Autonomic signaling in chronic cerebrospinal venous insufficiency: A perivascular approach for vasodilation of the jugular vein

INTRODUCTION

Multiple sclerosis (MS) is a disease characterized by demyelination of axons and chronic inflammation in the cerebral and spinal parenchyma. It can be caused by any age and is usually a disease of young adults. MS has several forms, though most people have the relapsing and remitting inside of the disease. Currently, the pathogenesis of autonomic nerve disorders remains controversial, but animal and human studies suggest that autonomic disorders, such as diabetes, hypertension, obesity, and cardiovascular disease, may contribute to the development of chronic cerebrospinal venous insufficiency (CCSVI) and the speculative nature of the research.

Patients were selected randomly by using an extra baseline and at random to the treatment group. The study had ethical approval from the institutional review board and the patients or their legal guardians signed informed consent forms. All patients agreed to participate in follow-up visits and communication for a sum of 12 months, and agreed to give the medical treatment of the study.

The study had no undisclosed costs.

Exclusion Criteria

Outcome and Statistical Results

Between June 2013 and December 2014, four patients qualified for the treatment. Two patients were women, and two were men. One patient was a 52-year-old white female with early neurologic symptoms of MS diagnosed at our lab. The MS of her brain was confirmed by the neurologist in January 2013, and the patient was referred to our hospital. On March 2, 2013, our team completed the patient's baseline studies of right external carotid Doppler studies to four in subsequent weeks; the patient was then referred to our hospital. The patient was a 57-year-old white female with early neurologic symptoms of MS diagnosed at our lab. The MS of her brain was confirmed by the neurologist in January 2013, and the patient was referred to our hospital. On March 2, 2013, our team completed the patient's baseline studies of right external carotid Doppler studies to four in subsequent weeks; the patient was then referred to our hospital. The patient was a 52-year-old white female with early neurologic symptoms of MS diagnosed at our lab. The MS of her brain was confirmed by the neurologist in January 2013, and the patient was referred to our hospital. On March 2, 2013, our team completed the patient's baseline studies of right external carotid Doppler studies to four in subsequent weeks; the patient was then referred to our hospital. The patient was a 57-year-old white female with early neurologic symptoms of MS diagnosed at our lab. The MS of her brain was confirmed by the neurologist in January 2013, and the patient was referred to our hospital. On March 2, 2013, our team completed the patient's baseline studies of right external carotid Doppler studies to four in subsequent weeks; the patient was then referred to our hospital.

CASE REPORT AND RESULTS (CONT’D)

Study Population

The index date for the study period is defined as the day that the first patient was diagnosed by reviewing the medical records for MS and MS patients in our clinic setting. All patients had already received a diagnosis of MS from the University of California, San Francisco, and had been followed at the UCSF Clinical Neurology and Immune Disease Center, a tertiary referral center for patients with MS.

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