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FAT MELTING INJECTIONS - STATE OF THE ART

Injection Lipolysis, Lipodissolve-Injections, Lipomelt-Therapy, Flab-Jab...

A new method of body contouring...

By Dr. Franz Hasenschwandtner, Medical and Scientific Director of NETWORK-Lipolysis

Injection Lipolysis is experiencing growing worldwide popularity in the field of aesthetics. Originally criticized by established cosmetic surgeons, it has now gained a foothold due to very good results and almost hardly any unwanted side effects. The short history of Lipolysis began in 1988 when Sergio Maggiory, an Italian doctor, reported his results at the 5th, Mesotherapy Congress in Rome after having injecting the substance phosphatidylcholine in xanthelasma around eyes.

In 2001 Dr. Rittes from Brazil published her successful work on lower eye bulges. 2002, Dr. Franz Hasenschwandtner, the owner of a diet and nutrition clinic in Austria, began a new treatment protocol using a new compound mixture with a wider range of application. He initiated research groups and in 2003 became first a member and soon after research and medical director of the now worldwide Network Lipolysis. Network Lipolysis was founded by two public relations experts (Mr. Brandl and Mr. Bunzek – Germany) who worked in medical management at that time and whose aim it was to initiate research into Lipolysis and furthermore to hold workshops around the world to teach the most effective Network treatment protocol. This was necessary because at that time the pharmaceutical industry did not see any potential in this field - biopsies, ultrasound findings, blood values, animal trials – all had to be paid for through the membership fees of Network members.

The first workshops were held in Germany, Austria, and were soon followed by England, the USA, France, the whole of Europe, India, Asia Australia and Africa. Nowadays Network Lipolysis has approx. 1070 members in 59 countries.

How does it work?

At present what we know of the function of Lipolysis is like a patchwork, it is a scientific jigsaw in which only a few small pieces are still missing. To uncover the last secrets of the effect of the enzymes and hormones involved, about the transportation of the monoglycerides and their metabolization, Network Lipolysis is cooperating with several universities around the world which specialize in fat metabolism and fat metabolism disorders and from members' fees are supporting a thesis on the lipolytic mechanism of phosphatidylcholine.

The injected active agent phosphatidylcholine is a lecithin which contains two unsaturated fatty acids (Linoleic- and alpha Linoleic acids) extracted from the soya plant.

Phosphatidylcholine is a body own product, produced by the body itself, but which includes saturated fatty acids (Palmitic-, Oleic- and Stearic-acid). It is found in all cell membranes, is highly concentrated in the membrane of liver cells and adipocytes and surrounds as sphingomyeline the nerves.

It occurs naturally, for instance, in the lungs of embryos from the 4th month on. In this case it is loaded with Palmitic acid and enables the inflation and deflation of the lungs preventing them sticking together. It performs a similar function as a lubricant in the intestines to avoid adhesions.

To make phosphatidylcholine injectable it requires a solvent which also needs to be a detergent substance. In the case of phosphatidylcholine it is deoxycholic acid which is a gallic acid. Benzylalcohol in a small concentration is used as a preservative.

PPC (phosphatidylcholine, deoxycholic acid and benzylalcohol), which is injected into the subcutaneous fatty tissue with very thin needles, spreads like a table tennis ball. The double layer of the adipocyte's membrane dissolves itself and the agent, functioning like a detergent, finally produces tiny little fat particles of nano-size (one millionth of a millimetre). Simultaneously, a release of enzymes, stored in the mitochondria of the adipocyte's nucleus, takes place which break down the triglycerides into monoglycerides by means of an active enzyme cascade in the tissue over a period of eight weeks. The final step is the transportation into the liver, mostly over high density lipoproteins (HDL) and metabolization via the citric acid cycle through beta-oxidation. The endproduct is CO₂ and H₂O, a small amount (less than 1%) is excreted via the renal system in the form of very short-chained fatty acids. The histopathology shows a liquefying necrosis and, to a lesser extent, an apoptosis without forming granulation tissue, necrotic tissue and pus.

Injections into the wrong tissue, due to carelessness or lack of proper training, i.e. injections into muscular tissue or connective tissue lead to an irritation and inflammation because of a PH value of 8,2. However, a dissolution of hetero-tissue has never taken place and these side effects caused by an incorrect technique disappear after a short time.

Nerves are surrounded by sphingomyeline, which, apart from phosphatidylcholine, is the second most important phospholipid in the body. The relation between phosphatidylcholine and sphingomyeline is 70:30. Due to a different composition with long-chained fatty acids and the esterification of phosphatidylcholine on the -OH group, sphingomyeline is resistant against the detergent effect of phosphatidylcholine and deoxycholic-acid.

Phosphatidylcholine, used for aesthetic purposes, is already widely accepted in the intravenous and partially oral treatment of fatty embolism, as a liver medication and for severe disturbances in fat metabolism. The daily administered intravenous dose is many times higher than the dose used in lipodissolving treatments. The highest dosage recommended by Network Lipolysis is 2500mg phosphatidylcholine per session with a time gap between treatments of eight weeks. Depending on the body region injected, one to four treatment sessions are necessary. The majority of patients need either one (17%) or two (72%) injection sessions to achieve the desired results.

