AMURA with single-shell acquisitions detects additional white matter properties compared to the Diffusion Tensor in patients with persistent headache after COVID-19

Álvaro Planchuelo-Gómez[1], Rodrigo de Luis-García[1], David García-Azorín[2], Ángel L Guerrero[2], Antonio Tristán-Vega[1], Santiago Aja-Fernández[1]

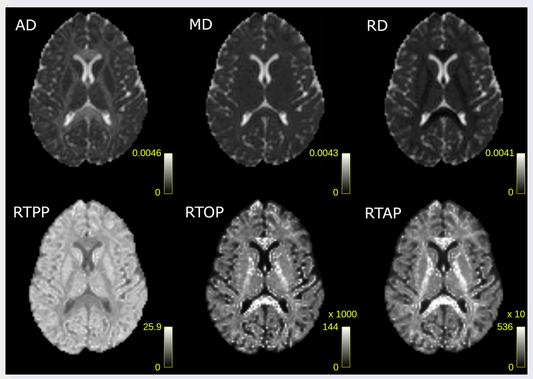
1. Imaging Processing Laboratory, Universidad de Valladolid, Valladolid, Spain
2. Headache Unit, Department of Neurology, Hospital Clínico Universitario de Valladolid, Valladolid, Spain

INTRODUCTION

COVID-19: **Headache** is the most frequent neurological symptom, including long-term effects

Objective: Evaluate the white matter structural properties of patients with persistent headache after COVID-19

METHODS



- Sample: 10 patients and 10 healthy controls (age: 42-65 years, 9 women per group)
- DTI measures: FA, AD, MD, RD
- AMURA measures: RTAP, RTOP, RTPP
- Comparison via TBSS

CONCLUSIONS

COVID-19 headache: Possible association with **axonal alterations** (barriers in axial orientation)

AMURA: Detection of additional microstructural changes compared to DTI in suboptimal conditions (single-shell)

RESULTS

AD: COVID-19 $>$ Controls (HC) in 5 regions

RTPP: COVID-19 $<$ Controls (HC) in 11 regions