

Project Title: "Diagnostic Markers of the Visual Snow Syndrome"

Recipient: Antonia Klein

Esteemed Members of the Swiss Headache Society,

In November 2022, I was honoured to receive the SKG Hansruedi Isler grant for our project focusing on the diagnostic markers of Visual Snow Syndrome (VSS). This grant has played a pivotal role in the implementation of our project, enabling us to compensate study participants and fund essential components like our database and equipment. The project is an integral part of a larger study titled "Diagnostic Markers and Neuromodulatory Treatment Approach with Transcranial Alternating Current Stimulation for the Visual Snow Syndrome," conducted under the guidance of Prof. Dr. med. Christoph Schankin.

Project Overview:

Our primary objective in this prospective controlled cohort study is to deepen our understanding of the underlying pathophysiology and to find specific diagnostic markers of VSS. We aim to recruit 20 patients with Visual Snow Syndrome and a control group matched for age, sex, and migraine. In this project, we are conducting visual tests and EEG recordings. We have designed visual tasks measuring the participants' reactions to unexpected stimuli (during the odd-ball paradigm), including parameters of vegetative reactions (heart rate change) and the evoked mismatch potential. On the other hand, we also created visual discrimination and detection tasks, with an attempt to measure the visual impairment caused by the perception disturbances. All participants receive an EEG at rest and during the tasks to assess changes in oscillatory patterns during testing. After our presentation at the annual meeting of the Swiss Headache Society in 2022, we also decided to include short photic stimulation ("Chirp") as a potential correlate of cortical hyperresponsivity, which was proposed by Prof. Dr. med. Gantenbein, who has also supported us in implementing this test.

Current Status:

Before initiating the project, we obtained approval from the ethics committee and, in addition, the competent authorities (Swissmedic), which was necessary since the planned intervention with transcranial alternating current stimulation (tACS) is not CE marked. Through this process, some changes were made to our initial proposal, particularly concerning the therapeutic (second) part of the study. These adjustments included implementing a sham condition and introducing more stringent inclusion and exclusion criteria, which has an influence on the recruitment of study participants. After obtaining approval, we prepared the laboratory at the Department of Psychology in Bern and finally included our first participant in 06/23.

We have enlisted several potential participants from our outpatient department in Bern and received support from the self-help group Visual Snow Germany e.V. So far, we have successfully included 7 patients with VSS and 8 controls. Our aim is to reach a total of 10 participants per group by 01/24 and complete the recruitment by 10/24, followed by the data analysis. Should the results of this pilot project indicate that our diagnostic markers are useful or the therapeutic approach beneficial, we would like to explore and improve these findings further in a bigger follow-up study.

The support from the SKG Hansruedi Isler grant has been instrumental in this project, enabling us to conduct this research and hopefully advance our understanding and approach to this complex migraine-related disorder.

Sincerely, Antonia Klein