

Information Sheet

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Chronic Cerebro-Spinal Venous Insufficiency (CCSVI)

This information sheet refers to a procedure that is currently not licensed in Ireland.

What is CCSVI?

Chronic cerebrospinal venous insufficiency (CCSVI) is a condition thought to be caused by constrictions of large veins in the neck and chest. It is postulated these constrictions reduce drainage of venous blood flow (blood with reduced oxygen returning from the brain) from the brain and spinal cord. The hypothesis suggests that, because of back pressure caused by these constrictions, blood leaks into the brain and spinal cord depositing iron which triggers an immune response.

What does the research say?

In 2009, CCSVI hits the headlines worldwide. Its interest was sparked by the following research:

- In 2009 Italian surgeon Dr Paolo Zamboni and his team carried out a small study looking at CCSVI in 65 people with all forms of MS and 235 volunteers who did not have MS. The researchers reported an association between people with MS and venous insufficiency.
- A further study from the same group in Italy examined the effects of relieving the back pressure in the veins affecting the brain by a technique called balloon dilatation, which widens the veins to let blood flow normally. They looked at 65 people with MS who had previously been diagnosed with venous insufficiency. Thirty five participants had relapsing remitting MS, 20 had secondary progressive MS and 10 had primary progressive MS.

The study, which was open-labelled (meaning that any placebo effect was not accounted for) suggested that the technique may be safe, although there was a lack of detail describing any complications arising from the procedure. The researchers found that there were more participants that remained relapse-free for a year after treatment (compared with a year before treatment), although the authors state that they did not account for other factors

such as disease modifying therapies taken during the study period. The researchers also reported a reduction in new lesions in the study, but stated that the MRI scans were not taken in a consistent manner and therefore this data must be considered preliminary.

Results from participants with progressive forms of MS were not clear and improvements observed in participants with progressive forms of MS appeared to dissipate within 18 months of the procedure.

Following on from the original research a number of research centres have failed to discover the same links between MS and CCSVI.

- Further research in early 2010 was carried out by Dr Robert Zivadinov and his team in the University at Buffalo Medical Centre, now a hub for CCSVI research. 499 participants took part in the study, 289 with MS, 163 healthy controls, 21 with clinically isolated syndrome (characterised as a neurological attack which may develop into MS) and 26 with other neurological conditions. Using Dr Zamboni's criteria for diagnosing CCSVI, Dr Zivadinov discovered that 56.1% of people with MS has venous insufficiency but 22.7% of healthy control participants also had venous insufficiency. (42.5% of those with other neurological conditions had venous insufficiency.)
- In September 2010 researchers in The London School of Medicine and Dentistry, part of Queen Mary, University of London, and University Hospital Charité, Humboldt University in Berlin, conducted a study with 76 participants; 56 with MS and 20 healthy controls. Only one person with MS met Dr Zamboni's criteria for venous insufficiency.
- In September 2010 researchers in Umea University, Sweden studied 21 patients with MS and 20 healthy controls. They found no significant difference between the two groups.

In November 2010 over 5,00 neurologists and MS researchers gathered in Sweden to attend the 2010 European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS). A number of research papers and posters were presented at the meeting. Read the overview from the National MS Society of the US <http://www.nationalmssociety.org/news/news-detail/index.aspx?nid=4057>

Does CCSVI cause MS?

There are no clear links between CCSVI and MS and while the preliminary research suggested some connection, many other researchers over the world have failed to replicate the findings of the Zamboni group. It is possible that the narrowing of veins may be consequence of having MS rather than a cause of MS.

The relationship between CCSVI and MS will only be proved through vigorous research.

What is the treatment for CCSVI and is it safe?

Balloon dilatation and stenting, which are surgical procedures that open or widen the veins, have been used in trials to improve drainage from the brain. These procedures are commonly used in cardiovascular conditions. However, in these procedures the stents or balloons are used in arteries which are larger, thicker structures. With venous insufficiency, the procedure is performed on veins which are narrower, less stable structures. This increases the risk of a number of complications traditionally associated with the procedures.

Research thus far has not proved the efficacy of this treatment in MS. Further studies will examine how useful it is when associated with treating CCSVI or MS.

Because of the lack of clinical evidence the treatment is not licensed by the EMEA in Europe or the FDA in the USA, outside of approved experimental studies. It is therefore not used in Ireland to treat MS.

