

Kavnoudias Helen - Multiple Sclerosis

Name of Disorder:

Multiple Sclerosis

Essay Title:

A randomised, double-blinded, controlled study of percutaneous transluminal angioplasty for extracranial and azygos vein stenoses in patients with Multiple Sclerosis.

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27th June 2014

Content:

Project

Anecdotal evidence has shown that angioplasty of extra-cranial venous stenoses, as a simple procedure and appears to significantly improve quality of life measures in patients with MS and CCSVI in two out of three cases.

MS patients worldwide are making the decision to have the PTA procedure despite the very limited and controversial clinical evidence. This project is highly significant as it will be the first blinded and randomised clinical trial conducted to determine whether there is any benefit in performing PTA in MS patients.

Background

Multiple Sclerosis (MS), is a disease in which the insulating covers of nerve cells in the brain and spinal cord are damaged. This damage disrupts the ability of parts of the nervous system to communicate, resulting in a wide range of signs and symptoms, including physical, mental

and sometimes psychiatric problems. MS takes several forms, with new symptoms either occurring in isolated attacks (relapsing forms) or building up over time (progressive forms). Between attacks, symptoms may disappear completely. However, permanent neurological problems often occur, especially as the disease advances.

While the cause is not clear, the underlying mechanism is thought to be either destruction by the immune system or failure of the myelin producing cells. Proposed causes for this include genetics, vascular and environmental factors such as infections.

There is no known cure for Multiple Sclerosis. Treatments attempt to improve function after an attack and prevent new attacks. Medications used to treat MS while modestly effective can have adverse effects and be poorly tolerated. Many people pursue alternative treatments, despite a lack of evidence.

Zamboni et al recently reported that a significant number of patients with MS have stenoses of the veins draining the head and spine. They named the finding Chronic Cerebro-Spinal Venous Insufficiency (CCSVI).¹⁻⁸ They found stenoses in Internal Jugular Veins (IJVs), the azygos vein and abnormalities in the valves of the IJV.

They postulated that angioplasty, a treatment commonly used by interventional radiologists and cardiologists to treat stenoses of diseased arteries and blocked veins, may also benefit MS patients. They reported a case series of sixty-five MS patients, assessing the value of Percutaneous Transluminal Angioplasty (PTA) treatment of the stenosed veins.⁹ They found that PTA was safe and in patients with early stage MS or Relapsing Remitting MS(RRMS), clinical and quality of life parameters were significantly improved when compared with preoperative assessments. There was no parallel control group in this study, consequently any possible procedural placebo affect could not be measured.

Objectives

The objectives of this study are to determine whether PTA treatment can restore blood flow through these vessels and whether this can relieve the negative effects suffered by MS patients.

In doing so we hope to provide a viable and valuable alternative to pharmaceuticals and provide new opportunities to greatly improve quality-of-life in at least two-thirds of MS patients.

Significance

Over 23,000 Australians are diagnosed with Multiple Sclerosis (MS) and it is estimated that a further 1,000 are diagnosed each year. 2.5 million people are affected by MS worldwide. The average age of diagnosis is 30 and most sufferers can expect to live a near normal life span, making Multiple Sclerosis a long term and expensive condition to treat. In 2010 it was estimated that the cost of MS per person was \$48,945 bringing the overall burden of MS to over \$1.125 billion annually. Recent MS drug approvals on the Pharmaceutical Benefits Scheme can be expected to increase these costs considerably with new oral medications at

three times the cost of existing injectable treatments. For progressive forms of MS there is currently no treatment.

42 people with MS and venous abnormalities were treated in a pre-trial at The Alfred in 2010 and patients reported improvements in vision, mobility, balance, fatigue, cognition and heat tolerance amongst other things. Such functional improvements were reported that people were returning to full time work and made decisions to start families. This was enough evidence to warrant further investigation. However, in the meantime access to this treatment has been halted until a randomised, double-blinded, controlled trial (RCT) is completed to show safety and efficacy. This research has the potential to improve the quality of life of 23,000 Australians.

Of 34 people who have been tested in this trial since September 2012, 27 have shown to have significant venous abnormalities, showing a trend that 80% of people with MS may be affected.

If our hypothesis is correct, we would expect to find an improvement in vision, mobility, balance, fatigue, cognition and heat tolerance as measured by the EDSS, MSFC, MSQoL-54 and CogState tests. Small scale studies have also documented an improvement following angioplasty, but in the absence of an RCT, it is impossible to evaluate the true efficacy of this treatment. Consequently, the outcomes of this trial will allow us to determine whether angioplasty for venous abnormalities in people with Multiple Sclerosis is a viable alternative to current treatments, and further, whether it may offer additional benefits that current pharmaceutical approaches cannot.

Given the current scheduled fee on Medicare for this treatment is approx. \$1,300 (compared with approx. \$48,000 pa for recently approved MS drugs on the PBS) it could offer potential savings to our public health system.

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