The subcutaneous use of phosphatidylcholine is still "off-label". This means that the subcutaneous injections are totally legal. The responsibility lies with the physician after having explained and discussed the treatment with the patient and a disclaimer form has been signed.

Phosphatidylcholine research boomed after the substance was first discovered in 1959 until the early eighties and was then stopped for some unknown reasons. All investigations into earlier uses of phosphatidylcholine showed excellent treatment and research results even a death cap mushroom poisoning was cured by it. The only explanation for a stop in research was a lack of interest shown by the pharmaceutical industry because the substance was too cheap and the production of statins and other substances promised higher profits. But this can surely not be a valid argument.....!

Today we can find new neurological research reports concerning phosphatidylcholine in the treatment of bipolar depression (phosphatidylcholine activates acetylcholine three times more effectively than any up to now known substance), for the treatment of the side effects of bacterial meningitis, and as an adjunct of chemotherapies. In gastroenterology it is used orally for the treatment of colitis ulcerosa and Crohn's disease, in cardiology for the treatment of coronary heart diseases and atherosclerosis, in hepatology for the treatment of

fatty liver and non-alcohol based fat liver hepatitis. The most recent use of PPC is in anti-ageing medicine as a radical catcher, as an antisclerotic agent and for cell rejuvenation.

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In the use of PPC for aesthetic medicine one has to be aware of the bounds of possibilities to melt fat accumulations. The ideal patient is of almost normal weight, exercises and practises sports and watches their diet. They small problems with fat accumulations which refuse to disappear through the measures just mentioned.

For the treatment of jowels, double chin, axillary folds, backrolls, upper arms, abdominal fat protrusions, outer and inner thighs, region above knee, cellulite and for the treatment of lipomas, the trained physician now has a safe and most effective weapon against these unwanted fat pads.

Only about 1% of all cases are stubborn and need further measures (Hypothyreosis) or surgical intervention. Lipolysis is a very good method to correct slight unevennesses after liposuccions or even before liposuccions to pretreat known problem areas around the umbilicus or the inner thighs.

The known side effects after injection-lipolysis are swelling, reddening, bruising, slight circulatory problems and increased stools during the first days after the injections. The conjured up side effects such as dents or bulges, severe allergies and necrosis or whatever have never occurred after treatments in keeping with the standards laid down by Network and should by now have become apparent after more than 60.000 documented treatments.

Altogether nine research groups have been established within Network Lipolysis which deal with different methods, regions, medicaments etc.. One of these groups deals with the detailed investigation of side effects, the observation of which was only possible by means of self treatments by mostly young people (PPC was, for example, freely available in Germany up to April 2006) or after wrongly administered injections given by untrained doctors.

In summary, it can be said that injection lipolysis using phosphatidylcholine is well developed. It is an effective and non-dangerous method in the fight against unwanted fat accumulations and has rightly won its position in aesthetic medicine. More research is on the way, more safety findings and publications are in statu nascendi and in the United States, in cooperation with partners living there, we have initiated winning the acknowledgement of the FDA.

What is Phosphatidylcholine?

March 31, 2004

The treatment with phosphatidylcholine in the context of injection lipolysis (fat dissolving injections).

Phosphatidylcholine is a phospholipid found in the cell membrane (membrane phospholipid), a chemical that is involved in cell structure and intra- and intercellular metabolism. Apart from the sphingolipids, phosphatidylcholine is the most important essential phospholipid (EPL) of mammals and is a major component of the cell membranes in the human body. Furthermore, it has an important function for intra- and intercellular metabolism.

It has primarily been used clinically for intravenous treatment of fat embolism, for lowering cholesterol levels and as a liver protective substance.

For some years now, phosphatidylcholine has also been used for subcutaneous treatments of circumscribed fat deposits at eyelids, abdominal folds, flanks, upper and lower limbs and other body areas; and the clinical results have been excellent.

Phosphatidylcholine exerts an important influence on the regulation of lipid homeostasis by producing essential components of lipoproteins..

It activates L-CAT (lecithin-cholesterol acyltransferase) which in turn initiates the transportation of excess cholesterol found in the tissue, to the liver and their transformation into bile acids.

In the lungs, phosphatidylcholine is active as a surfactant preventing the alveolar breakdown at the end of the expiration. As from the 35th week of pregnancy, a mix consisting of 90% phosphatidylcholine and 10% proteins (surfactant proteins SP-A and surfactant proteins D) is produced in the pneumocytes in the course of the foetal lung development. This spreads like a film on the alveolar surface and can be detected in bronchial secretion and amniotic fluid. It facilitates the development of the collapsed alveoli of the newborn and forms a part of the protection and self-cleaning mechanism of the bronchial system. In case of a surfactant deficiency syndrome, it is – in addition to other measures - set into the bronchial system.

