



36TH EDINBURGH ANAESTHESIA FESTIVAL

Congratulations to the EAF24 Abstract Winners

Joint winners of the Alastair Spence Memorial Award

Julia PD Anderson, student at The University of Edinburgh

Identifying a Genetic Signature from Murine Acute Respiratory Distress Models – a Meta-Analysis.

All Authors: JPD Anderson, C Happs, S Clohisey Hendry, N Parkinson, K Rawlik, C Russel, D McCormick, A Abdalla, J Millar, K Bailie

Introduction

Acute Respiratory Distress Syndrome (ARDS) is a non-cardiogenic pulmonary oedema causing respiratory failure and acute hypoxaemia [1]; the aetiology of the syndrome is diverse, and the underlying pathophysiology is poorly understood. Studies have sought to overcome this challenge by identifying a genetic signature unique to ARDS [2]. Pre-clinical models are central to research and mice are often used. This research utilises meta-analysis by information content (MAIC) to synthesise the genetic data from currently published omics studies and create one comprehensive ranked ARDS gene and protein list.

Methods

Data was extracted from published research, formatted, and subsequently used to run MAIC in RStudio, where a novel ranked gene list was generated. Functional enrichment analysis using external databases took place and findings were compared with Millar et al's [3] research investigating the ARDS genetic signature in humans.

Results

A set of 131 genes and proteins were identified as differentially expressed in ARDS mice, with the role of CDKN1a, and LCN2 most robustly evidenced.

Conclusion

Apart from cytokines IL-4, IL-10, and IL-13, much of the functional enrichment analysis revealed different biological processes in murine models compared to humans. This calls into question the role of mice as pre-clinical models in ARDS research.

References

1. Clark SB, Soos MP. Noncardiogenic Pulmonary Edema [Internet]. PubMed. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2024 Apr 4]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK542230/#:~:text=Arguably%20the%20most%20recognized%20form>
2. Battaglini D, Al-Husinat L, Gabriela A, Adriana Paes Leme A, Franchini KG, Morales MM, et al. Personalized medicine using omics approaches in acute respiratory distress syndrome to identify biological phenotypes. Respiratory Research [Internet]. 2022 Nov 19 [cited 2024 Apr 4];23(1). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9675217/>
3. Millar JE, Clohisey-Hendry S, McMannus M, Zechner M, Wang B, Parkinson N, et al. The genomic landscape of Acute Respiratory Distress Syndrome: a meta-analysis by information content of genome-wide studies of the host response. [cited 2024 Apr 14]; Available from: <https://www.medrxiv.org/content/10.1101/2024.02.13.24301089v1>



[View the full abstract here >](#)

Gustav H Normann, student at Aalborg University, Denmark

Chronic use of opioids decreases the effect of continuous peripheral nerve blocks.

All Authors: G Normann, P Sperling, H Römer, M Page, J Bisgaard

Introduction

Acute pain is a major contributor to morbidity in the orthopaedic ward. Regional anaesthesia in the form of continuous peripheral nerve blocks (cPNBs) has been associated with a lower opioid consumption and thus a lower rate of adverse effects [1]. It has been suggested that single shot local analgesics have a lower efficacy in chronic opioid users than opioid naive patients [2], however, this has not yet been shown with cPNBs. Patients, who use opioids on a daily basis, have longer hospital stays and worse outcomes after surgery [3]. This study aims to examine the efficacy of cPNBs in chronic opioid users compared to opioid naive patients.

Methods

In this single-center cohort study, conducted at a level I trauma centre, data were analysed based on patient's pre-operative intake of opiates. Patients were defined as opioid-tolerant if the preoperative daily opioid intake was more than 90 oral milligram morphine equivalents. A cPNB was indicated when severe and prolonged (>24h) post-operative pain was expected after orthopaedic surgery. The efficacy of the catheter was assessed by acute pain service nurses on daily visits in the general ward. Catheters were deemed ineffective either if the patient had the catheter removed due to lack of effect or the daily reported Numeric Rating Scale was 4 or above. If neither of these criteria were met, the catheter was deemed effective. Patients were compared regarding demographics and efficacy of catheters using Student's T-test or Mann-Whitney U-test, depending on normality distribution tests. Sensitivity analysis was conducted to adjust for significant baseline differences.

Results

A total of 417 patients representing a total of 852 catheters was included. Chronic opioid users constituted 35 patients (8.4%), representing 74 catheters (8.7%). No significant differences were observed in regard to pain scores ($p = 0.063$), nor when comparing groups for reason for removal ($p = 0.22$). It was found that 18.3% of the catheters administered in opioid-naive patients was ineffective whereas 29.7% was ineffective in chronic opioid users ($p = 0.025$). The groups differed on ASA score with the chronic users being ASA class 3 (40.0% vs. 17.4%) and opioid naive patients being ASA class 2 (49.2% vs. 37.1%) ($p < 0.001$). Indication for catheter differed significantly with a great proportion of ambulant indications (8.1% vs. 2.1%) in the chronic user group ($p = 0.018$). Sector differed with foot (21.9% vs. 10.8%), children and reconstruction (11.3% vs. 5.4%) being significantly more common in the naive group ($p < 0.001$). After adjusting for differences in ASA class, indication, and subspecialty, significantly less catheters were effective in chronic opioid users ($p = 0.009$).

Conclusions

The study demonstrated that the efficacy of continuous peripheral nerve blocks may be significantly lower in patients with preoperative chronic opioid use compared with opioid naive patients.

Works cited

1. Richman, J. M. et al. Does continuous peripheral nerve block provide superior pain control to opioids? A meta-analysis. Anesth Analg 102, 248–257 (2006).
2. Hashemian, A. M. et al. Effectiveness of local anesthesia with lidocaine in chronic opium abusers. J Emerg Trauma Shock 7, 301–304 (2014).
3. Sinatra, R. Causes and consequences of inadequate management of acute pain. Pain Medicine vol. 11 1859–1871 Preprint at <https://doi.org/10.1111/j.1526-4637.2010.00983.x> (2010).



[View the full abstract here >](#)

Both winners will share the £500 prize fund, a Scottish Quaich each and entry to next year's Edinburgh Anaesthesia Festival.

Winner of the Best Poster: Research, Audit, QI and Case report

Isla MacKay, student at The University of Edinburgh

Targeting and monitoring mean arterial pressure in critical illness: a mixed-methods service evaluation.

Authors: I MacKay, AB Docherty, I Piper, University of Edinburgh, UK

Isla will receive the cash prize of £250 and complimentary entry to EAF 2025 or EAF 2026.

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20–22 August 2025

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