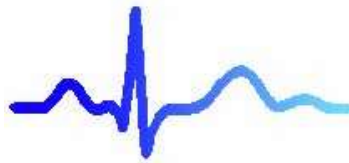


ICU Pharmacists e-Group  
UKCPA-Critical Care  
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## Critical Care Journal Club Bulletin

# October 2015

### **Selected Bottom Lines: -**

#### **★ Peri-operative management of the obese surgical patient**

Anaesthesia 2015;70:859-876

Consensus guideline covering all aspects of patient management, including drug dosing.

#### **★ The National Essential Anaesthesia Drugs List**

Anaesthesia 2015;70:650-653

Background to the production of the List (reference in paper) and how it is intended to develop. Unfortunately there appears to be minimal pharmacist input, but there is still time to rectify this.

**No stars** = Paper highlighted for general interest (read only if of particular interest or relevance to you)

**One star** = Highlighted paper of particular note with relevance to most ICU pharmacists (should be read)

**Two stars** = Ground breaking or keynote paper of direct relevance to all (essential reading for all ICU pharmacists)

Collated By Katie Davies

## Contributions

### Anaesthesia and Analgesia contributed by John Warburton, United Hospitals Bristol NHS Foundation Trust

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#### **Intraoperative Magnesium Administration Does Not Reduce Postoperative Atrial Fibrillation After Cardiac Surgery**

Klinger, Rebecca Y. MD, MS\*; Thunberg, Christopher A. MD\*; White, William D. MPH\*; Fontes, Manuel MD\*; Waldron, Nathan H. MD\*; Piccini, Jonathan P. MD, MHSc†; Hughes, G. Chad MD‡; Podgoreanu, Mihai V. MD\*; Stafford-Smith, Mark MD\*; Newman, Mark F. MD\*; Mathew, Joseph P. MD, MHSc, MBA\*

Double blind placebo controlled trial to understand whether high dose magnesium at anaesthetic induction and then at 3 hours for cardiac patients reduced the incidence of post-op AF. There was no significant difference between placebo (37.9%) and Magnesium (42.5%) groups.

#### **First Human Study of the Investigational Sedative and Anesthetic Drug AZD3043: A Dose-Escalation Trial to Assess the Safety, Pharmacokinetics, and Efficacy of a 30-Minute Infusion in Healthy Male Volunteers**

Kalman, Sigridur MD, PhD\*; Koch, Pauline MD\*; Ahlén, Kjell MD†; Kanés, Stephen J. MD, PhD‡; Barassin, Stéphane PhD†; Björnsson, Marcus A. MSc Pharm, PhD§; Norberg, Åke MD, PhD\*

Assessment of safety in a novel sedative agent targeting GABA type A receptors that is metabolised by plasma esterases. Proposed indication: short term anesthesia and sedation. Seems safe so far.

#### **A Phase 1c Trial Comparing the Efficacy and Safety of a New Aqueous Formulation of Alphaxalone with Propofol**

Monagle, John MBBS, MSc, FANZCA, FACHSM, FIPP (WIP)\*; Siu, Lyndon MBBS, FANZCA\*; Worrell, Jodie RN\*; Goodchild, Colin S. MA, MB, BChir, PhD, FRCA, FANZCA, FPPMANZCA\*†‡; Serrao, Juliet M. MBBS, PhD, FRCA†

First-in man study. A fast onset–offset IV anesthetic like propofol, but causes less cardiovascular depression. Less pain on administration than with propofol and less airway obstruction.

### British Journal of Anaesthesia contributed by Lisa Higgins, University Hospitals of North Midlands NHS Trust

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#### **Aspirin and coronary artery surgery: a systematic review and meta-analysis.**

British Journal of Anaesthesia 111 (3): 376–85 (2015). doi: 10.1093/bja/aev164

S. Hastings, P. Myles and D. McIlroy

Bottom Line: In patients undergoing coronary artery surgery, preoperative aspirin reduces perioperative MI, but at a cost of increased bleeding, blood transfusion, and surgical re-exploration.

