



Committed to trials of LDN as a treatment for Autoimmune Disease

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Low-dose Naltrexone (LDN) Fact Sheet 2015

Naltrexone is a class of drug known as an opiate antagonist. Its normal use is in treating addiction to opiate drugs such as heroin or morphine. The dose used for this purpose is usually between 50 and 300mg daily.

Low-dose Naltrexone (LDN) has been used in the treatment of autoimmune diseases in the USA since 1985, but is relatively new in the United Kingdom and Europe. Despite the fact that the drug is used at a very low dose, the occurrence of significant introductory or long term side effects cannot be excluded.

This method was devised and subsequently developed by the late Dr Bernard Bihari, a Neurophysician from New York, USA who passed away on May 16th 2010. Dr Bihari was qualified in Internal Medicine, Psychiatry and Neurology, and we hope to honour him by continuing with his pioneering work.

The main website is www.lowdosenaltrexone.org

Suggested Method of Therapy:

In multiple sclerosis, or similar pathologies, symptoms can often get *worse* before they get better. The reason for this is poorly understood, but is thought to relate to the underlying autoimmune response receptors being blocked– and homeostasis returning to the immune system.

In order to minimise any side effects, your doctor will usually start treatment at an ultra-low dose and increase this gradually over a period of weeks – until you are stable and side effect free.

The starting dose can vary from 0.5mg to 1.5mg – and is usually increased over 4 - 8 weeks to 4.5mg or higher. Some doctors increase this to twice daily, for certain medical conditions, but in multiple sclerosis the dosage is usually once daily.

Many websites and internet resources state that it only works if taken at nighttime, however, clinical experience over the last decade clearly demonstrates that it is as effective in the morning – with far fewer side effects.

Once starting LDN, some response is expected to be seen at 6 weeks, with maximal effects at 12 weeks.

How Naltrexone Works

In multiple sclerosis:

The benefits of the drug are possibly due to the temporary inhibition of endorphins. This results in a reactive increase in the production of endorphins, which should result in a reduction of painful symptoms and an increased sense of wellbeing.

Increased levels of endorphins should be expected to stimulate the immune system, promoting an increase in the number of T lymphocytes. This effect was observed in Dr Bihari's research. This increase in T-cell numbers apparently restores a more normal balance of the T-cells such that the effects of the disease process are significantly reduced.

It may also act directly on these immune cells to stimulate or restore normal function by blocking opiate receptors – these are now known to be directly present on a number of immune cells involved in the inflammatory pathway.

There is research currently underway, to prove the hypothesis that naltrexone modifies the immune system - by acting on a receptor called TLR. Several published papers have shown that naltrexone binds to the TLR4 receptor, and has a clinically measurable effect. This is most evident in Chron's disease and Ulcerative Colitis, as, unlike in multiple sclerosis, there are clear biomarkers which can be measured.

REF:

<http://www.ncbi.nlm.nih.gov/pubmed/22850250>

<http://www.ncbi.nlm.nih.gov/pubmed/22826216>

<http://www.ncbi.nlm.nih.gov/pubmed/23188075>

<http://www.ncbi.nlm.nih.gov/pubmed/17222320>

Overview:

In lay man's terms, no-one is really sure how LDN works – there are multiple pathways being investigated. Due to the number of biological systems affected by inhibition of receptors that LDN binds to, this is not surprising and research is ongoing in many areas. The most exciting being its apparent ability to block many auto-immune diseases, and even more excitingly being able to stop the growth or spread of some tumor types in animals.

The Use of Low-dose Naltrexone, and the Occurrence of Side Effects in Multiple Sclerosis

Many patients who start LDN do not experience any severe side effects.

As mentioned earlier, your symptoms may become worse – in MS, this can be characterised by increased fatigue, or increased spasticity. In CFS/ME, this can be the onset of apparent 'flu like symptoms.

LDN can cause sleep disturbances if taken at nighttime – this is most likely because of the increase in endorphin release. These disturbances can take the form of vivid dreams, or insomnia.

In various studies (and anecdotal accounts), the number of T-Lymphocytes has been shown to dramatically increase when a patient starts on LDN. This may account for some of the benefits patients feel when they are being treated for an autoimmune disease, or cancer. This has not been directly evidenced in multiple sclerosis.

