

Rosemary Oil Dispersion Bath in the Treatment of Painful Neuropathies

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(Poly)neuropathy (PNP) is a disease of the peripheral nervous system. The main symptoms are flaccid paralysis, sensory hyperesthesia or deficit, and disorders of the autonomic nervous system. Symptoms may be distal and symmetric or affecting a single nerve. Cranial nerves, dorsal root ganglia, axons or myelin sheaths may be involved. The disease may be acute (e.g. Landry's ascending paralysis) or chronic and insidious. Causes may be genetic, due to metabolic disease, undernourishment or wrong diet, infectious diseases, arteriopathies and exposition to exogenic toxins. Diabetes and alcohol abuse are the most common causes. Having such a wide range of etiologies, PNP affects people of all ages and all races on all continents.

A neurologist should always be consulted if symptoms develop. He bases his clinical neurological examination on the history, i.e. the evolution of the disease and the type of symptoms. The examination must cover all neurological symptoms in order to identify conditions that involve the brain, spinal cord or muscular system as well as the peripheral nervous system. Differential diagnosis is a major project. Etiology is further established on the basis of laboratory findings, e.g. to exclude diabetes, and electrophysiological studies. Nerve conduction velocity is determined, and electromyography establishes if functional problems are nervous or primarily muscular. Additional tests are required on occasion. In some cases, the cause can only be determined by histological and histochemical examination of material obtained by muscle or nerve biopsy. Despite the range of tests available, the cause cannot be established in about one-third of patients.

Clinically, medicinal oils have been used through the ages and by all peoples.(2)

Distinction must be made between fatty and volatile oils.

Fatty oils are triglycerides (esters of glycerol and saturated and unsaturated fatty acids). The distribution of fatty acids is never entirely constant but nevertheless characteristic for any oil of specific origin. Fatty oils derive from fruit and seeds and have high energy and nutritional value (1 g of oil = 40 kJ). In spite of being more viscous, fatty oils have a lower relative density than water, generally 0.90-0.92. Olive oil is mentioned in the First and Second Testaments and in the Koran. The Israelites used it in lamps, as a medicine and a massage oil; the Romans to grease wheels. Freshly-harvested olives are cold pressed. Quality standards are given in the German Pharmacopoeia(9). Characteristically, olive oil contains squalene (up to 0.7%), phytosterols (up to 0.2%) and tocopherols (up to 0.2%). Compared to other oils it disperses easily in water, which makes it the best for oil dispersion baths.

Volatile oils are aromatic mixtures with a powerful odor. The relative density is like that of fatty oils, but the viscosity is lower. They are practically insoluble in water ("rose water"), but miscible with alcohol and organic solvents. Oil of rosemary is obtained from young shoots of *Rosmarinus officinalis* by steam distillation. The oil is almost colorless, with a fresh, aromatic odor that is a little like camphor. The taste is slightly bitter and aromatic. Rosemary is used in a range of bath preparations, in liniments, gels and ointments. 10% rosemary oil for oil dispersion baths is prepared according to method 12 of the German Homoeopathic Pharmacopoeia; mixing 1 part of volatile oil of rosemary with 9 parts of olive oil. It has antiphlogistic properties(3) and also acts as a skin irritant; it is absorbed through the skin and

has a general effect on muscles, nerves and joints. This has been known for a long time, with experimental proof available. A spasmolytic component acts via inhibition of acetylcholine-induced contraction.(4)

W. Wyers and R. Brodbeck showed in 1989 that volatile oils suitably applied to the skin cumulate in muscle tissue beneath the site of application in quantities that permit direct depolarization of skeletal muscle.(5)

R. Steiner suggested the use of finely-dispersed oils in water in 1920.(6) He saw the need to enable patients to activate the I - giving diabetes as an example - as analogous to the process of oil synthesis. Water acts as a mediator. Franziska and Wemer Junge began in 1937 to develop a system for very fine oil dispersal in water.(7) The German patent was granted in 1971, and the Jungebad® has proved effective in many clinical establishments through the years.