#### **Litigation associated with intensive care unit treatment in England: an analysis of NHSLA data 1995–2012**

British Journal of Anaesthesia 115 (4): 601–7 (2015). doi: 10.1093/bja/aev285

E. Pascall, S.-J. Trehane, A. Georgiou and T. M. Cook

Bottom Line: Litigation arising from care in the ICU is common, costly, and is likely to follow a poor outcome. Whilst the importance of airway/respiratory care and infection control measures are

highlighted, the clear prominence of pressure sores in ICU-related litigation is worrisome and represents one particular area for practice improvement.

## **The Annals of Pharmacotherapy contributed by Chris Jay, Hutt Valley Hospital**

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### **Dexmedetomidine for Alcohol Withdrawal Syndrome: A Review of the Literature**

Dustin D. Linn and Kathryn C. Loeser

[Ann Pharmacother 1060028015607038, first published on September 23, 2015 as doi:10.1177/1060028015607038](#)

**Objective:** To review available evidence evaluating dexmedetomidine in alcohol withdrawal syndrome (AWS) while identifying gaps in evidence for its use in this setting.

**Data Sources:** A MEDLINE search (1966-August 2015) to identify English-language articles evaluating the efficacy and safety of dexmedetomidine in alcohol withdrawal. Key words included *alcohol, withdrawal, delirium tremens, and dexmedetomidine*. Additional references were identified from a review of literature citations.

**Study Selection and Data Extraction:** All English-language observational studies, retrospective reviews, and clinical trials were included. Case reports and case series describing the use of dexmedetomidine in 10 or fewer patients were excluded.

**Data Synthesis:** One randomized, controlled trial, 1 prospective observational study, and 6 retrospective reviews were identified. The only randomized, controlled trial identified showed that the addition of dexmedetomidine decreases benzodiazepine requirements more than placebo in the first 24 hours after initiation compared with the 24 hours prior to initiation ( $-56.8$  mg vs  $-8$  mg;  $P = 0.037$ ). Overall, dexmedetomidine appears to lower benzodiazepine requirements in patients with AWS and decreases the sympathomimetic response seen in these patients. There was no convincing evidence that dexmedetomidine improves clinical endpoints in patients with AWS, such as need for mechanical ventilation or intensive care unit or hospital length of stay.

**Conclusions:** Dexmedetomidine reduces hypertension and tachycardia in AWS and also reduces benzodiazepine requirements; however, the impact of these findings on important clinical endpoints is yet to be determined. Dexmedetomidine may be useful as adjunctive therapy; however, it cannot be recommended as a single agent in the management of AWS.

## **Circulation contributed by Katy Hand, University Hospital Southampton**

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### **Comparison of the Short-Term Risk of Bleeding and Arterial Thromboembolic Events in Nonvalvular Atrial Fibrillation Patients Newly Treated With Dabigatran or Rivaroxaban Versus Vitamin K Antagonists: A French Nationwide Propensity-Matched Cohort Study**

Géric Maura, Pierre-Olivier Blotière, Kim Bouillon et al.

Circulation. 2015;132:1252-1260

Bottom line: No statistically significant difference in bleeding or thromboembolic risk was observed between dabigatran and VKA new users. Bleeding and ischemic risks were also comparable between rivaroxaban and VKA new users.

### **Combination of the Immune Modulator Fingolimod with Alteplase in Acute Ischemic Stroke: A Pilot Trial**

Zilong Zhu, Ying Fu, Decai Tian et al.

Circulation. 2015;132:1104-1112

Bottom line: Combination therapy of fingolimod and alteplase was well tolerated, reduced reperfusion injury, and improved clinical outcomes in patients with acute ischemic stroke.

