

live affected male being born, after parents proceeded with the pregnancy.

Conclusion Rigorous and expansive approaches to cascade-screening/counselling may account for decreases in preventable cases. Age of diagnosis has fallen, providing potential for more timely intervention, aided by newer diagnostic techniques that allow more accurate proband genotyping. Prenatal testing identified small numbers of affected males, facilitating parental decision-making in these select cases.

024

RESISTANCE EXERCISES WITH BLOOD FLOW RESTRICTION IN PATIENTS WITH SPORADIC INCLUSION BODY MYOSITIS

¹Christina Liang*, ¹Melanie Burk, ¹Abby Wall, ²Ryan Davis, ¹Libby Augustine, ¹Sarah Bright, ¹Whitney Brown, ¹Anneliese Harris, ¹Sarah Holmes, ¹Sayanthinie Jeyalingam, ¹Sarah Large, ¹Sylvia Mai, ¹Eleanor Raper, ¹Hang Wah Judith Wong, ¹Pok Man Wong, ^{1,2}Carolyn M Sue, ¹Barbara Lucas. ¹Royal North Shore Hospital, St Leonards, NSW, Australia; ²Kolling Institute of Medical Research, St Leonards, NSW, Australia

10.1136/jnnp-2019-anzan.23

Introduction Sporadic inclusion body myositis (sIBM) is the most common muscle disease affecting older adults with no disease-modifying treatment. Resistance exercises increase muscle hypertrophy, but weakness prevents exercising with higher resistance. In healthy subjects, augmentation of light-load training with blood flow restriction improved muscle strength¹; and similar exercises were safe in the elderly.² We therefore investigate whether resistance exercises with blood flow restriction is safe and helpful in sIBM patients. We explored methods for exercising weak leg muscles, and options for better outcome measures.

Methods A matched-control pilot study, with 12-week treatment and 4-week follow-up periods, where participants concentrated on lower limbs resistance exercises with 50% blood flow restriction 3 times/week, at 20%-30% of their repetition maximum. Patients are reviewed 4-weekly for muscle strength, blood biomarkers, 2-minute walk test (2MWT), timed up-and-go (TUG) test, minimal chair height standing ability test (MCHSAT), thigh girths, and quality of life scales.

Results 4 patients with varying abilities were on the exercise arm, and 3 acted as controls. Muscle groups with MRC score ≥ 2 were able to be exercised. We found strength testing by hand-held dynamometer was unreliable, whereas the 2MWT, TUG test and MCHSAT showed less variability. All patients could perform their exercises at significantly increased repetitions or weights by week 4, without concerning adverse events, with trend towards continued improvement over the 4-month period.

Conclusion Resistance exercises with blood flow restriction appear safe, and may be helpful in sIBM patients, even in weakened muscles, enabling improvement in muscle strength and endurance.

REFERENCES

- Hughes L, Paton B, Rosenblatt B, Gissane C, Patterson SD. Blood flow restriction training in clinical musculoskeletal rehabilitation: a systematic review and meta-analysis. *Br J Sports* 2017.
- Vechin FC, Libardi CA, Conceicao MS, et al. Comparisons between low-intensity resistance training with blood flow restriction and high-intensity resistance training on quadriceps muscle mass and strength in elderly. *J Strength Cond Res* 2015.

025

THE UTILITY OF NERVE BLOOD FLOW IN THE ASSESSMENT OF PERIPHERAL NEUROPATHY

^{1,2}Adeniyi Borire*, ¹Tushar Issar, ³Natalie Kwai, ⁴Leo Visser, ⁵Ann Poynten, ⁶Neil Simon, ⁷Matthew Kiernan, ¹Arun Krishnan. ¹Prince of Wales Clinical School, UNSW, Sydney, NSW, Australia; ²Liverpool Hospital, Sydney, NSW, Australia; ³School of Medical Sciences, UNSW, Sydney, NSW, Australia; ⁴St Elisabeth Ziekenhuis, Tilburg, Netherlands; ⁵Department of Endocrinology, Prince of Wales Hospital, Sydney, NSW, Australia; ⁶St Vincent's Clinical School, University of New South Wales, Sydney, NSW, Australia; ⁷Brain and Mind Centre, Sydney, NSW, Australia

10.1136/jnnp-2019-anzan.24

Introduction Animal and human studies of diabetes have shown significant alterations in nerve blood flow (NBF), which may also play a role in the development of neuropathy. However, the non-invasive assessment of NBF in human subjects has remained elusive until the recent technological advancements in ultrasound (US) technology. We undertook sonographic assessment of NBF in 75 patients with type 2 diabetes and correlated the findings with neuropathy severity scores and electrophysiological parameters.

