in CA2, 18 (10.1%) were in CA3/CA4, and 27 (15.2%) were in dentate gyrus. Along the longitudinal axis, hippocampal electrodes were most commonly implanted in the body (92; 51.7%) followed by the head (86; 48.3%). **Conclusions:** 7T MRI enables high-resolution anatomical imaging on the submillimeter scale in *in vivo* subjects. Here, we demonstrate the utility of 7T imaging for identifying the relative location of SEEG electrode implantations within hippocampal substructures for the invasive investigation of epilepsy.

P.064

Preoperative mapping using fMRI and DTI: a multimodal approach to assessing language dominance

L Gould (Saskatoon) M Kelly (Saskatoon) C Ekstrand (Saskatoon) T Ellchuk (Saskatoon) R Borowsky (Saskatoon)*

doi: 10.1017/cjn.2018.166

Background: Language mapping is a key goal in neurosurgical planning. With the discontinuation of the Wada test in Canada, neurosurgeons often rely on fMRI and intraoperative techniques for determining language lateralization. Recent studies have also evaluated the utility of diffusion tensor imaging (DTI) for preoperative language lateralization, but further research is needed to confirm its efficacy. We report a patient with a left frontal AVM. fMRI and DTI was used to localize language and motor functioning. **Methods:** The tasks included word reading, picture naming, pseudohomophones (e.g., dawg) and semantic questions. All fMRI analyses were performed using BrainVoyager. Tensors were tracked from 30-direction diffusion MR images using DSI-Studio. **Results:** The fMRI results revealed consistent Broca's and Wernicke's areas, confirming left hemisphere dominance. There was also a region of activation in the precentral gyrus near the surgical resection. The results were loaded onto the neuronavigation system to help determine safe surgical margins. The DTI results revealed that the left arcuate and uncinate fasciculus had three times more tracts than the right hemisphere, further supporting left hemisphere dominance. **Conclusions:** This case highlights the value of a combined, multimodal approach for preoperative language localization, which will further enhance surgical safety by helping preserve regions for essential brain functions.

P.066

Cortical autonomic patterns in Neurogenic Orthostatic Hypotension

J Baker (London) JR Paturel (London) K Kimpinski (London)*

doi: 10.1017/cjn.2018.168

Background: Neurogenic orthostatic hypotension (NOH), defined as a drop in systolic blood pressure (SBP) ≥30mmHg on standing or head-up tilt, is associated with autonomic dysfunction. The cortical autonomic network (CAN) is a network of brain regions associated with autonomic function. Our aim was to investigate CAN activation patterns in NOH patients during autonomic testing. **Methods:** Fifteen controls (61±14 years) and 13 NOH patients (68±6 years;p=0.1) completed: 1)Deep Breathing (DB), 2) Valsalva maneuver (VM) and 3)Lower-body negative pressure (LBNP) during a functional MRI. Blood-oxygen level dependent (BOLD) contrasts were obtained and contrasted. **Results:** Compared to controls (C), patients (NOH) had significantly smaller heart rate (HR) responses to DB (C:15.3±9.6 vs.NOH:6.0±2.2) and VR's (C:2.1±0.47 vs.NOH:1.2±0.1;p<0.001). Patients had larger SBP drops during LBNP (C: -22.3±6 vs.NOH: -61±22) with significantly smaller compensatory tachycardias (19±8.5 vs.7.6±4.3)(p<0.001). BOLD response: During VM, controls had greater activation in the right (R) hippocampus (T-value:7.34), left (L) posterior cingulate (T-value:7.22) bilateral mid-cingulate (TR-value:5.76; TL-value:6.84) and bilateral thalamus (TR-value:7.23, TL-value:8.16) (pFWE<0.001). Following subtraction analysis, brain activation patterns showed no significant differences in the regions of interest in response to DB and LBNP. **Conclusions:** During tests of autonomic function, NOH patient had different cortical activation patterns during VM only. Cortical activation pattern during DB and LBNP showed similar patterns to that of controls.

P.067

Phosphoserine aminotransferase (PSAT) deficiency: Imaging findings in a child with congenital microcephaly

G Shapira Zaltsberg (Ottawa) H McMillan (Ottawa) E Miller (Ottawa)*

doi: 10.1017/cjn.2018.169

Background: Serine deficiency disorders can result from deficiency in one of three enzymes. Deficiency of the second enzyme in the serine biosynthesis pathway, 3-phosphoserine aminotransferase (PSAT), has been reported in two siblings when the eldest was investigated for acquired microcephaly, progressive spasticity and intractable epilepsy. **Methods:** Our patient had neurological symptoms apparent at birth. Fetal magnetic resonance imaging (MRI) at 35 weeks gestation demonstrated microencephaly and simplification of the the gyration (anterior>posterior) which was confirmed upon subsequent post-natal MRI. Congenital microcephaly was apparent at birth. **Results:** PSAT deficiency was confirmed when exome sequencing identified biallelic mutations in *PSAT1*; c.44C>T, p.Ala15Val and; c.432delA, p.Pro144fs and biochemical testing noted low plasma serine 22 mcmol/L (normal 83-212 mcmol/L) and low CSF serine 10 mcmol/L (normal 22-61 mcmol/L). Despite oral serine and glycine supplementation at 4 months old the patient showed little neurodevelopmental progress and developed epileptic spasms at 10 months old. Serological testing for TORCH infections was negative. **Conclusions:** PSAT deficiency should be considered for patients with congenital microcephaly. Although further characterization of MRI findings in other patients is required, microencephaly with simplified gyral pattern could provide imaging clues for this rare metabolic disorder.

P.068

Hippocampal volume may predict early non-response to surgery in Trigeminal Neuralgia

H Danyluk (Edmonton) C Elliott (Edmonton) M Wheatley (Edmonton) R Broad (Edmonton) T Sankar (Edmonton)**

doi: 10.1017/cjn.2018.170

Background: Surgical treatment of trigeminal neuralgia (TN) can be highly effective, but durability of pain relief varies and factors influencing surgical failure are poorly understood. We hypothesized that structural brain differences—assessed using magnetic resonance

https://doi.org/10.1017/cjn.2018.166 Published online by Cambridge University Press