

Travail reçu le
28 novembre 1973

Capillarographic Criteria on the Effect of Magnesium Orotate, EPL Substances and Clofibrate on the Elasticity of Blood Vessels

by
H.A. NIEPER

Silbersee Clinic, Hannover, Langenhagen.

CAPILLAROGRAPHIC CRITERIA ON THE EFFECT OF MAGNESIUM OROTATE,
EPL SUBSTANCES AND CLOFIBRATE ON THE ELASTICITY OF BLOOD VESSELS

H.-A. NIEPER

Agressologie 1974, 15, 1 : 73-78

115 Patients suffering from arteriosclerosis or inflammatory changes in vessel behavior were treated for fifteen months with either magnesium orotate, EPL substances (essential phospholipids) or clofibrate. Vessel elasticity was checked at intervals of six weeks by means of light-electronic capillarography.

Magnesium orotate resulted in an excellent or at least satisfactory normalization of vessel elasticity in all 64 cases.

EPL substances led to an improvement of elasticity in about two-thirds of 34 cases.

Clofibrate resulted in an improvement for 5 out of 28 patients, which cannot be considered a statistically positive result.

During the past five years, we have been using an especially highly amplified light-electronic capillarograph to record the behavior of the peripheral blood vessels. The measurements were usually taken from the long digit of the thumb. As time went by and we had gathered sufficient experience, we realized that this simple method could be used to reveal information about blood vessel behavior which was otherwise unobtainable with such a minimum of work. Most importantly, a clear distinction can be made among normal elasticity, exhaustion, reduction of the elasticity due to arteriosclerosis, inflammatory changes in the vessels, hyperthyreosis and (latent) hypertension (Fig. 1). In addition to this, any irregularity in the curves

is virtually proof of acute aggressive damage to the myocardium, due either to rheumatic or immunological inflammation and/or an active metabolic (energetic-dynamic) cardiac insufficiency.

As was to be expected, these investigations enabled us to gain an insight into the effectiveness of medication designed to protect or rejuvenate the blood vessels.

We treated a total of 64 patients with magnesium orotate (Fig. 2), 34 with EPL substances (essential phospholipids) and 28 with clofibrate, observe their progress over a fifteen month period at approximately six week intervals. In general, they received daily doses of either 500 mg magnesium orotate, or four capsules of an EPL preparation or two capsules of clofibrate 500.

The amazing results of this series of treatments were quite unexpected :

60 of the 64 patients taking magnesium orotate daily showed a highly normalized capillarogram within the fifteen months of observation ; the capillarographic curves of about half of these were then completely normal, and those of the remainder

* The treatment with magnesium orotate was carried out in small part with PD-capsules and to about 80 % with a microgranulate pressed into tablets, each containing 500 mg magnesium orotate. The magnesium orotate was supplied by the Nadrol Pharmaceutical Company, Osnabruck Germany. There were absolutely no side effects resultant from the treatment with magnesium orotate. The use of tablets is judged to be more pleasant than that of capsules.

