

Farabloc™ in the Treatment of Phantom Pain, Rheumatic Pain and Other Painful Symptoms

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In 1985 we reported the first results of a new form of treatment for phantom pain using Farabloc. Farabloc was shown to have a beneficial effect on over 2/3 of the 13 patients treated. In addition, the effect of Farabloc was tested on two control groups. Ten patients with various static, degenerative and post-traumatic symptoms were involved, as well as 11 women with menstrual disorders.

The present study examines the efficiency of Farabloc on a total of 32 patients suffering from phantom pain and a further 69 patients with various pain syndromes of predominantly rheumatic kinds. Also, Farabloc was used for the first time to treat 11 chronic polyarthritic patients.

With the exception of menstrual disorders, these ailments - phantom pain, various static, degenerative and post-traumatic symptoms, arthrosis, and chronic polyarthritis - can be grouped under the heading "chronic pain." This pain can be divided into four categories:

1. Nociceptive pain which originates in tissue damage and is conducted via afferent A-delta fibres and C-fibres from the periphery. Pain resulting from cancer, chronic diseases of the joints and myofascitis fall into this category. This pain is initially of short duration and responds well to conventional analgesics. As the duration increases, there is decreased response to the analgesics. The dosage and the frequency of the administration of the analgesics must then be increased.

2. Central pain originating in denervation following disturbances in cerebrovascular circulation (apoplexy) or following the amputation of a limb (manifestation: phantom pain).
3. Psychological pain including anxiety, depression, neurosis, hysteria and other reactions.
4. Behavioural pain consisting of a certain mode of behaviour with words, facial contortions, posture and other signals.

1. FARABLOC IN THE TREATMENT OF PHANTOM PAIN

1.1 Clinical description of phantom pain

Following operative or accident -related amputations, painful sensations may occur in the amputated limb. Such phantom pain is usually associated with feelings of movement. The patient feels that the missing limb - often referred to as the phantom limb - is still present, and may even experience the limb in the position it was in at the very moment of amputation. Neurological, phantom pain can be attributed to the excitation of central pain zones, the thalamus and parietal brain. The pain lasts for years and lessens in intensity only slowly. A definitive explanation of the cause has not yet been found. The three theories discussed in the following section merit particular attention.

1.2 CAUSES OF PHANTOM PAIN

1.2.1 The "Gate Theory"

Pain perception and pain response originate in the processing of afferent (incoming) information from the peripheral nerves by the central nervous system located in the thalamus, the formation reticularis, and sensory areas of the cerebral cortex.

According to Melzack's and Wall's "gate control theory" of pain perception (1965), transmission cells in the dorsal horns of the of the A-fibres (A-beta, A-delta) and C-fibres (motor neurones) as well as descending fibres, the "gate" permits afferent impulses to pass or it inhibits their passage. This occurs under the control of the central system, i.e. the impulses, which come from the brain and exert an inhibitory influence. These fibres are probably able to activate transmission cells directly and thus create the basis for a summation or reduction of the pain impulses.

After amputation there is a loss of sensory stimuli which self-sustaining neural activity of the "gate" and cause phantom pain.

1.2.2 The Periphery Theory

The "gate control theory" of pain perception is not undisputed, but even less accepted is the periphery theory as an explanation of phantom pain. This theory states that persistent sensations from the nerve ends in the amputation stump are attributable to the limbs, which originally served by the damaged nerves. One speaks of conducted or projected pain in this context. The possible explanation of this pain is that the stimulation of a peripheral nerve somewhere along its axon causes a response which is indistinguishable from the reaction of a stimulus situated at the receptors of the same nerve.

If the periphery theory were valid, the complete analgesia of the peripheral nerve, or even a dorsal rhizotomy in patients with phantom pain, would be bound to cure the condition. Unfortunately, data on this subject is small, in fact the data available refutes this theory.

According to another version of the periphery theory, phantom pain is attributable to possible changes in the central nervous system resulting from damage to the peripheral nerves. According to this somewhat one-sided explanation, phantom pain is supposed to be caused by partial interruption of spinal cord cells. The weakness of this theory is that it contradicts the law of Wallerian nerve degeneration.

1.2.3 THEORIES OF PSYCHOLOGICAL CAUSATION

These theories all tend to attribute the sensation of the phantom limb to wishful thinking caused by the denial of the loss of the limb in question. The patient cannot accept the loss and continues to feel the presence of his "phantom limb".