### **Anti-Inflammatory Treatment with Colchicine in Acute Myocardial Infarction: A Pilot Study**

Spyridon Deftereos, Georgios Giannopoulos, Christos Angelidis et al.  
Circulation. 2015; 132:1395-1403

Bottom line: This study suggest a potential benefit of colchicine in decreasing the size of the infarct but further clinical trials are necessary because this study was not powered to assess clinical end points.

### **Clinical Effectiveness of Statin Therapy after Ischemic Stroke: Primary Results From the Statin Therapeutic Area of the Patient-Centered Research Into Outcomes Stroke Patients Prefer and Effectiveness Research (PROSPER) Study**

Emily C. O'Brien, Melissa A. Greiner, Ying Xian et al.  
Circulation. 2015;132:1404-1413

Bottom line: In older ischemic stroke patients who were not taking statins at the time of admission, discharge statin therapy was associated with lower risk of major adverse cardiovascular events and nearly 1 month more home time during the 2-year period after hospitalization.

### **Infective Endocarditis in Adults: Diagnosis, Antimicrobial Therapy, and Management of Complications: A Scientific Statement for Healthcare Professionals From the American Heart Association**

Larry M. Baddour, Walter R. Wilson, Arnold S. Bayer et al. on behalf of the American Heart Association Committee on Rheumatic Fever, Endocarditis, and Kawasaki Disease of the Council on Cardiovascular Disease in the Young, Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia, and Stroke Council  
Circulation. 2015;132:1435-1486

### **Chest contributed by Snehal Shah, Royal Brompton and Harefield NHS Trust**

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#### **Optimising Atrial Fibrillation Management: From ICU and Beyond.**

Walkey A; Hogarth K; Lip G.  
*Chest*. 2015;148(4): 859-864 DOI: 10.1378/chest.14-1998

#### **Bottom line:**

An approach to the short-term and long-term management of new onset AF during critical illness.

#### **Critical Illness in Pregnancy: Part I: An Approach to a Pregnant Patient in the ICU and Common Obstetric Disorders.**

Guntupalli, K; Hall, N; Karnad, et al.  
*Chest*. 2015;148(4): 1093-1104 DOI: 10.1378/chest.14-1998

#### **Bottom line:**

Quite a nice overview on common obstetric conditions that lead to ICU admission and how they should be managed.

### **New England Journal of Medicine contributed by Patricia Ging, Mater Misericordiae University Hospital**

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#### **Peer-Review Fraud — Hacking the Scientific Publication Process**

Haug CJ, M.D., Ph.D. DOI: 10.1056/NEJMp1512330

A huge fraud has been uncovered in the peer review process in certain journals. Authors were creating fake peers and giving their own papers positive reviews.

### **Emergency Department Visits for Adverse Events Related to Dietary Supplements**

Geller AI, Shehab N et al

N Engl J Med 2015;373:1531-1540

Approximately 23,000 people attend American emergency departments annually due to adverse reactions to herbal/complementary/dietary supplements. Cardiac problems are the most frequent.

### **Maintenance Intravenous Fluids in Acutely Ill Patients**

Moritz ML, Ayus JC

N Engl J Med 2015;373:1350-60.

Particular emphasis on sodium balance

### **Invasive Candidiasis**

Kullberg BJ, Arendrup MC, M.D., Ph.D.

N Engl J Med 2015;373:1445-56.

Focus on ITU treatment and prophylaxis, with a run through of the pertinent trials

## **Anaesthesia contributed by Alan Timmins, Queen Margaret Hospital**

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### **Peri-operative management of the obese surgical patient**

Association of Anaesthetists of GB & I

Anaesthesia 2015;70:859-876

Consensus guideline covering all aspects of patient management, including drug dosing.

### **The National Essential Anaesthesia Drugs List**

Harrop-Griffiths W

Anaesthesia 2015;70:650-653

Background to the production of the List (reference in paper) and how it is intended to develop.

