit any kind of therapy as they considered themselves healthy. Patients who sought medical attention in 2-3 weeks after the occurrence of the traumatological event or those who had developed a chronic condition in their joints (arthrosis, arthritis) as well as those presenting with a disease or injury of the spinal column had to undergo prolonged therapy. In some cases it could take 2 or 3 weeks. Patients with developed arthrosis of the joint are of particular interest as far as their treatment is concerned. Program of treatment is to be developed for every individual and therapy is carried out in accordance with the pathological state.

DENS therapy is attractive because of its novelty, quick effect, lack of medication treatment and absence of allergic reaction and low price. Concomitant use of "Malavtelin" cream makes the quality of treatment better and shortens the duration of therapy.

Sixty three patients from 25 to 65 years of age were admitted to the traumatological orthopedic unit of the region hospital in 2004 for treatment of acute traumas. Electrical neurostimulation was performed by means of "DENAS" apparatus. An individual response to the therapy effect was defined in each case. Following performance of testing (10Hz) and identifying the trigger zones (TZ) "therapy" mode (77 Hz) was carried out at comfortable for the patients energetic level, the duration of treatment being 35-40 min. The course of treatment lasted 15-20 days.

Treatment was performed depending on the trauma localization. In case the lower extremities were injured DENS therapy was started in the "test" mode (10Hz) in the "consent" zone (CZ) in the lumber sacral part of the spine treating the TZ. The healthy extremity was treated at the same mode, then we continued working in the "therapy" mode in the direct projection of the wound until edema and pain decreased.

In case the head and upper extremities were injured we worked in the trigeminal (6P) and cervicobrachial areas in the “test” mode treating the identified TZ. We carried on therapy in the same sequence as in the previous case (first treating the healthy pair organ, then the injured area ).

The results were assessed during the treatment in accordance with the following criteria: convalescence, improvement, no changes, deterioration (Table 1).

**Table 1.**  
**Therapy results of patients with acute trauma treated by DENS**

Diagnosis	Number	Convalescence	Improvement	No changes	Deterioration
Knee joint injury	24	11	13	-	-
Sprain of ligaments	5	4	1	-	-
Arthrosis and arthritis of the joints	8	-	8	-	-
Diseases and injuries of the spinal column	8	3	5	-	-
Soft tissue contusion	15	10	5	-	-

### Clinical examples

1. Patient S., aged 19 years sought medical attention at the traumatological unit in October 11, 2004 with the diagnosis “Contusion of the left knee joint”. Ultrasound examination revealed an incomplete injury of the internal meniscus of the knee joint. The patient underwent a conventional course of DENS therapy. In three days the pain syndrome disappeared. To prevent flexion contracture there was administered a course of therapeutic exercises. On the 12<sup>th</sup> day the treatment was discontinued because of her convalescent state.
2. Patient T. presented at the traumatological unit in December 27, 2004 with the diagnosis “ Contusion of the left leg soft tissue, diffuse bruising of the external surface of the leg”. She sustained the trauma 10 days ago, but did not seek medical attention immediately afterwards. On physical examination of the patient absence of pain sensitivity on the external surface of the limb from the knee joint to the ankle was revealed. The area of dark purple skin 40-45 cm in length was found on the leg as well as the presence of flexion – extension contracture. We began treatment following an accepted method of DENS therapy. During the first two days there returned the sensitivity of the skin, its color also changed in some areas. The amplitude of active movement of the knee joint increased. Pains disappeared in 5-6 days and there was

complete restoration of sensitivity, except some small areas on the anterior surface of the leg. She was able to walk without painful sensation in the leg with thorough movement of the knee joint. The treatment was discontinued on the 7<sup>th</sup> day.

### **Conclusion**

On the basis of the therapy analysis one can draw a conclusion that this method of treatment has got great perspectives. Its therapeutic and diagnostic capacity will surpass many current methods both in conservative and surgical treatment of patients.