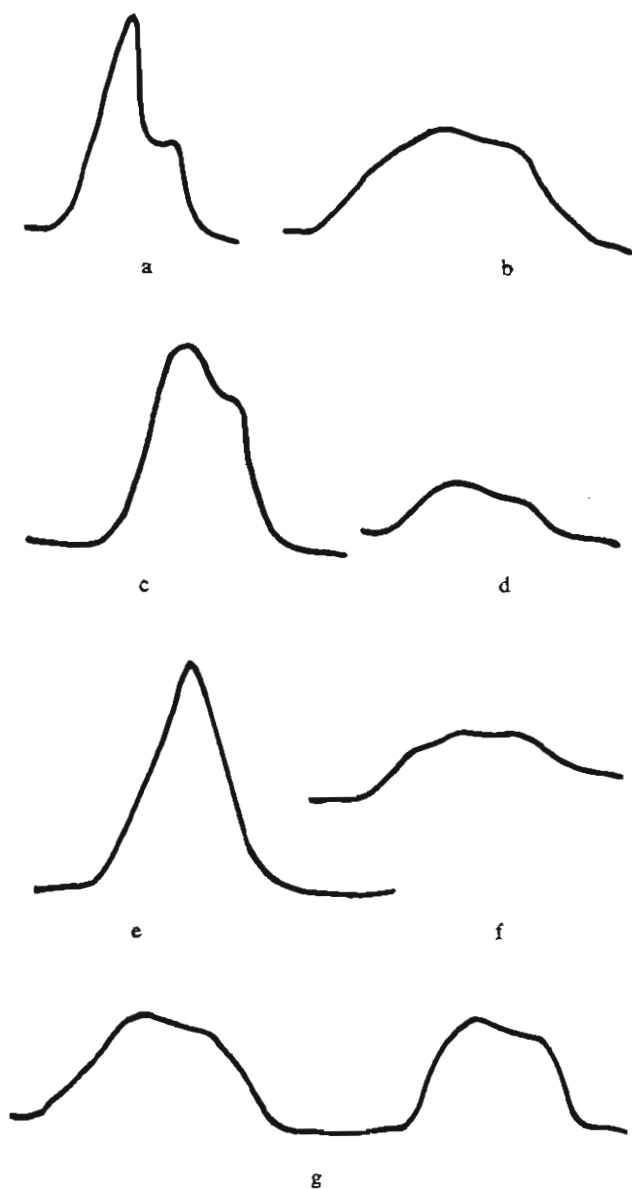


FIGURE 1. — a) Normal diastolic curve - b) Peripheral arteriolitic and arteriosclerotic change - c) Fatigue - d) Arteriolitic curve - e) Arteriosklerosis of main arteries - f) Severe arteriolitic curve and peripheral resistance - g) Inkongruence because of active myocardial damaging process, picture of arteriolitic and arteriosclerotic changes in curve.

showed not the slightest resemblance to the situation before treatment. This was true for both arteriosclerotic and arteriolitic damage to the vessels. The 4 patients who discontinued treatment prematurely also had shown some improvement in their conditions.

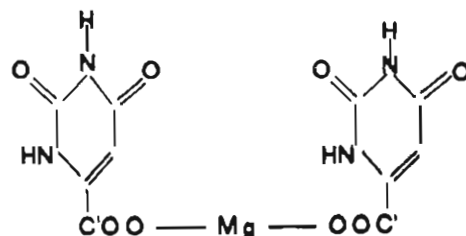


FIGURE 2. — Magnesium orotate

In the group which received EPL substances, 21 of the original 34 patients showed a marked improvement, 11 showed no improvement and 2 discontinued treatment after four and six months, respectively, with no apparent improvement in their conditions. Only 2 out of the 34 patients showed completely apathological curves for vessel elasticity.

Of the 28 patients taking clofibrate, only 5 showed a significant improvement after fifteen months of treatment. There was no improvement in the conditions of the 3 patients who discontinued treatment prematurely.

While EPL substances and magnesium orotate appeared to be completely free of unwanted side effects, and magnesium orotate even provided a sustained lessening of pectanginal pain, the treatment with clofibrate caused increased heart pains in five cases. One of these five patients, a fifty-six years old woman, complained of extreme pain, which subsided immediately upon the discontinuation of clofibrate therapy.

We do not intend to include detailed information about our concurrent measurements of fat metabolims at this time. We can report with absolute certainty, however, that there is no correlation between the cholesterol level in the blood and the improvement in vessel elasticity. The cholesterol level has been observed to rise occasionally during the first six months of treatment with magnesium orotate, although the elasticity of the vessels improved and the pectanginal discomfort lessened during this time. This may indicate the mobilization of cholesterol-ester deposits achieved by the magnesium orotate. This observation is supported by the work of SIGGELKOW and BIRKE (1971).

In our study, the EPL substances were markedly less effective than magnesium orotate in restoring elasticity to the peripheral vessels. Neither the EPL substances nor magnesium orotate caused negative side effects and both were successful in increasing the patients' sense of well being.

On the other hand, the clofibrate was virtually ineffective in restoring elasticity to the blood vessels, while at the same time being accompanied by unwanted side effects in some cases. These side effects might be related to the blockage of fat metabolism and fat utilization. I am fully aware of the discrepancy between these results and the widespread support for clofibrate. Our observations are, however, absolutely free from subjective influence. Perhaps the therapeutic principle underlying the use of clofibrate should be reexamined and the blocking of fat transport more critically analyzed. It is quite possible that the combination of magnesium orotate with either clofibrate or EPL substances would offer the most advantageous therapeutic effectiveness.

