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SYSTEM

- USSR -

A. G. Grinbarg

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ULTRAHIGH-FREQUENCY THERAPY IN CERTAIN AFFECTIONS  
OF THE PERIPHERAL NERVOUS SYSTEM (1)

✓This is a translation of an article written by Docent A. G. Grinbarg in Kazanskiy Meditsinskiy Zhurnal (Kazan' Medical Journal), Vol. 40, No. 5, 1959, pages 63-65.✓

From the Physiotherapeutic Department (Head -- Docent A. G. Grinbarg) of the Kazan' Medical Institute.

Pain, according to I. Ya. Razdol'skiy, caused by an external factor is a signal of danger, whereas pain originating in the organism itself is a signal of something gone wrong. Strong and prolonged pain, independently of the seriousness of the pathological process which caused it, drastically reduces the social value of the individual and not infrequently excludes him from participation in productive work.

In our search for effective means of combatting pain, we concentrated our efforts on ultrahigh-frequency ✓UHF therapy in neuralgias and neurites of the peripheral nervous system.

The electric field of UHF reduces the excitability of pain receptors and exerts a pain-alleviating effect; it also develops a particular thermal process and exerts an antiinflammatory effect by contributing to the regeneration of the affected peripheral nerve and by stimulating metabolism.

To employ the UHF electric field we used the "Metaliks" apparatus of 300 watts of six-meter wavelength. The power in the therapeutic circuit was determined by the "Tuning" device indications.

(1) Reported at the Session of the Tatar Section of the All-Union Society of Physiotherapists and Health-Resort Specialists 14 May 1958.

We employed the condensor field bipolarily (transversally), i.e., placing the painful organ between two condensor plates identical in area -- one electrode facing the other, or tangentially (longitudinally). The air clearance was from one to 2.5 cm.; and in treating a patient with trigeminal neuralgia, the transverse method of therapy was used with air clearance of two to three centimeters on the side of the pathological process (the area of the cheek bone) and a small electrode; on the side of the face a medium-size electrode was used at a distance of 6 to 8 cm. The exception was that to patients with bilateral neuralgia of the trigeminal nerve small electrodes were applied on both sides of the pathological process, with an air clearance of 2 to 3 cm.

Patients suffering from plexitis of the shoulder plexus or humero-cervical plexitis had two electrodes applied to them thus: one, a small electrode was placed in the area of the sulcus bicipital intertubercular of the humerus, and the other, of medium size -- on the corresponding cervical segment near the spine of the affected side. The air clearance was 2 to 2.5 cm.

The area of two electrodes with a glass Shlipgak shoe employed by us was of two sizes: 25 sq. cm. (the small electrodes), and 175 sq. cm. (medium-size electrodes). The power indicator in the therapeutic circuit was determined according to the deviation of the pointer of the "Tuning" device from one to three divisions on the scale at a bright neon illumination of the electric field.

The length of the treatment was gradually increased from six to ten minutes. Treatments were given every other day except for patients showing a marked exacerbation of pain or for some other reason. In such cases, further treatment was postponed for several days. Generally the number of treatments varied between six and ten or more, depending on the seriousness of the disease.

We had 73 patients under observation: ten, with trigeminal neuralgia (of these, one had herpes zoster, and another patient had bilateral trigeminal neuralgia); four, with neuralgia of the occipital nerve; nine, with intercostal neuralgia accompanied in seven patients by an encircling lichen; 19, with plexitis of the shoulder plexus, six, with humerocervical plexus; three, with cervical radiculitis, and 22, with lumbosacral radiculitis.

During the period of treatment with UHF the patients did not use any other physiotherapeutic methods or medicinal preparations.

In the first group of patients with trigeminal neuralgia, the age of the patient and the length of the affection

varied. In the majority of cases the duration of the affection was between 9 and 20 days, with the exception of three patients in whom the disease dated back from 11 to 13 years. Also among them was a patient I, 22 years of age, with a bilateral trigeminal neuralgia and another Kh, 55 years old, with trigeminal neuralgia accompanied by a vesicular herpes on the face.

I. Patient Kh. came to us on the 21st day of the disease complaining of sharp burning pain on the left side of the face and eye with an eruption on the left eyebrow, forehead, and temple (herpes zoster of the face). We prescribed UHF therapy every other day, with two medium-size, identical electrodes: one, to the left side of the face; the other in the region of the left scapula. The power recommended was one grade of the scale; the length of the treatment, from six to eight minutes. Five treatments were given without any visible improvement.

Considering that even insignificant changes in the positions of the electrodes visibly affect the reaction of the patient and, thus, the subsequent course of the pathological process, we changed the method of treatment starting with the sixth treatment by placing the small electrode in the region of the left cheek bone, and the medium one on the opposite side. The session lasted eight minutes; the power, from one to two grades. This method led to complete recovery. A total of 14 treatments was given.