When the author joined the staff of the Herdecke Community Hospital in 1983, the use of oil dispersion baths was already an established method. Since then, interest has focused on the treatment of painful neuropathies, which are very common and extremely difficult to treat. Medical treatments available are thioctic acid, carbamazepine, diphenylhydantoin, clonidine, thymoleptics, neuroleptics and treatment of the basic condition, e.g. adequate control of diabetes.

Patients often complain of nocturnal pain in conjunction with muscle spasms, a furry sensation, feeling as if a limb has gone to sleep, sensation of numbness, formication ("like ants"), hypersensitivity to touch, pricking sensation ("like pin pricks"). A special form is "restless legs" or burning feet, with considerable sleep disorders, as patients make involuntary leg movements because of muscle spasms in the calves and/or burning sensations that force them to get up and walk around.

We classify the symptoms as follows:

- Muscle irritation: cramps, fasciculation, stiff and aching muscles, feeling of heaviness
- Defects in neuromuscular system with paralysis, loss or reduction of reflexes, and muscular atrophy
- Irritation of sensory system: lancinating pain, paresthesia, hyper-esthesia, hyperalgesia, dysesthesia, allokinesis
- Defects of sensory system with reduced sensitivity to touch, esp. distally, reduced sense of vibration and occasionally reduced perception of directed movements
- Signs of autonomic irritation: hyperhidrosis, Raynaud's syndrome, cold-induced hyperpathia
- Defects of autonomic system: hypohidrosis, functional disorders of bladder, rectum and sexual organs, tachycardia at rest, orthostatic hypotension, enteropathies.

Neundorfer recently published a review paper on the subject, introducing the "Eriangen PNP questionnaire."(8)

We always begin treatment with:

- "Physical" measures: avoiding undergarments of synthetic fibers (wear woolen socks), body care (care to cut properly, esp. toenails; bed cradle to avoid contact with bed clothes, as far as possible wear slippers with knitted uppers or woolen socks indoors, walk barefoot along (warm) sand beaches, put feet on warmed sand or rice bags and "playing" with the feet. Lavender oil footbaths may prove helpful before going to bed. Hot-water bottles should be avoided.
- The indication and posology of medical treatment is not given here. Readers are referred to standard works on the treatment of neurological conditions⁹ and the above-mentioned paper by Neundorfer.

Oil dispersion baths

The patient's temperature is taken before the bath. Because of the abnormal warmth metabolism with PNP, the initial water temperature is individually chosen and raised slowly. The final temperature is determined by the patient, depending on how he or she is feeling. Both water and body temperature are measured at the beginning and end of the bath. We start at 1 degree C below the patient's body temperature as a rule. As the course of treatment progresses, the patient's ability to generate warmth changes, and the temperature of the bath can be reduced. In addition, body temperature is taken twice daily during a course of treatment.

Twenty liters of really warm water are run in through the oil dispersion apparatus to warm the bath, 3-5 ml of oil (up to the mark) are put into the apparatus. The jet should not be blocked. A vortex is created in the apparatus, drawing the oil into the center. This results in millions of tiny water droplets of variable size, each covered with a film of oil. The dispersion process increases the surface area by a factor of about 2,000 so that it corresponds to the human body surface area, which is c. 1.8 m². The patient is asked to lie still in the water so that the fine oil film may attach itself to the skin without disturbance. Static water pressure is reduced by 10% due to the fine dispersal of the oil.

The bath takes 10-20 minutes. The effect is enhanced by brush massage. The therapist uses two of these, gradually applying them to the whole body, starting from the feet. The amount of force used and the duration of brushing are adapted to individual requirements. After the bath, the patient is wrapped in warmed sheets for about half an hour, during which he should not sweat. This is followed by another 30 minutes of rest. Directions for the use of the oil dispersion apparatus are provided by the manufacturers. We have found it useful to mount the apparatus on a secure fitting made of aluminum.

A course of treatment consists of 10 daily baths. The bath is strenuous, and we therefore do not give physiotherapy during this period.