Unfortunately there appears to be minimal pharmacist input, but there is still time to rectify this.

## **Critical Care Medicine contributed by Claudia Brocke, University Hospital Southampton**

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### **Critical Care for Multiple Organ Failure Secondary to Ebola Virus Disease in the United States**

Sueblinvong V, Johnson DW, Weinstein GL. *Critical Care Medicine* 2015, 43(10): 2066 – 2075 [link](#)

**Bottom line:** three case studies with no particular focus on specific treatment options - for those of us with a special interest

Related editorial: [Caring for Critically Ill Ebola Virus Disease Patients With One Hand Tied Behind Your Back\\*](#)

### **Atrial Fibrillation Is an Independent Predictor of Mortality in Critically Ill Patients\***

Shaver CM, Chen W, Janz DR. *Critical Care Medicine* 2015, 43(10): 2104 - 2111 [link](#)

**Bottom line:** any type of AF within 4 days of admission to GICU significantly (and independently) increased mortality (from 17% to 31%; OR 1.62) especially in patients without sepsis (OR 2.92); unfortunately, treatment made no significant difference to this outcome although there was a tendency to better outcomes with rhythm control medication

### **Time to Appropriate Antibiotic Therapy Is an Independent Determinant of Postinfection ICU and Hospital Lengths of Stay in Patients With Sepsis\***

Zhang D, Micek ST, Kollef MH. *Critical Care Medicine* 2015, 43(10): 2133 – 2140 [link](#)

**Bottom line:** large retrospective cohort study with complicated analysis, which reaffirms the *surviving sepsis* message to get the right antibiotics in as early as possible

Related editorial: [Appropriate Antibiotic Treatment in Severe Sepsis and Septic Shock: Timing Is Everything\\*](#)

### **Practice Patterns and Outcomes Associated With Choice of Initial Vasopressor Therapy for Septic Shock\***

Fawzy A, Evans SR, Walkey AJ. *Critical Care Medicine* 2015, 43(10): 2141 – 2146 [link](#)

**Bottom line:** large retrospective US cohort study suggesting that noradrenaline is the better vasopressor in septic shock while dopamine was associated with a small but significant increase in mortality in multiple clinical subgroups (OR = 1.08)

### **Recall of ICU Stay in Patients Managed With a Sedation Protocol or a Sedation Protocol With Daily Interruption**

Burry L, Cook D, Herridge M. *Critical Care Medicine* 2015, 43(10): 2180 - 2190 [link](#)

**Bottom line:** approx. 30% of surviving patients enrolled in SLEAP trial did not remember their ICU stay, 72% reported at least one delusional memory; daily sedation holds made no difference to this

### **Pharmacokinetic and Other Considerations for Drug Therapy During Targeted Temperature Management\*\***

Šunjić KM, Webb AC, Šunjić I. *Critical Care Medicine* 2015, 43(10): 2228 – 2238 [link](#)

Interesting article describing the effects of cooling on pharmacokinetics in general and on medication used after cardiac arrest in particular. Also covered are effects on potassium and coagulation. Worth considering for patients post MI on GICU as well as patients coming out of cardiac surgery.

**Bottom line:** all aspects of pharmacokinetics are influenced by cooling; this generally results in reduced clearance and increased drug levels, but watch out for reduced enteral absorption and delayed activation of prodrugs as well

### **Further Concerns About Glutamine: A Case Report on Hyperammonemic Encephalopathy**

Cioccari L, Gautschi M, Etter R. *Critical Care Medicine* 2015, 43(10): e458 – e460 [link](#)

**Bottom line:** very specific case but perhaps it is worth monitoring ammonia and glutamine serum levels if you give glutamine to ICU patients

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**Next Bulletin scheduled to go out on:** 27th November 2015 and will be collated by Chris Jay:  
[Chris.Jay@huttvalleydhb.org.nz](mailto:Chris.Jay@huttvalleydhb.org.nz)