II. Female patient A, 53 years old, has had right trigeminal neuralgia for over 11 years. Had to be confined to bed frequently and for an extended period of time. We prescribed UHF-therapy according to our method. A total of 20 treatments was given. The shooting pain in the region of the eye, lower jaw, and nose, and on the right side of the tongue disappeared with UHF-therapy. The patient felt well for two years. During the third year slight pain appeared only in the region of the right jaw and nose. The patient was again given UHF therapy according to the above technique. Five treatments were given. Pain disappeared completely. Her general condition was good.

III. Female patient G., 54 years old, has suffered from left trigeminal neuralgia for 13 years. She had hospital treatment in the medical and nervous disease clinics without improvement.

UHF-therapy was prescribed according to our method. Thirteen treatments were given. All pain ceased after the tenth treatment. The patient feels well at present.

Seven patients with intercostal neuralgia also had encircling herpes. The age of the patients varied between 24 and 71 years.

The duration of the affliction varied from seven to 30 days, with the exception of one patient, H., 24 years of age, who considered himself sick for over three years.

This patient began to feel pain in the lower thoracic region of the spinal column on the right side following a contusion. The pain came frequently, mostly at night. It has become more acute lately.

After two treatments with UHF the pain subsided considerably. After the third treatment, there was a certain exacerbation of pain. We interrupted treatment for four days. After three more treatments the pain completely disappeared.

To administer treatment, electrodes of medium and equal size were used. One electrode was applied to the area of the corresponding segment of the spinal column on the right side, another electrode was placed to the opposite side. Air clearance -- from two to three centimeters. Strength of current from one to 2.5 grades. In the majority of patients -- up to two grades. Duration of treatment was gradually increased from six to ten minutes.

The age of plexitis patients varied between 25 and 60 years, the majority ranging to 40 years. The length of the disease varied up to two months, except in two cases in which one had been ill for four months, the other five months.

The two electrodes applied to these patients were: one, small, in the region of the sulcus bicipital intertubercular of the shoulder, and the other, medium -- to the corresponding cervical segment. Air clearance -- up to 2 or 2.5 cm. The strength of current -- from one to 2.5 grades. Length of treatment -- from six to ten minutes every other day.

For example, in female patient V., 30 years of age, ill for four months, pain and tightening of the hand had diminished considerably after three treatments. After five treatments all painful symptoms disappeared.

We shall now pass to the group of lumbo-sacral radiculitis patients.

An example is patient G., 49, who came to the clinic of nervous diseases, with an exacerbated condition. After UHF-therapy, the pain disappeared. The general condition was good.

Of interest also is patient R., 50 years old, who had been ill for over six months. Various other physiotherapeutic procedures had no effect. UHF-therapy was prescribed. We started with five treatments. Marked diminution of pain was observed. After an interruption of three weeks (for family reasons) eight more treatments were given, every other day, as usual. As a result, pain disappeared completely; general condition was good.

In the majority of patients of this group the methods and technique of therapy were carried out tangentially: two identical medium-size electrodes were applied to the lumbosacral region and to the lower third of the femur posteriorly. Air clearance, two centimeters. Current strength, from one to two grades. Treatments, from six to ten minutes. On some patients having more protracted illness, the transverse method was jointly used in the lumbosacral region. The size of electrodes, air clearance, strength of current, and duration of each treatment were the same as in the tangential method.

In treating patients suffering from neuralgia of the occipital nerve we used the same method and technique as in trigeminal neuralgia cases.

In cervical radiculitis patients, the same technique and method were used as in intercostal neuralgia.

The results of treatment of all groups of patients and each group separately are shown in the attached Table.

Diagnosis	Number of patients	Recovery	Marked improvement	Improvement	Slight improvement	No improvement
Neuralgia of the trigeminal nerve	10	7	2	1	--	--
Neuralgia of the occipital nerve	4	4	--	--	--	--
Intercostal neuralgia	9	8	1	--	--	--
Plexitis of the brachial plexus	19	3	1	12	1	2
Cervico-brachial plexitis	6	--	1	5	--	--
Cervical radiculitis	3	2	1	--	--	--
Lumbosacral radiculitis	22	3	3	11	2	3
Total	73	27	9	29	3	5

In summarizing our observations, we must note that UHF-therapy with the indicated methods and technique may be recommended as a means which affords a considerable therapeutic effect in the majority of patients, with the above

syndromes, particularly in neuralgia of the trigeminal nerve, intercostal neuralgia, and neuralgia of the occipital nerve.

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