Also in connection with the body's inflammatory process, phosphatidylcholine fulfils important physiological tasks, namely by means of the biosynthesis of prostaglandins, leukotrienes and thromboxanes of the arachidonic acid. Phospholipase-A2 releases arachidonic acid from the membrane lipids. Through the action of cyclooxygenase, it is turned into prostaglandin H2, the precursor of all physiological prostaglandins and thromboxanes. Due to cyclooxygenase inhibition, phosphatidyl has a prostaglandin-antagonistic effect. Phosphatidylcholine is hydrolyzed in the fatty tissue by phospholipase D and produces apolar phosphoric acid and polar cholines. Cholines have lipotropic properties and work as emulsifiers; and are components of the phospholipids.

Other effects of phosphatidylcholine are as follows:

It has a protective effect on the liver by regeneration of the liver cells; it produces a marked decrease of triglyceride synthesis and triglyceride levels; an increase in high-density lipoproteins (HDL) in cholesterol metabolism and inhibition of atherosclerotic plaques in blood vessels and their subsequent dissolution.

The classic indication for phosphatidylcholine is and continues to be the prophylaxis and treatment of fat embolisms of patients with multiple injuries.

At the end of the 80s, phosphatidylcholine was used for infiltration in xantheasmata, and this with satisfactory success. In the 90s, some physicians in Brazil started with subcutaneous injections into fat deposits under the eyelids, in the abdomen, hip and flanks. The results of these treatments of localised adiposities to improve body contours were outstanding.

Scientific research of the lipolysis mechanism of phosphatidylcholine on to human adipocytes revealed that phosphatidylcholine penetrates the adipocytes and is then, due to the impact of phospholipase D, hydrolyzed to phosphoric acid and choline. Cholines act as emulsifiers, and phosphoric acid triggers the activation of protein kinase C (PKC). The latter has the effect that lipolytic lipases – assisted by HSL (hormone sensitive lipases) hydrolyze triglycerides to become fatty acids and glycerine. With the help of lipoproteins – e.g. phosphatidylcholine is the major component of HDL - these are now transported to the liver and eliminated as bile acids.

Due to uncontrolled attempts at treatment by non-physicians the procedure of fat reduction fell into some discredit. However since it is now supported by wider scientific research and the recommendation that it is exclusively used by physicians, the treatment has experienced an unparalleled revival in Europe and the U.S.A.

Within the framework of NETWORK-Lipolysis, there is now continuing research and investigations into this treatment. This exchange of clinical experience takes place on an international level. Objections expressed by some medical colleagues are becoming less as the successes of lipodissolve injections become clearer. It is of considered of the utmost importance to reduce any abuse by non-physicians, so that standards and consistency of treatment can be assured. NETWORK-Lipolysis is training physicians in Europe, and these physicians will take part in a comprehensive follow-up study that is underway with 5,000 subjects within the framework of NETWORK-Lipolysis.

MR Dr. Franz Hasengschwandtner

Roots

August 10, 2003

Injection-Lipolysis starts in Italy, was very successful in Brasil and came back to Europe

In 1995, a female dermatologist from Brazil began treating patients with a well established liquid lecithin product; phosphatidylcholine, a chemical produced from the soya bean that has been used therapeutically for 15 years, originally for intravenous treatment of cholesterol level disorders and more recently for injections into fat deposits under the skin.

Although the results were outstanding as it is so often the case with new and simple discoveries, the professional world appeared both critical and sceptical. At the end of 2001, the American Society for Plastic Surgery published a statement arguing that surgical liposuction was the only proven method to reduce fat cells in the long run, and many considered this was based on a fear of losing patients willing to undergo liposuction.

Recently, the medical director of a world-famous dermatological hospital of New York published his overwhelming positive results, and this started a world wide increase in investigations relating to this treatment resulting in very encouraging results being reported. (Dr. Soren White, Skinklinic, Upper East Side, NY).

Similar positive results have been reported by a range of treatment centres such as the Advanced Clinical Cosmetology Centre, Harley House, London (Sir Sally Gilbert Wilson) and Skin Clinic Tampa / St. Petersburg, USA, Dr. Bayfrom.

In South and Central America there are also numerous institutes working with this technique. Approx. 8,500 patients was treated during the past years without having observed any side-effects!

In Austria, too, authorities have opposed this therapy initially due to the lack of technical information. The critical issues most frequently addressed by, for instance, the German Society for Plastic Surgery, have been the correct dosage of the pharmaceutical substance and the manner of the disposal or transportation of the dissolved fat. Recent work has clarified these areas beyond doubt.

In addition to sphingomylin, phosphatidylcholine is the most important representative of the phospholipids in the human body (EPLs = essential phospholipids). They are components of the cell membranes, and the transportation mechanism for fat in blood with lipoproteins serving as transporting proteins is well known. When processing soy beans to soybean oil, soyalecithin arises as spin-off; said soyalecithin is a phosphatidylcholine with the same molecular structure as human phosphatidylcholine. Research found a way to develop "Lipostabil" today approved and registered in Germany and 53 other countries.

Dr. Sam Baxas, Medical Center Binningen, Switzerland, developed the formula and achieved enormous successes in the field of atherosclerosis with this medicament – called "X-Plaque" there – by dissolving fat substances in the blood vessels.

Phosphatidylcholine has been used for 15 years now for intravenous treatment of cholesterol disorders.

MR Dr. Franz Hasengschwandtner