Methods Blinded median and tibial nerve ultrasound scans were performed at non-entrapment sites using a high-resolution linear probe. NBF was quantified using power Doppler techniques to obtain the vessel score (VSc) and maximum perfusion intensity (MPI). Routine nerve conduction studies were performed, and neuropathy severity was assessed using the total neuropathy score (TNS). Aged- and gender-matched controls were enrolled.

Results Diabetic nerves had higher rates of NBF detection (28%) compared to the control group ($p < 0.0001$). Significant correlations were found between NBF parameters and nerve size ($p < 0.001$), reported sensory symptoms ($p < 0.05$) and neuropathy severity scores ($p < 0.001$). The cohort with diabetes had significantly larger median ($8.5 \pm 0.3 \text{ mm}^2$ vs. $7.2 \pm 0.1 \text{ mm}^2$, $p < 0.05$) and tibial ($18.0 \pm 0.9 \text{ mm}^2$ vs. $12.8 \pm 0.5 \text{ mm}^2$, $p < 0.05$) nerves compared to controls.

Conclusions Peripheral nerve hypervascularity is detectable by US in moderate to severe diabetic neuropathy with prominent sensory dysfunction. Consistent with previous studies, the sonographic detection of NBF is a pathological finding.

026

VARIATION IN THE ANATOMY OF THE NORMAL HUMAN OPTIC CHIASM: AN MRI STUDY

^{1,2}Christian J Lueck*, ²Nicholas Bosler, ³Andrew Neely, ⁴David Ashton. ¹Department of Neurology, The Canberra Hospital, Canberra, ACT, Australia; ²Medical School, Australian National University, Canberra, ACT, Australia; ³School of Engineering, University of New South Wales, Canberra, ACT, Australia; ⁴Department of Radiology, Canberra Hospital, Canberra, ACT, Australia

10.1136/jnnp-2019-anzan.25

Introduction Compression of the optic chiasm gives rise to bitemporal hemianopia. The reason for this is unclear, but one hypothesis suggests it relates to the fact that nasal retinal fibres cross each other while temporal fibres do not. This 'crossing' hypothesis has been investigated using finite element modelling but this requires accurate anatomical data. The precise shape of the chiasm is not clear: nasal fibres may not decussate centrally (as if the chiasm were 'X'-shaped) but, instead, decussate paracentrally and run

parallel to each other in the central arm of an 'H'. This study aimed to determine the population variance in chiasmal shape.

Methods 68 MRI scans of healthy individuals without visual abnormality were randomly selected. A 2D image was created and images were analysed using AutoCAD software to determine the offset between lines drawn down the centres of the optic nerves and contralateral optic tracts. A positive offset would suggest an 'H' shape while an 'X'-shaped chiasm would have a offset of 0.

Results The mean width of the chiasm was 12.0 mm, and the mean offset was 4.7 mm generating a mean offset:width ratio of 0.38. No chiasm had an offset of zero. Fibre crossings occurred approximately 2.35 mm lateral to the midline, and nasal (crossing) fibres travelled an average of 4.7 mm in the mediolateral plane before entering the contralateral optic tract.

Conclusions The human optic chiasm is H-shaped, not X-shaped. This information will inform future models of chiasmal compression.

027 WILL REFRACTORY PATIENTS RESPOND TO ERENUMAB IN THE REAL WORLD?

¹Bronwyn Jenkins*, ²Shuli Cheng, ³Elsbeth Hutton. ¹Neurology, Royal North Shore Hospital, St Leonards, NSW, Australia; ²Neurology, Alfred Hospital, Melbourne, VIC, Australia; ³Neurology, Alfred Hospital, Monash University, Melbourne, VIC, Australia

10.1136/jnnp-2019-anzan.26

Introduction Erenumab has been studied in Randomised Controlled Trials (RCT), with stricter exclusion criteria than real world populations.