Does MS Ireland support CCSVI?

MS Ireland is very interested in CCSVI research and like the MS community we serve, we hope that the research continues to build on our knowledge of MS, leading to better treatments, interventions and one day a cure.

There are 8,000 people with MS in Ireland and each uses various treatments, interventions and techniques to manage their MS. We believe people with MS have the right to make their own decisions about their treatment and management options. It is MS Ireland's role is to provide enough information for people to make informed decisions. We encourage people to read, research and speak to their healthcare team before making any decisions about treatments and interventions..

However, we do encourage a person with MS to be cautious about any treatment or technique that has not yet been proven to be safe or effective in the treatment of MS. CCSVI has not yet been proven to be effective in treating MS. Indeed the research of Dr Zamboni has not been replicated in a research setting by other reputable investigators in Sweden and Germany.

At all times we want to protect the health and well-being of people with MS and their families.

Does MS Ireland support CCSVI Research?

MS Ireland's research programme welcomes submissions from all types of researchers in all areas of MS. To date, the research committee have received no application to fund any CCSVI related research. The call for the 2010/2011 programme has just been announced and the committee will review all applications, CCSVI or other, based on their scientific merit, value to the MS community and contribution to world-wide research.

The hub of research into CCSVI is based in New York and MS Ireland believes that their research capabilities will adequately explore the area of CCSVI. However, if Irish researchers wish to contribute we will welcome any submissions.

What does the Irish medical community think about CCSVI?

MS Ireland's Medical Advisor, Dr Michael Hutchinson, Consultant Neurologist in St Vincent's University Hospital, Dublin, comments on CCSVI,

"At present the validity of CCSVI will only be proven by further double blind studies of groups of people with MS and normal healthy individuals to examine the frequency of the postulated abnormalities and to address the question as to whether treatment of these abnormal veins will prevent MS from progressing. Such studies are underway and until these studies show a relationship between CCSVI and the development of MS, the whole issue is experimental. Balloon dilatation of veins is not without risk to the individual being treated."

"The orthodox view of relapsing MS is that it is a primarily inflammatory disease process with activated white cells (lymphocytes) crossing the blood brain barrier, entering the brain and destroying myelin and oligodendrocytes (the cells which make myelin) causing plaques (lesions) which result in the symptoms of MS. One of the most powerful drugs used in MS (Tysabri/natalizumab) stops inflammation effectively, prevents relapses in MS and stops the entry of white cells into the brain by blocking the ability of those white cells to attach to capillaries in the brain. Scientific medicine has shown that one can prevent the lesions of MS from developing by thus blocking the immune system. The oral therapies, cladribine and fingolimod, recently shown to be effective for relapsing MS also act by interfering with the immune system."

"The observation of obstructed veins in 56% of patients with MS and in 26% of normal control subjects in the USA study tells us that 1) obstructed veins cannot be the explanation for all MS patients and 2) obstructed veins in some healthy subjects are apparently of no pathological significance for these individuals.

As we age the iron content of the brain increases gradually. In the brain of MS patients iron levels increase as a result of inflammation, not due to venous pressure causing bleeding into the brain. Iron accumulates in the brain in many other disorders including Alzheimer's disease and Parkinson's disease."

Source:

This information has been taken from:

- Dr Zamboni's original paper on CCSVI
<http://jnnp.bmj.com/content/80/4/392.full.pdf>
- Read the MS Society of Canada's information sheet on CCSVI
http://mssociety.ca/en/research/medmmo_20091021_faq.htm

- The Buffalo Neuroimaging Analysis Centre is leading research into CCSVI. Read their first newsletter http://www.bnac.net/wp-content/uploads/2010/02/bnac_newsletter_02-04-2010.pdf or read more information about their research. <http://www.bnac.net/>
- MSIF's CCSVI statement <http://www.msif.org/en/research/ccsvi.html>

Further Reading:

<http://www.nationalmssociety.org/news/news-detail/index.aspx?nid=4057>

<http://www.msif.org/en/research/ccsvi.html>

<http://www.ms-society.ie/news/show/ccsvi-2>

Disclaimer:

MS Ireland provides information to the MS Community on an array of topics associated with MS. This information is for reference purposes only and medical/healthcare advice should always be sought from a licensed practitioner before any treatment or intervention is tried.