Clinical experience shows that in less than ten percent of cases treated, increased introductory symptoms may be more severe or more prolonged than usual, lasting sometimes for several weeks. Rarely, symptoms may persist for two or three months before the appropriate beneficial response is achieved.

If side effects are troublesome, then reducing your dose by 50% for 7 days, before increasing it again, is a good idea.

Some patients, very rarely, experience gastro-intestinal side effects. Nausea and or constipation/diarrhea. The reason for this is currently unknown, but may be due to the presence of large numbers of TLR4 receptors in intestines. .

Patients experiencing this side effect can request LDN Sublingual Drops, which transfer the LDN directly into the bloodstream – avoiding the stomach area.

Patients who do have these side effects should increase their dose by no more than 0.5mg per week – and should consult with their GP or pharmacist for appropriate treatment for the stomach upset, if necessary. (Omeprazole, Ranitidine, Gaviscon, Fybogel, Mucogel and Pepto Bismol are ok – but not Kaolin & Morphine or Loperamide/Imodium.)

Types of LDN:

Liquid

Oral Liquid Formulation at 1mg/1ml is the most commonly used type of LDN. It is taken daily, and dosed using a baby oral syringe. It does not contain very high amounts of lactose or any other excipient known to cause hypersensitivity. The base is similar to children's cough syrup – so is quite palatable. Because there are so few preservatives, it should be stored in the fridge. Cost: around 50p a dose and can last for 3 months or longer. The product no longer has to be refrigerated, but it is good practice to keep the product in the fridge.

Capsules

For patients who the liquid would be impractical, there are capsules available in 3mg and 4.5mg strengths in the UK. Other strengths are available from different manufacturers – but these are made on a case by case basis. These have up to 12 months stability data and can be stored anywhere. They contain no lactose filler and are instant release. Cost: Approx £1 a dose

When asking a doctor to prescribe LDN, it is important to ask them to state “**LOWTREX -LDN**” as this will guarantee that you receive the same product, of high quality, and at the lowest available cost. This is available in 3mg and 4.5mg strengths.

Sublingual Drops

Sublingual drops are designed for patients who are having problems taking the medication orally, or for people who want to guarantee the fastest delivery of the drug into their bloodstream. A number of drops are placed under the tongue from a dropper bottle and dose is increased and decreased by the number of drops taken. There are basically no excipients in this product, trace lactose and a small amount of glycerol. Cost about £1 a dose.

Cream

LDN Cream in 0.5mg/ml is available for application to the skin. This is helpful for children, or for patients allergic to colourants – flavourants or any excipients in all other forms of LDN. It is more expensive at about £2 per dose, and lasts for 28 days only. The efficacy of this product in adults is extremely dubious – as absorption into the bloodstream is very low.

NB: Naltrexone has been investigated as a method of speeding up wound healing time – LDN Cream, unless specifically specified on the prescription, will not be sterile and cannot be used for this purpose. Check with your pharmacist first. Sterile cream will be significantly more expensive. Using non sterile cream on an open wound would be very dangerous.

Intrinsic Toxicity of the Drug:

Naltrexone, in full doses of 50-300mg, have been shown to transiently increase liver enzymes. Patients being prescribed Naltrexone for addictions must have liver function tests performed before initiating therapy.

This is not necessary with LDN – as the dose is much smaller, however, patients with advanced liver failure should consult their GP before considering treatment.

Patients with renal or liver failure should only start treatment after a consultation with their own GP or specialist, and should be monitored during the treatment initiation period. It is normal for people with poor renal or liver function to experience a transient elevation – but this usually resolves after a few weeks.

Contraindications and Special Precautions:

LDN is compatible with most other therapies. It does not directly interact with steroids, however, can negate the effect of opiate based painkillers. Patients should give their doctor a full drug history before starting therapy.

Patients, who are taking multiple medications and/or herbal medicines – especially those with cancer or advanced disease, should take careful advice from a qualified doctor or pharmacist before initiating LDN.

The LDN Research Trust retain medical and pharmaceutical advisors to assist with this process. If you are unsure whether you can take LDN on your current medication, please email us or our pharmaceutical advisor, Stephen Dickson MRPharmS. directly on:

<mailto:homedeliverypharmacy@yahoo.co.uk>

Obtaining a prescription for LDN:

*******WARNING*** DO NOT buy LDN on the internet. There is no guarantee that the drug is genuine or safe. On multiple occasions LDN purchased from the internet or from overseas has been proven to be of low quality, completely fake or otherwise dangerous.**

The only way to legally and safely obtain LDN, is via a doctor's prescription.

