

**Official title: The efficacy of normobaric oxygen on chronic cerebral ischemia**

**NCT number: NCT03745092 (<http://www.clinicaltrials.gov>)**

**Date: December 1, 2018**

### **Informed Consent**

Dear patients

Thank you so much for participating the clinical trial ‘The efficacy of normobaric oxygen on chronic cerebral ischemia’ (NCT03745092, <http://www.clinicaltrials.gov>) and we will introduce the trial design comprehensively before your enrollment. Please read the following informed content carefully in order to safeguard your rights and interests.

### **Background**

Chronic cerebral ischemia (CCI) is viewed as an alarming state induced by long-term reduction in cerebral perfusion, which is associated with neurological deficits and high risk of stroke occurrence or recurrence. CCI accounts for a large proportion in both outpatient and inpatient subjects with cerebrovascular disease, while the treatment of CCI remains a formidable challenge to clinicians. Normobaric oxygen (NBO) is an adjuvant hyper-oxygenation intervention supplied with one atmosphere pressure (1ATA=101.325kPa). A plethora of studies have demonstrated the efficacy of NBO on the penumbra in acute stroke. NBO has been shown to increase oxygen pressure, raise intracranial blood flow, protect blood-brain barrier and enhance

neuro-protective effects. As the similar underlying mechanisms shared by the penumbra in stroke and the ischemic-hypoxic brain tissues in CCI, the investigators speculate that NBO may serve as a promising therapeutic strategy for attenuating short-term symptoms or improving long-term clinical outcomes amongst patients with CCI.

## **Design**

The purpose of this randomized control study is to investigate the efficacy of NBO on CCI induced EEG anomalies, so as to provide a brand-new effective approach to treat CCI in the clinical settings. We plan to enroll a total of 50 participants who are confirmed as intracranial arterial stenosis and/or internal carotid arterial stenosis in this study.

All of the enrolled patients should comply with the following criteria.

Inclusion criteria: (1) age from 18 to 80 years; (2) ICAS and/or ECAS confirmed by imaging; (3) NIHSS $\leq$ 3 and mRS $\leq$ 2; (4) signed the informed consent.

Exclusion criteria: (1) brain infarction occurrence within recent two months; (2) intracranial arterial aneurysm, dissection or malformation; (3) history of cerebral hemorrhage or subarachnoid hemorrhage; (4) brain trauma; (5) other brain injury or disorders; (6) austere diseases such as cancer, heart failure, respiratory failures; (7) respiratory diseases; (8) severe liver and kidney dysfunction, (9) poor compliance.

The participants will undergo 30-minute EEG recording two times. Between the two time recordings, they will be randomly performed with NBO (received oxygen

supplement with 8L/min, via Venturi mask, maintaining 45min) and rest (had a rest like lying, sitting or walking for 45min), which are labeled NBO group and control group in this study. The participants should keep awake during the EEG recording process possibly. You also can select to undergo NBO performance for a long run. If so, you will be provided a oxygen equipment with 5L/min oxygen supplement, via simple mask, 45 minutes per time, 3 times daily. After undergoing the long-term oxygen therapy, the follow-up EEG recordings will be conducted as the procedure describe above.

The safety measurement: NBO related adverse events such as respiratory diseases and arrhythmia and any major discomfort (Previous reports have indicate that the rate of adverse events of NBO is low, moreover the oxygen supplement strategies in this study is very conservative).

Primary outcomes: The fronto-central theta and delta absolute power reduction rate presented in the EEG maps.

Secondary outcomes: Other quantitative EEG measurements such as relative power, power ratio index and wavelet entropy presented in the EEG maps.

### **Suitable people**

The patients who are confirmed as intracranial arterial stenosis and/or internal carotid arterial stenosis

### **Unsuitable people**

The patients with brain infarction occurrence within recent two months; intracranial arterial aneurysm, dissection or malformation; history of cerebral hemorrhage or subarachnoid hemorrhage; brain trauma; other brain injury or disorders; austere diseases such as cancer, heart failure, respiratory failures; respiratory diseases; severe liver and kidney dysfunction.

### **Your rights and interests**

You will know the rationale and the design of this study comprehensively before enrollment. The participation is a completely voluntary act. If you have any questions, please do not hesitate to contact us. During the study, you will obtain a good service and the EEG performance will be free of charge. If you want to drop out, you can tell us anytime. It will not affect our nice service and will not harm your interest as well. As you have any oxygen supplement related adverse events and complain of any discomfort during the study, you will be withdrew from the study and the cost of the treatment will be free.

### **Adverse events**

Mainly include oxygen supplement related adverse events such as respiratory diseases and arrhythmia and any major discomfort. Previous reports have indicate that the rate of adverse events of NBO is low, moreover the oxygen supplement strategies in this study is very conservative. If you have any oxygen supplement related adverse events and complain of any discomfort during the study, you will be withdrew from the study

and the cost of the treatment will be free.

### **Confidentiality agreement**

All of the information about your diseases and treatment strategies will be kept strictly confidential when allowed by law.

### **Publication**

Whatever the results are, this study will be published and the dataset will be uploaded.

Thank you so much for your patience. If you decide to participate this clinical study, please contact us, the doctor will arrange all of the clinical work for you.

Participant Sign:

Investigator Sign:

Date: