

2018-01

Abstracts for Department Publications (if available)

Gitman, M. and M. J. Barrington (2018). "Local Anesthetic Systemic Toxicity: A Review of Recent Case Reports and Registries." *Reg Anesth Pain Med* 43(2): 124-130.

This review summarizes presenting features, management, and outcomes of local anesthetic systemic toxicity (LAST) from published cases and those submitted to online registries capturing use of intravenous lipid emulsion (ILE) therapy. The results of single-center and multicenter registries and epidemiologic studies complement this information. Between March 2014 and November 2016, 47 separate cases of LAST were described in 35 peer-reviewed articles. Local anesthetic systemic toxicity events occurred as a result of penile blocks (23%), local infiltration (17%), and upper/lower extremity, torso, and neuraxial blockade. Twenty-two patients (47%) were treated with ILE, and 2 patients (4.3%) died. During the same time period, 11 cases submitted to lipidrescue.org were treated with ILE and survived. The incidence of LAST reported in registries is 0.03% or 0.27 (95% confidence interval, 0.21-0.35) per 1000 peripheral nerve blocks (denominator of 251,325). Seizure (53% and 61% from case reports and registries, respectively) was the most common presenting feature.

Doecke JD, Rembach A, Villemagne VL, Varghese S, Rainey-Smith S, Sarros S, Evered LA, Fowler CJ, Pertile KK, Rumble RL, Trounson B, Taddei K, Laws SM, Macaulay SL, Bush AI, Ellis KA, Martins R, Ames D, Silbert B, Vanderstichele H, Masters CL, Darby DG, Li QX, Collins S (2018). "Concordance Between Cerebrospinal Fluid Biomarkers with Alzheimer's Disease Pathology Between Three Independent Assay Platforms." *J Alzheimers Dis* 61(1): 169-183.

BACKGROUND: To enhance the accuracy of clinical diagnosis for Alzheimer's disease (AD), pre-mortem biomarkers have become increasingly important for diagnosis and for participant recruitment in disease-specific treatment trials. Cerebrospinal fluid (CSF) biomarkers provide a low-cost alternative to positron emission tomography (PET) imaging for in vivo quantification of different AD pathological hallmarks in the brains of affected subjects; however, consensus around the best platform, most informative biomarker and correlations across different methodologies are controversial. **OBJECTIVE:** Assessing levels of Abeta-amyloid and tau species determined using three different versions of immunoassays, the current study explored the ability of CSF biomarkers to predict PET Abeta-amyloid (32 Abeta-amyloid- and 45 Abeta-amyloid+), as well as concordance between CSF biomarker levels and PET Abeta-amyloid imaging. **METHODS:** Prediction and concordance analyses were performed using a sub-cohort of 77 individuals (48 healthy controls, 15 with mild cognitive impairment, and 14 with AD) from the Australian Imaging Biomarker and Lifestyle study of aging. **RESULTS:** Across all three platforms, the T-tau/Abeta42 ratio biomarker had modestly higher correlation with SUVR/BeCKeT ($\rho = 0.69-0.8$) as compared with Abeta42 alone ($\rho = 0.66-0.75$). Differences in CSF biomarker levels between the PET Abeta-amyloid- and Abeta-amyloid+ groups were strongest for the Abeta42/Abeta40 and T-tau/Abeta42 ratios ($p < 0.0001$); however, comparison of predictive models for PET Abeta-amyloid showed no difference between Abeta42 alone and the T-tau/Abeta42 ratio. **CONCLUSION:** This study confirms strong concordance between CSF biomarkers and PET Abeta-amyloid status is independent of immunoassay platform,

supporting their utility as biomarkers in clinical practice for the diagnosis of AD and for participant enrichment in clinical trials.

Canty DJ, Heiberg J, Yang Y, Royse AG, Margale S, Nanjappa N, Scott D, Maier A, Sessler DI, Chuan A, Palmer A, Bucknill A, French C, Royse CF. (2017). "Pilot multi-centre randomised trial of the impact of pre-operative focused cardiac ultrasound on mortality and morbidity in patients having surgery for femoral neck fractures (ECHONOF-2 pilot)." *Anaesthesia*. 10.1111/anae.14130

Hip fracture surgery is common, usually occurs in elderly patients who have multiple comorbidities, and is associated with high morbidity and mortality. Pre-operative focused cardiac ultrasound can alter diagnosis and management, but its impact on outcome remains uncertain. This pilot study assessed feasibility and group separation for a proposed large randomised clinical trial of the impact of pre-operative focused cardiac ultrasound on patient outcome after hip fracture surgery. Adult patients requiring hip fracture surgery in four teaching hospitals in Australia were randomly allocated to receive focused cardiac ultrasound before surgery or not. The primary composite outcome was any death, acute kidney injury, non-fatal myocardial infarction, cerebrovascular accident, pulmonary embolism or cardiopulmonary arrest within 30 days of surgery. Of the 175 patients screened, 100 were included as trial participants (screening:recruitment ratio 1.7:1), 49 in the ultrasound group and 51 as controls. There was one protocol failure among those recruited. The primary composite outcome occurred in seven of the ultrasound group patients and 12 of the control group patients (relative group separation 39%). Death, acute kidney injury and cerebrovascular accident were recorded, but no cases of myocardial infarction, pulmonary embolism or cardiopulmonary arrest occurred. Focused cardiac ultrasound altered the management of 17 participants, suggesting an effect mechanism. This pilot study demonstrated that enrolment and the protocol are feasible, that the primary composite outcome is appropriate, and that there is a treatment effect favouring focused cardiac ultrasound - and therefore supports a large randomised clinical trial.