

892

TREATMENT VARIABLES ASSOCIATED WITH OUTCOME IN EMERGENCY DEPARTMENT SUSPECTED SEPSIS

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Aims/Objectives/Background Early treatment is advocated in the management of patients with suspected sepsis. We sought to understand the association between the emergency department (ED) treatments and outcome in these patients. The treatments studied were: (i) the time to antibiotics, (ii) the volume of intravenous fluid (IVF), (iii) mean arterial pressure (MAP) after 2,000 ml of IVF and (iv) the final MAP in the ED.

Methods/Design A retrospective analysis of the ED database of adult patients who met two SIRS criteria or one red flag sepsis criteria on arrival, received intravenous antibiotics for a suspected infection and admitted between February 2016 and August 2017, was performed. The primary outcome measure was all-cause in-hospital mortality. The four treatments stated above were controlled for severity of illness and subject to multivariate logistic regression and Cox proportional-hazard regression to identify independent predictors of mortality.

Results/Conclusions Of the 2,066 patients studied 272 (13.2%) died in hospital. The median time to antibiotics was 48 (Interquartile range 30–82) minutes. The time to antibiotics was an independent predictor of mortality only in those who developed refractory hypotension (RH); antibiotics administered more than 55 mins after arrival was associated with an odd-ratio (OR) for mortality of 2.75 [95% confidence interval (CI) 1.22–6.14]. The number-needed-to-treat was 4. IVF >2,000 ml (95%CI >500->2,100), except in RH, and a MAP≤66 mmHg after 2,000 mls of IVF were also independent predictors of mortality. The OR for mortality of IVF>2,000 ml in non-RH was 1.80 (95%CI 1.15–2.82); Number-needed-to-harm was 14. The OR for mortality for a MAP≤66 mmHg after 2,000 ml of IVF was 3.42 (95%CI 2.10–5.57). A final MAP<75 mmHg in the ED was associated with, but not an independent predictor of mortality.

Antibiotics were time-critical only in refractory hypotension. Intravenous fluids >2,000 mls in non-RH and a MAP≤66 mmHg after 2,000 ml of IVF were also independent predictors of mortality.

780

TREATMENT OF LIFE-THREATENING DIGOXIN TOXICITY WITH DIGOXIN IMMUNE FAB ANTIBODY: FINDINGS FROM THE UK DIGIFAB® PATIENT REGISTRY

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Aims/Objectives/Background Digoxin continues to play an important role in the management of atrial fibrillation (AF) and heart failure. Toxicity due to acute over-ingestion of digoxin is generally mild and manageable but can be life-threatening.¹ Digoxin immune Fab (DIF; DigiFab®) is the mainstay of treatment for life-threatening digoxin toxicity (LTDT). We report findings on efficacy and safety of DIF from the UK DigiFab Patient Registry.

Methods/Design This prospective, observational study was a post-authorisation requirement from the MHRA. Physicians in

all UK hospitals using DIF were invited to submit data for any patient who received DIF for LTDT. All AEs were followed-up according to Good Pharmacovigilance Practice.

Results/Conclusions Between April 2012 and June 2017, 94 patients were enrolled; 10 were excluded (off-label DIF, n=2; outcome not recorded, n=8). Patients were typically elderly (mean: 81 years) and >80% cases involved chronic vs acute toxicity. Most frequently reported symptoms were bradycardia (74%), abnormal mental status/visual disturbance (40%), hyperkalaemia (33%) and gastrointestinal effects (32%). Other cardiac arrhythmias included 2nd/3rd degree heart block (19%), AF (13%), asystole (5%) and ventricular tachycardia (5%); 85% of patients experienced ≥1 arrhythmia. DT resolved in 57 (67.9%) and persisted in 24 (28.6%) patients at the time of reporting. For the remaining 3 (3.6%) patients, the recorded outcome was death. 7 patients reported adverse drugs reactions, including death (n=3) and AF, bradycardia, cardio-respiratory arrest, acute renal failure, cellulitis and hypoglycaemia (all n=1). No cause was reported/established for the 3 deaths and so these were conservatively assessed as possibly related to DIF but were most likely complications of underlying medical conditions. The results were consistent with earlier reports with digoxin-specific antibody Fab fragments,² with DIF highly effective in resolving LTDT in a real-world setting.

REFERENCES

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750

IS HIGHER-LEVEL TRAUMA CENTRE CARE ASSOCIATED WITH BETTER OUTCOMES IN PATIENTS INJURED BY LOW-ENERGY TRAUMA? A SYSTEMATIC REVIEW

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Aims/Objectives/Background Globally, trauma is a significant cause of morbidity and mortality globally. In high-income countries the demographic of major trauma is changing. Trauma patients are becoming older, more likely to have multiple comorbidities, and are being injured by low-energy mechanisms, chiefly ground-level falls. It is unknown whether existing trauma systems are equipped for the optimum management of these patients. Therefore, a systematic review was performed to investigate the association between higher-level trauma centre care and outcomes of adult patients who were admitted to hospital due to injuries sustained following low-energy trauma.