NHS:

Take this factsheet first to your NHS GP, LDN will pass for payment on the NHS in Scotland, England, N.Ireland and Wales when written in the following manner:

Liquid form
Rx

NALTREXONE TABLETS 50mg

SEND: 28 days supply

DIRECTIONS:

EXTEMP PREP in pharmacy to 1mg/1ml. (ref Fawcett et al)

"Take Xxml daily for 7 days, then increase by 0.5mg a week until taking 4.5mg"

Capsule
Rx

Lowtrex-LDN Capsules 3mg OR 4.5mg

Send: 28 days' supply

Directions: One daily.

As LDN is unlicensed, your own GP may refuse to prescribe it (for insurance reasons) – and you may need to go privately. **Lowtrex** is the most widely used brand in the UK and is made in the UK under "GMP" - their factory is inspected by the MHRA for safety and the product tested regularly for safety.

PRIVATE:

If your NHS GP is unable to prescribe you LDN a list of currently prescribing private doctors is available at:

www.ldn-international.com

Filling an LDN Prescription:

Prescriptions, whether NHS or Private, can be posted to:

Dickson Chemist Ltd
LDN DEPT
35 Mitchell Arcade
Rutherglen
Glasgow
G73 2LS
TEL: 0141 647 8032

to be dispensed.

email: homedeliverypharmacy@yahooco.uk

website: www.dicksonchemist.co.uk and www.homedeliverypharmacy.co.uk

The LDN is sent directly to your home – and is free if you have an NHS prescription.

If you are paying privately, liquid is around ~£18 for 28days supply, and capsules are ~£30 for 28 days supply.

Even if you have an NHS prescription, please consider sending it to Dickson's, as they only charge the NHS a minimal fee. Many other pharmacies may have it made specially and charge the NHS in excess of £150 for 28days supply.

You can also use any pharmacy of your choice – however, Dickson Chemist are by far the most experienced, least expensive and will send LDN to most EU and international destinations.

Help and support with MS can be gain via MS – UK

MS-UK was established in 1993, and is a national charity dedicated to empowering people with multiple sclerosis to make the most of today, and live life to the full.

We put people affected by MS at the heart of our work. We provide high quality, professional services to support people living with multiple sclerosis, and we listen to people affected by MS.

MS-UK

Unsworth House
Hythe Quay
Colchester
Essex
CO2 8JF

Tel: **01206 226500**

MS-UK Helpline: **0800 783 0518**

info@ms-uk.org

Visit us at www.ms-uk.org, [@MSUK6](https://twitter.com/MSUK6)

www.facebook.com/MultipleSclerosisUK

Low Dose Naltrexone - Key clinical studies

Low Dose Naltrexone has been the subject of much debate but actually very few clinical trials. Ian Zagon from Penn State University has been studying LDN for over 20 years and conducted many pre-clinical studies investigating LDN in cancer and in the animal model of MS (1,2). He has also been involved in two clinical studies into Crohn's disease with his colleague Prof Jill Smith from Penn State. These demonstrated a significant improvement in symptoms and in bowel mucosal appearance with LDN treatment (3,4). In the RCT, LDN patients were twice as likely to have a 70 point decline in the Crohn's Disease Activity Index. 78% of the LDN group achieved an endoscopic response compared to 28% with placebo.

Jarred Younger from Stanford University has studied LDN in Fibromyalgia, firstly in a small pilot study and more recently in a yet to be published randomised controlled trial. The pilot study showed significant improvement in symptoms of pain in these patients(5).

Multiple Sclerosis in one of the areas where LDN has been used the most frequently. There are three published studies, one in primary progressive MS(6) and two on quality of life (7,8). The results of two studies was positive with improved quality of life in one and reduced spasm in the PPMS study. The third showed no significant difference between the treatment and placebo groups but found the treatment to be safe. A review of the available studies into LDN and MS was published in 2009 (9). All studies have confirmed the safety of the drug and there is enough positive evidence to merit greater investigation.

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