

Interventions and diagnostics

211 ADVERSE EVENTS FROM NITRATE ADMINISTRATION DURING RIGHT VENTRICULAR MYOCARDIAL INFARCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background The current guidelines of the American Heart Association and European Society of Cardiology recommend that patients experiencing RVMI are not administered nitrates, due to the risk that decreasing preload in the setting of already compromised right ventricular ejection fraction may reduce cardiac output and precipitate hypotension. The cohort study (n = 40) underlying this recommendation was recently challenged by several new studies suitable for meta-analysis (cumulatively, n = 1206), suggesting that this topic merits systematic review.

Method The protocol was registered on PROSPERO and published in Evidence Synthesis. Six databases were systematically searched in January 2021: PubMed, Embase, MEDLINE Complete, Cochrane CENTRAL Register, CINAHL, and Google Scholar. Identified studies were assessed for quality and bias and data extracted by two investigators using JBI tools and methods. Risk ratios and 95% confidence intervals were calculated, and meta-analysis performed using the random effects inverse variance method.

Results Five studies (n=1113) were suitable. Outcomes included haemodynamics, GCS, syncope, arrest, and death. Arrest and death did not occur in the RVMI group. Meta-analysis was possible for sublingual nitroglycerin 400 mcg (2 studies, n=1050) and found no statistically significant difference in relative risk to combined inferior and RVMI at 1.31 (95%CI 0.81–2.12, p=0.27), with an absolute effect of 2 additional adverse events per 100 treatments. Results remained robust under sensitivity analysis. Other studies are severely limited by sample sizes well below optimal information size.

Conclusion This review suggests that the contraindication on nitrate administration during RVMI is not supported by the evidence informing this appraisal for 400 mcg sublingual nitroglycerin. Key limitations include not evaluating beneficial effects, low certainty of evidence, and only two studies being suitable for synthesis. As adverse events are transient and easily managed, nitrates are a reasonable treatment modality to consider during RVMI on current evidence.

Conflict of interest None to declare.

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COVID-19

220 'FAMILY MEMBERS SCREAMING FOR HELP MAKES IT VERY DIFFICULT TO DON PPE.' A QUALITATIVE REPORT ON AMBULANCE STAFF EXPERIENCES OF PERSONAL PROTECTIVE EQUIPMENT (PPE) USE AND INFECTION PREVENTION AND CONTROL (IPC) PRACTICES DURING THE COVID-19 PANDEMIC

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Background The COVID-19 Ambulance Response Assessment (CARA) study was a prospective, longitudinal survey of UK ambulance staff during the first wave of the COVID-19 pandemic. CARA aimed to evaluate perceptions of preparedness and wellbeing, and to collect staff suggestions to benefit working practices and conditions.

Method Three online questionnaires were presented, coinciding with the acceleration, peak and deceleration phases of the first COVID-19 wave in 2020. Inductive thematic analysis was employed to represent 14,237 free text responses from 3,717 participants to 18 free-text questions overall. This report focuses on experiences of IPC practices.

Results Many participants lacked confidence in using PPE because of low familiarity, an inadequate evidence-base and changing policy. Some experienced insufficient supply, items of poor quality and suboptimal fit-testing procedure. PPE use was further influenced by discomfort, urgency, and perceptions of risk. Various suggestions were made to improve IPC practices, including decontamination personnel, staff 'bubbles' and limiting exposure through public education and remote triage improvements.

Conclusion Repeated poor experiences of implementing IPC practices^{1 2} demand that lessons are learnt from this pandemic. PPE developed with specific regard for ambulance staff's unique working environment and for them to receive regular familiarization training in its use would likely benefit performance and confidence. Overall, ambulance staff emphasised the need for IPC policies to be pragmatic, evidence-based and communicated with clarity.

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Quality improvement and organization

231 RESUSCITATION ACADEMY GERMANY – SYSTEMIC IMPROVEMENTS FOR BETTER OUT-OF-HOSPITAL CARDIAC ARREST OUTCOMES

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Background The first Resuscitation Academy Germany (RAD) aims to improve the outcomes after out-of-hospital cardiac arrest (OHCA) systemically and sustainably according to Eisenberg's 10-step program developed 2008 in Seattle/King County, USA.¹ Participating Emergency Medical Services

(EMS) have reported significant improvements in their systems and patient outcomes.²The European Resuscitation Council Guidelines 2021 recommend the implementation.³

Method The RAD was launched in January 2020. It involves six EMS regions (Berlin, Dortmund, Kiel, Plön, Vorpommern-Greifswald, Rostock) and runs for 30 months following a structured process with continuous monitoring and ongoing sequential meetings. A key focus is on implementation of local projects. The goal is the systemic and continuous improvement measured by the German Resuscitation Registry (GRR) and the 'RAD-Online-Tool'. The 'RAD-Online-Tool' is a system-self-assessment tool (SSAT) used at different points over the study period.