Records

To obtain validation of the method, we have been developing record sheets since 1983. The forms shown here have served the purpose well since 1985. The first step was to classify the patient's symptoms under defect and irritation of motor, sensory and autonomous nervous functions. Open scales make it possible to get a semi-quantitative assessment of the patient's subjective statements.

Apart from determining body and water temperature, we discuss the patient's symptoms with him in detail. We identify the main symptoms, entering them in a "record of symptoms." Patients will then daily mark the three symptoms, for instance, that are a real problem to them on open scales (Fig. 1), also noting down if they have nocturnal symptoms or suffer from sleep disorders. Patients are also asked to write down their sensations and reactions after every bath (Fig. 2).

Prospect

The use of oil dispersion baths is an established part of the range of treatments offered to patients. Baths are also part of the treatment for alpha-motor neuron disease, sleep disorders, Parkinson's disease, low back pain and spastic paresis. This paper considers the use of baths for PNP only.

(FULL PAGE GRAPHICS, PGS. 32-33, fig 1 & fig 2)

Proof of efficacy is a major methodological problem with conditions where symptoms are largely subjective and not easily quantifiable. Research has defined potential and limits especially concerning

pain. Three doctorate theses from Witten-Herdecke University may be considered to be representative; they take account of the relevant literature.(10)

(HALF PAGE GRAPHIC (FIG 3)

Fig. 3.

The questions we asked ourselves were: do rosemary oil dispersion baths offer relief to patients with painful neuropathies? Is the effect due to the bath as such (water) or the basic vehicle (olive oil)? Does rosemary oil have actions that can be described? Was the effect of a course of treatment due merely to the temperature and the rest? Does the setting created by the "bath" ritual on our wards/ in itself, constitute a placebo effect?" Is the effect entirely due to concurrent treatment such as optimal control of diabetes? Can comparison be made between patients with different types, symptoms and degrees of PNP? Is it possible to set up "control groups" for different etiopathologies of neuropathy or by using dispersion baths with different oils for the same type of neuropathy? Is the oil dispersion bath an alternative to medical treatment?

In 1983-1985 we "experimented," using different oils, optimizing our method and monitoring temperature regulation, and we finally arrived at the method described above. Initially, we used a "bath record" where the nurse recorded the observations made in a given case (Fig. 3). Later, we added the form filled in by the patient (Fig. 2) and finally made the patient's own consistent observations the basis of assessment. Oil dispersion baths are now used in the hospital at large and not only in the neurology department.(12)

So far, no study has been presented on the treatment of diabetic poly-neuropathy, for instance, that shows definite improvement in objective parameters (nerve conduction velocity, reflexes, instrumental determination of physical strength); the subjective signs, above all the painful and unpleasant dysesthesias and paresthesias, do not respond well to treatment. Yet these are the symptoms that make patients consult a physician, not the paresis, hypo- or anesthesia. A trial protocol loaded down with investigations using apparatus would be unlikely to yield data with assessable statistical significance. In our view, detailed observation seems adequate for practical purposes at present.

Years of experience have shown that all patients profit from 4-6 weeks of inpatient treatment if the diagnosis is as accurate as possible, risk factors are eliminated, the basic condition is treated, and the above "physical measures" are instituted. Some patients complain of additional tingling or formicating paresthesias after their first baths, but these disappear again. A few have allergic skin reactions and need to discontinue the baths. Severe cardiovascular disease is a contraindication. Because of the stimulant effect of rosemary oil, baths are not normally given in the evenings. Some patients have additional lavender footbaths in the evenings. Many continue the treatment at home and do physiotherapy exercises.

We have about 500 inpatients annually and 1,000 outpatients. About 50 patients with painful neuropathies benefit from the above treatment each year.

Being a relatively small department, we have not so far been able to establish a sufficiently large group of patients with the same disease - in our case diabetes - for comparative studies to answer the questions listed above. The record sheets do, however, make it possible to show that many patients with painful neuropathies gain relief from the regular use of rosemary oil dispersion baths.

Rosemary oil dispersion baths by the Junge method have become indispensable in our work.

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