Methods/Design A pre-registered systematic review of all major subject databases and grey literature archives supplemented by targeted manual searching was conducted in January 2021. Where necessary study authors were contacted. In the presence of study heterogeneity a narrative synthesis was pre-specified.

Results/Conclusions Of 2,898 potentially eligible unique records, three observational studies were included. Overall the studies' risk of bias was moderate-to-serious due to potential residual confounding and selection bias. All studies compared outcomes among adults injured by ground-level falls who were treated in American College of Surgeons

Abstract 750 Box 1

Level 1: capable of providing total care for every aspect of injury, from prevention to rehabilitation. Level 1 centres are responsible for providing leadership in education, research, and system planning.

Level 2: capable of providing initial definitive care except for particularly complex or specialised injuries.

Level 3: capable of providing prompt assessment, resuscitation, stabilisation and transfer of patients when required.

Level 4: provides advanced trauma life support in remote areas where no higher level of care is available.

In the United Kingdom, 'major trauma centres' would be equivalent to a Level 1 or 2 trauma centre, and 'trauma units' equivalent to a Level 3 trauma centre.

(ACS) verified trauma centres in the USA. The studies demonstrated divergent results, with one demonstrating improved outcomes in level 3 or 4 trauma centres (Observed:Expected Mortality 0.973, 95%CI 0.971–0.975), one demonstrating improved outcomes in level 1 trauma centres (Adjusted Odds Ratio 0.71, 95%CI 0.56–0.91), and one demonstrating no difference between level 1 or 2 and level 3 or 4 trauma centre care (Adjusted Odds Ratio 0.91 (0.80–1.04).

There is currently no clear evidence for the efficacy of major trauma centres in caring for adult patients injured by a ground-level fall. Further studies at lower risk of bias and studies conducted outwith the USA are required.

797

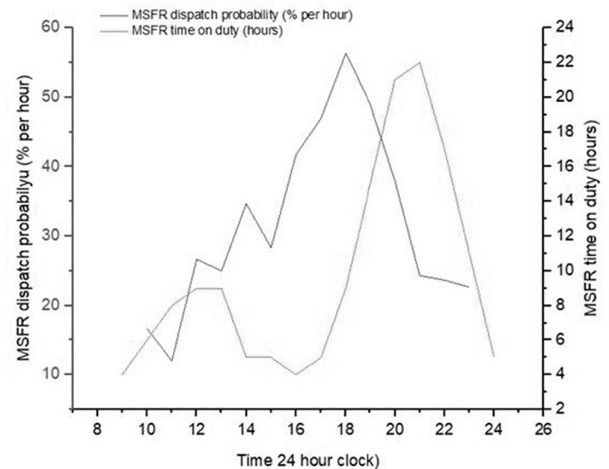
DIURNAL TRENDS IN MEDICAL STUDENT FIRST RESPONDER AVAILABILITY AND DEMAND

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Aims/Objectives/Background Medical Student First Responders (MSFRs) are volunteer Community First Responders, who respond to emergency calls and can provide life-saving interventions before the arrival of an ambulance. There is no data on diurnal trends in ambulance service demand for MSFRs, who do not typically work fixed shift patterns and therefore at present do not know when the most beneficial time of day to volunteer is. Thus, the aim of this service evaluation was to assess when demand for MSFRs is highest in central Oxfordshire and assess if MSFRs were available to respond at those times.

Methods/Design All MSFRs shifts on a single Dynamic Response Vehicle between 1 October to 31 December 2020 were included. The MSFRs operated exclusively in central Oxfordshire (post codes OX1 – OX4) on behalf of South Central Ambulance Service. MSFR dispatch probability was calculated by comparing total time on duty (for each hour



Abstract 797 Figure 1

between 9 am – 1 am) with the respective number of incidents attended within that hour, and then plotted as a 3-point moving average against time. No patient data was collected.

Results/Conclusions 163 'on duty' hours and 58 incidents (44% 'Category 1' responses, 88% MSFR first on scene) were included. There were clear diurnal trends in MSFR availability and demand (Abstract 797 figure 1). The probability of MSFR dispatch was highest at 56.3% between 6–7 pm; however, MSFRs were most likely to be available later in the day between 9–10 pm.

These findings suggest that the majority of MSFRs shifts occur at times when demand is relatively low. MSFRs are a highly flexible resource and should be encouraged to volunteer earlier in the day, as this would significantly improve coverage during the late afternoon when demand is greatest.