Results The six EMS regions have conducted the SSAT to identify potentials for improvement and translate them into multiple projects and goals. All participants are aiming for better data quality or improved usage of the GRR and to introduce a High-Performance-CPR-Program. Some EMS dispatch centers started to measure and improve their Telephone-CPR and/or Rapid Dispatch. Several systems will implement lay rescuer integration via app or improve AED integration. Other projects are on multiprofessional training for paramedics and emergency physicians or a Paramedic-Supervisor-Pilot program.

Conclusion Initial data and reports from participating EMS regions show success and potential for further improvement. For Germany, the format of consecutive workshops and continuous support seems particularly appropriate.

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Conflict of interest SSe, JTG is member of the steering committee of the German Resuscitation Registry. The authors declare that they have no competing interests.

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Pain and trauma

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NURSE PRACTITIONERS EMS (NP-EMS) PERFORMED ULTRASOUND (US)-GUIDED FASCIA ILIACA COMPARTMENT BLOCK (FIC-BLOCK) IN PATIENTS WITH A SUSPECTED PROXIMAL FEMUR FRACTURE. PRELIMINARY DATA

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Background Prehospital pain treatment options for patients with a suspected proximal femur fracture consist mainly in

the administration of IV-analgesics by EMS paramedics. The us-guided fascia iliaca compartment block is another suitable option applied by NP-EMS in prehospital emergency care. Therefore we examined whether NP-EMS are able to successfully perform an US-guided FIC block in order to provide analgesia.

Method NP-EMS were educated in the execution of an us-guided FIC block. Hereafter the NP-EMS were dispatched to patients suspect for a proximal femur fractur. After confirmation of the diagnosis, the block was performed under sterile conditions using a SonoSite iViz us-machine equipped with a 13–6 MHz linear transducer (Secma) and a 80 mm block-needle (Stimuplex ultra 360, 22G) . Under direct visual guidance the needle was inserted and 0,3 ml/kg lidocaine (10mg/ml) with adrenaline 5 ug/ml was injected. The quality of visualization of the needle in relation to the nerve, pain relief using Numeric Rating Scale (NRS) and occurrence of complications were evaluated.

Results In 99 patients an us-guided FIC-block was performed. One NRS score was lost, so 98 data pairs (before and after FIC Block) were available for analysis. Data were not normally distributed (D'Agostino & Pearson omnibus normality test $P < 0.001$). The block was effective in 96 patients, median NRS-pain score before FIC block was 8 interquartile range [7–9]. NRS decreased to median 3 interquartile range [1–6] after the FIC block, $P < 0.0001$ using Wilcoxon matched-pairs signed rank test Figure 1. No complications were noted. In two patients a correct visualization of the needle or spread of local anesthetic was not obtained.

Conclusion Well-trained NP-EMS can successfully and effectively perform an us-guided FIC block for providing adequate pain relief in patients with a suspected proximal femur fracture in the pre hospital setting.

Conflict of interest None declared.

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Miscellaneous

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DEVELOPING A YOUNG PERSONS ADVISORY GROUP (YPAG) TO INFORM THE DESIGN OF A STUDY TO IMPROVE PRE-HOSPITAL PAIN MANAGEMENT FOR CHILDREN AND YOUNG PEOPLE (CYP)

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Background Patient and public involvement is an integral component of clinical research. A YPAG is group of young people with active involvement in the design and conduct of clinical research aimed at CYP.^{1 2} Active collaboration with a YPAG can be mutually beneficial and can have a positive impact on study design and conduct.^{2 3} We report on the involvement of young people, their influence on study design and the perceived benefits to members.

Method A UK secondary school was approached and ten 16–17 year old students agreed to form a YPAG. Three 1-hour sessions were planned involving arts-based activities to explore key challenges, predetermined iteratively by the