A theory based on purely psychiatric or psychological factors would, however represent an oversimplification of a complicated problem that still requires further research.

1.3 FORMER METHODS OF TREATMENT

The neurosurgical elimination of either peripheral or central sections of the nervous system has distinct disadvantages. Following brief improvement there was also deterioration, also damage caused by the operation remained.

Treatment by electrical stimulation based on the "gate theory". According to this theory the treatment of peripheral nerves with defective in the brain and thus reduce the over-active neuromechanism which caused the pain. Despite a specific patient selection based on pharmacological, psychiatric and psychological evaluation criteria, the results were very disappointing.

An additional possibility is electrical stimulation of the dorsal spinal cord. This treatment as well has failed to achieve constantly favourable results.

In addition to analgesics and antirheumatics, various other pharmacological substances have been used. Lysergic acid and diethylamide in low dosage still appears to show the best results, but its side effects prevent its routine use even in low dosage. There have also been reports about the successful application of calcitonin.

"Biofeedback" treatment based on the peripheral theory and the theory of psychological causation have also not achieved a break-through in the treatment of phantom pain. The lack of success can be attributed to the fact that some patients are unable to relax and, in addition, have a strong psychological need for the pain.

The attempt to apply psychological treatment has had several phases, the most recent being psychotherapy and behavioural therapy. A specific personality structure is assumed according to many

patients with chronic pain attach to the pain, a purpose which may even be a response to domestic or marital problems.

1.4 FARABLOC AS A TRIAL TREATMENT

Farabloc is a fabric into which extremely fine steel fibres are woven. This fabric can be used like any conventional material for entire garments or partial ones such as sleeves, gloves, vests or stockings. Farabloc can be washed and ironed.

The previous 1985 report described the use of Farabloc in a carefully controlled study of 13 patients with phantom pain. In the test, Farabloc was either completely wrapped around the patient's body or just around the amputation stump. It was not necessary to wear Farabloc for a full 24 hours, but only during periods when pain was experienced most intensely. There was a decrease in phantom pain in 2/3 of the patients. After the use of Farabloc some patients were even able to stop further use of medication. In addition, the results showed a better response to Farabloc than to electric stimulation and therapy through medication.

In two parallel studies, which were to serve more as controls, the effect of Farabloc was tested on patients with various static, degenerative or post-traumatic complaints and on females with menstruation complaints. These included relatively minor illnesses (3 arthrosis, 2 lumbar spinal syndromes, 2 shoulder-arm syndromes, and 3 post-traumatic complaints). In these cases, too, Farabloc proved to be effective.

Since then the number of patients we had observed who experience phantom pain had risen to 32. Of these, 26 (81.25%) spoke of the success of their treatment with farabloc as good or very good. Only 18.75% found the treatment unsatisfactory or unsuccessful, or were unable to make a judgement (table 1). Here, too, the earlier observation that a number of these patients, while under treatment with Farabloc, no longer required analgesics or antirheumatics, was confirmed.

2. FARABLOC IN THE TREATMENT OF VARIOUS RHEUMATIC ILLNESSES

2.1 Treatment of Arthrosis using Farabloc

The term "arthrosis" refers to painful disruptions of the functions of joints, often on both sides, with a tendency towards compaction of the capsulae, deformation and later even dislocation. Arthrosis is partially a result of the natural ageing process. This can however, have other causes.

The treatment of arthrosis consists of the administering of analgesics/antirheumatics, so-called anti-arthrotics, and balneotherapy.

Farabloc was used on 20 patients with arthrosis of major joints (mostly hips and knees). Of these, 17 (85%) demonstrated a favourable or very good response. In several cases the use of Farabloc led to the complete cessation of treatment with medication.

2.2 Treatment of Spinal Column Syndrome with Farabloc

These syndromes mostly involve static-degenerative changes to the spinal column. Lumbar spinal syndromes are the largest group. Here, too, the traditional therapy consists of the application of analgesics/antirheumatics, muscle relaxant and balneotherapy.

In 15 patients with predominantly lumbar spinal column syndromes, Farabloc resulted in 86.7% of the patients showing a good or very good relief of pain.

2.3 Treatment of other Syndromes Using Farabloc

The heading "other syndromes" covers a whole series of illnesses: Shoulder-arm syndrome, soft-part rheumatism, post-traumatic complaints, and complaints related to neoplasia. Here, too, in 79.4% of the cases, the use of Farabloc showed a good or very good improvement in the condition.