Magnesium orotate belongs to a group of mineral or electrolyte carriers which I have been examining closely, as do the salts of aspartic acid and the 2-amino-ethanolphosphoric acid (EAP). In tissue cultures, the aspartates penetrate the cytoplasmic membranes and are utilized there. The orotates move through the cell membranes in the undissociated form and are not metabolized until they reach the sites of the mitochondrial and microsomal membranes. This release of ions specifically inside the cells opens up a wide range of therapeutic possibilities.

We have already reported on the clinical activity of calcium orotate (NIEPER, 1969, 1970, 1973), an analog of magnesium orotate. The effectiveness of calcium orotate in the treatment of bone decalcification, problems associated with the aging process SIMON (1968), and inflammatory and degenerative cartilage damage within the joints is very important. Also, the long term use of calcium orotate appears to be successful in retarding cirrhotogenic inflammatory reactions of the liver, which are induced by the aggression of anti-mitochondrial

antibodies, according to studies by DONIACH (1972). The calcium ions are released from calcium orotate specifically at the sites of the mitochondria.

Also, potassium orotate has been used in experimental studies. BAJUSZ (1968) has reported that it prevents myocardial necroses, as does potassium aspartate. Other potassium salts have not been found to display this therapeutic activity.

Many reports have been published on the use of magnesium orotate to combat arteriosclerosis. We refer the reader to the most extensive studies of SEEGER (1972). SIMON (1968) emphasizes the effectiveness of the orotates as electrolyte carriers and the importance of the magnesium ions to activate the cholesterol-esterases and mobilize the vessel wall deposits. The same is true of the experimental reports of KOS and SZELÉNYI (1970) and the clinical observations of SIGGELKOW and BIRKE (1971).

Despite these extensive publications, we have the impression that the importance of magnesium orotate in the treatment of arteriosclerosis is often underestimated*. The results of our studies clearly indicate that magnesium orotate should indeed be considered to be among the most valuable medications of its kind.

Acknowledgements.

Translated from German into English by K. BENDER.

Reprints : D. Hans A. NIEPER,
3 Hannover, Sedanstrasse 21
Germany.

* We treated 18 patients with beta-pyridin-carbinol for an average of 8,5 months. We found no change in the pattern of typical arteriosclerotic curves under this treatment, whereas inflammatory and arteriolitic changes in the respective curves disappeared almost entirely after about 3-4 weeks of treatment with this substance. This was especially true in three patients suffering from diabetes.

BIBLIOGRAPHIE

- BAJUSZ E. (1968). *Interrelations between Reparatives Processes in Myocardium and the Development of Congestive Heart Failure.*
Rev. Can. Biol., 27, 1 : 45-60.
- DONIACH D. (1972). *The Clinical Importance of Anti-mitochondrial Antibodies.*
Triangel, 11, 1 : 29-34.

- KOS S. & SZELÉNYI I. (1970). *Wirkung von Orotaten auf Leberenzyme.*
Münch. Med. Wschr., 112 : 1516-1519.
- NIEPER H.-A. (1969). *The Antiinflammatory and Immune-Inhibiting Effects of Calcium Orotate on Bradytrophic Tissues.*
Agressologie 10, 4 : 349-357.

- NIEPER H.-A. (1970). *Recalcification of Bone Metastase by Calcium Diorotate*.
Agressologie, **11**, 6 : 495-502.
- NIEPER H.-A. (1973). *Klinische Wirkung von Calcium-diorotat auf Knorpelgewebe Spezifische Funktion in Abhängigkeit von Pentose - Stoffwechsel Bradytropher Gewebe*.
Gériatrie, **3**, 4 : 73-82.
- SEEGER P.-G. (1972). *Die Prophylaxie der Gefäßkrankungen (Arteriosklerose) und die Therapie von Herz- und Lebererkrankungen mit Magnesium-Orotat*.
Erfahrungsheilkunde, 1 vol (pp. 66-103).
- SIGGELKOW H. & BIRKE S. (1971). *Untersuchungen zur Effektivität einer Gerotherapie*.
MDA Geriatrie, **1** : 4-11.
- SIMON K.-H. (1968). *Ursachen der mehrschichtigen Wirkungen des Magnesium-Orotates bei degenerativen Herz- und Gefäßkrankheiten (Gefäß-Sklerose)*.
Dt. Med. J. Organ. Arztl. Fortbildung, **19**, 24 : 868-871.