Methods 65 patients from two Australian headache centres on Erenumab had primary outcomes of $\geq 50\%$ response in monthly migraine days (MMD) and monthly headache days (MHD), compared to their demographics, frequency, duration of Chronic Migraine (CM), failed prophylactic medications, severity scores and medication overuse headache (MOH).

Results 35% (23/65) had daily headaches, with $\geq 50\%$ MHD and MMD reduction in this subgroup of 17% (4/23) and 65% (13/20), respectively. Duration of CM was >10 years in 48% (29/61), with $\geq 50\%$ MHD and MMD reduction in 28% (8/29) and 48% (13/27), respectively. 100% (64/64) had failed > 3 prophylactic medications with $\geq 50\%$ MHD and MMD reduction in 30% (19/64) and 47% (27/58), respectively, with reducing rates of $\geq 50\%$ MMD reduction if >5 (29%; 17/58) and >10 (22%;2/9). 95% had high severity scores (HIT-6 score >60), with a $\geq 50\%$ MMD reduction in 43% (23/54). MOH occurred in 41% (24/58) for triptan and 29% (17/58) for codeine medications, with a $\geq 50\%$ MMD reduction in 71% (17/24) and 41% (7/17), respectively (all groups $p>0.05$).

Conclusion This real world cohort treated with Erenumab included patients that would be excluded from RCT analysis- including more chronic, frequent, severe and refractory migraine. Despite this, there were still $\geq 50\%$ responders in more severe subgroups, particularly daily headache, high

severity scores and triptan MOH. Measuring MMD may be more sensitive for assessing improvement than MHD.

Poster abstract

028 DELAYED CT IMAGING LEADING TO DELAYS IN ACUTE STROKE MANAGEMENT IN REGIONAL AUSTRALIA

Udit Nindra*, Toni M Wonson, Karen Fuller. Neurology Department, Wollongong Hospital, Wollongong, NSW, Australia

10.1136/jnnp-2019-anzan.27

Introduction Urgent CT imaging is crucial for acute stroke management to allow for timely thrombolysis and early referral to a peripheral endovascular thrombectomy (ECR) service. Delays in CT imaging are suspected to correlate with lengthening door-to-needle time (DNT) and arrival-to-referral time (ART) in regional Australia.

Methods and results We retrospectively analysed 656 acute stroke admissions between 2016 and 2018 to determine mean DNT and ART in addition to influencing factors such as age, gender, onset to arrival time & baseline National Institute of Health Stroke Scale (NIHSS) score. Over 3 years, 70 patients underwent thrombolysis and 56 ECR. The mean DNT was 108 minutes with mean arrival to CT time of 30 minutes. Multiple linear regression displayed a positive correlation between arrival to CT time and DNT ($p<0.01$). For every 10-minute delay in CT imaging, there was a 6-minute delay in DNT (95% CI 2 – 11 minutes). The mean ART was 150 minutes. A positive correlation was again seen between ART and arrival to CT Time ($p=0.02$). For every 10-minute delay in CT imaging, there was a 9-minute delay in ART (95% CI 1 – 16 minutes).

Conclusions It is known that early initiation of both thrombolysis and ECR are associated with positive patient outcomes. There is a need to reduce time taken to complete CT imaging in regional Australia, as it is clearly shown to be associated with lengthened time for treatment initiation and timely referral. Reduction in this arrival to CT time will likely improve patient outcomes.

029 TIME EQUALS BRAIN – RETROSPECTIVE ANALYSIS OF THROMBOLYSIS IN REGIONAL AUSTRALIA TO DETERMINE FACTORS WHICH INFLUENCE DOOR TO NEEDLE TIME

Udit Nindra*, Toni M Wonson, Karen Fuller. Neurology Department, Wollongong Hospital, Wollongong, NSW, Australia

10.1136/jnnp-2019-anzan.28

Introduction Minimising delay in thrombolysis is a key outcome in acute stroke care.

Methods A 3 year retrospective cohort analysis of all acute stroke admissions in Wollongong Hospital, a major regional referral centre in New South Wales, was completed to determine the causes of in-hospital delays for