2.4 Treatment of Chronic Polyarthritis Using Farabloc

In contrast to the disorders so far, chronic polyarthritis belongs to the group of inflammatory-rheumatic disorders. It is characterised many small or large joints and of tendon sheaths. This may also involve inner organs.

The traditional treatment of chronic polyarthritis consists of a combination of symptomatic antirheumatics which have an immediate effect, and the so-called "basic therapy". According to the severity of the illness, adrenocortical steroids may be necessary.

Surprisingly, even in this disorder, good or very good responses were observed in 7 (63.6%) of the 11 patients.

2.5 Treatment of Menstrual Complaints Using Farabloc

Up to now 12 women with menstrual complaints have been tested using Farabloc. Of these, 58.3% have experienced a good or very good improvement in their condition following the use of Farabloc. The other 41.7% merit a more precise analysis: in 3 cases Farabloc had "some effect", 1 patient had difficulties forming a judgement, and in one case there was a definitive "no".

3. Discussion and Summary

In spite of theories discussed earlier, the real origins of phantom pain remain unexplained. That is the reason why attempts to treat this pain have encountered difficulties up to now. A new method of treatment for phantom pain using Farabloc is described, as a fabric into which extremely fine steel threads are woven, which is applied locally. In a relatively broad range of disorders in 32 patients with phantom pain, the therapy resulted in 81.25% of the patients showing a good or very good improvement. In only 18.75% of the cases were the results unsatisfactory or negative, or the patient was unable to comment.

Similarly good were the results with arthrosis (85%), lumbar spinal column syndrome (86.7%) and other syndromes (79.4%). The results of the test on 12 patients with chronic polyarthritis are astonishing. In the tests 63.6% of the patients reported an improvement in their condition. This result

is astonishing in view of the fact that chronic polyarthritis belongs to the inflammatory-rheumatic group of illnesses and it causes of the results on the 12 patients with menstrual complaints showed an improvement in 58.3% of the cases treated with Farabloc.

The results of our tests are surprising because in many cases the local application of Farabloc led to a complete cessation of treatment with analgesics/antirheumatics, or at least to the reduction of medication. These findings give rise, of course, to an important question: do these results indicate more than just the consequence of a placebo reaction.

As is well known, the placebo reaction is a factor which cannot be dismissed as an aspect of treatment with medication. Uncertainty in view of the fact that the percentage rates of improvement in individual categories of illness are in part substantially over 50%, a simple placebo effect seems questionable. For this reason we may assume that Farabloc does indeed possess an effective mechanism, whereby the fabric into which is woven extremely fine metal threads, immediately reminds us of the principle of the Faraday cage, functioning as a screen against external electrical fields. It would however, also be possible that the fabric influences magnetic phenomena (biomagnetism) which originate within the human body. These magnetic phenomena can be attributed to three main causes: electric currents, magnetised parts of the body, and residual magnetism of unphysiological contamination's.

In the study of April 1987, we are still of the opinion that the results of treatment using Farabloc are very promising. Farabloc can probably not be expected to replace the medication currently used in the treatment of degenerative rheumatism or especially of inflammatory-rheumatic disorders, but even a positive effect on these illnesses in the sense of a reduction of the amount of medication prescribed would already represent a success. The success would be valuable in-so-far as it is well known that the antirheumatism substances used in the treatment of rheumatic disorders have a relatively large number of side effects.

The test with Farabloc must be continued in the future, principally in larger studies concerning polyarthritis, but also in studies concerning various forms of arthrosis and soft-part rheumatism. However, for patients with phantom pain, treatment with Farabloc seems in the meantime to have already attained a certain degree of importance.

Beyreuth, 30th April 1987

(signed)

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Table 1

Summary Overview of the Disorders Treated With Farabloc

| Disorder | No of Patients | Good or Very Good | Results |
|----------|----------------|-------------------|---------|
|----------|----------------|-------------------|---------|

| | | | Satisfactory, No judgement possible, Negative |
|---------------------------|----|-------------|--|
| Phantom Pain | 32 | 26 (81.25%) | 8 (18.75%) |
| Arthrosis | 20 | 17 (85.0%) | 3 (15.0%) |
| Spinal Column Syndrome | 15 | 13 (86.7%) | 2 (13.3%) |
| Other Syndromes | 34 | 27 (79.4%) | 7 (20.6%) |
| Chronic Polyarthritits | 11 | 7 (63.6%) | 4 (36.4%) |
| Menstrual Complaints | 12 | 7 (58.3%) | 5 (41.7%) |

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