RÉSUMÉ

CAPILLAROGRAPHIC CRITERIA ON THE EFFECT OF MAGNESIUM OROTATE,
EPL SUBSTANCES AND CLOFIBRATE ON THE ELASTICITY OF BLOOD VESSELS.

H.A. NIEPER

Agressologie 1974, **15**, 1 : 73-78

Critères capillarographiques des effets de l'orotate de magnésium,
des EPL substances et du clofibrate
sur l'élasticité des vaisseaux sanguins

Cent quinze sujets souffrant d'artériosclérose ou de modifications inflammatoires du comportement des vaisseaux ont été traités pendant 15 mois soit avec l'orotate de magnésium, soit avec des *EPL substances* (phospholipides essentiels) soit avec du clofibrate. L'élasticité des vaisseaux a été contrôlée toutes les 6 semaines par capillarographie lumineuse à haute amplification.

L'orotate de magnésium provoque une excellente, ou au moins satisfaisante, normalisation de l'élasticité des vaisseaux dans les 64 cas étudiés.

Les *EPL substances* amènent une amélioration de l'élasticité dans les deux tiers environ des 34 cas.

Le clofibrate ne provoque une amélioration que chez 5 des 28 malades, ce qui ne peut pas être considéré comme un résultat statistiquement positif.

RESUMEN

CAPILLAROGRAPHIC CRITERIA ON THE EFFECT OF MAGNESIUM OROTATE,
EPL SUBSTANCES AND CLOFIBRATE ON THE ELASTICITY OF BLOOD VESSELS

H.-A. NIEPER

Agressologie 1974, 15, 1 : 73-78

*Criterios capilarograficos sobre el efecto del orotato magnesico,
substancias EPL
y clofibrato sobre la elasticidad de los vasos sanguineos*

Durante quince meses se trató a 115 pacientes afectados de arterioesclerosis o de alteraciones inflamatorias del comportamiento vascular con orotato magnésico, con substancias EPL (fosfolípidos esenciales) o con clofibrato.

El orotato magnésico dió lugar a una excelente o por lo menos satisfactoria normalización de la elasticidad vascular en 64 casos.

Las substancias EPL (fosfolípidos esenciales) dieron lugar a una mejoría de la elasticidad en 2/3 de 34 casos.

El clofibrato produjo una mejoría en 5 de 28 pacientes, lo que no puede considerarse como un resultado estadísticamente positivo.

CAPILLAROGRAPHIC CRITERIA ON THE EFFECT OF MAGNESIUM OROTATE,
EPL SUBSTANCES AND CLOFIBRATE ON THE ELASTICITY OF BLOOD VESSELS

H.-A. NIEPER

Капиларографические критерии эффективности применения оротата
магния, фосфолипидных веществ и клофибрата на эластичность
кровенных сосудов

Agressologie 1974, 15, 1 : 73-78

У 115 больных, страдающих артериосклеротическими или же воспалительными изменениями эластичности сосудов, проводилось в течении 15 месяцев лечение оротатом магния, фосфолипидными веществами или же клофибратом. Эффективность лечения контролировалась с помощью метода свето-электронной капиларографии. Результаты показали, что применение оротата магния приводит к нормальным сосудистым реакциям /64 больных/. Применение фосфолипидных веществ так же оказало положительное действие у двух третей из 34 больных. В то же время клофибрат вызвал улучшение эластичности сосудов только у 5 из 28 больных. Этот результат не может считаться положительным.

DISCLAIMER

The A. KEITH BREWER INTERNATIONAL SCIENCE LIBRARY acts as a clearing house for and a disseminator of information not otherwise readily available. It does not advocate, promote or verify the contents of such information.