# 2019 - ICU TOP TRIALS SO FAR...

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| TITLE | AUTHOR | WHY? | OUTCOME |
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| Enteral versus intravenous approach for the sedation of critically ill patients: a randomized and controlled trial (SedaEN trial). Critical Care 2019;23:3 | MISTRALETTI | Enteral administration of sedative drugs might avoid over sedation, and would be as adequate as intravenous administration in patients who are awake, with fewer side effects and lower costs. | There were 348 patients enrolled. There were no differences in the primary outcome. |
| Nasal high-flow preoxygenation for endotracheal intubation in the critically ill patient: a randomized clinical trial. Intensive Care Med (2019) 45: 447. | GUITTON | No large randomized study has assessed its relevance in non-severely hypoxemic patients. In a randomized controlled trial (PROTRACH study), we aimed to evaluate preoxygenation with HFNC vs. standard bag-valve mask oxygenation (SMO) in non-severely hypoxemic patients during rapid sequence intubation (RSI) in the ICU. | A total of 192 patients were randomized. Compared with SMO, preoxygenation with HFNC in the ICU did not improve the lowest SpO2 during intubation in the non-severely hypoxemic patients but led to a reduction in intubation-related adverse events. |
| Non-invasive ventilation versus high-flow nasal cannula oxygen therapy with apnoeic oxygenation for preoxygenation before intubation of patients with acute hypoxaemic respiratory failure: a randomised, multicentre, open-label trial. LANCET. Resp Medicine. vol 7, issue 4, p303-312. April 2019. | FRAT | Non-invasive ventilation has never been compared with high-flow oxygen to determine whether it reduces the risk of severe hypoxaemia during intubation. | In patients with acute hypoxaemic respiratory failure, preoxygenation with non-invasive ventilation or high-flow oxygen therapy did not change the risk of severe hypoxaemia. Future research should explore the effect of preoxygenation method in patients with moderate-to-severe hypoxaemia at baseline. |
| Real-time compression feedback for patients with in-hospital cardiac arrest: a multi-center randomized controlled clinical trial | GOHARANI | To determine if real-time compression feedback using a non-automated hand-held device improves patient outcomes from in-hospital cardiac arrest (IHCA). | One thousand four hundred fifty-four subjects were randomized; 900 were included. Sustained ROSC was significantly improved in the CFA group (66.7% vs. 42.4%, P < 0.001), as was survival to ICU discharge (59.8% vs. 33.6%) and survival to hospital discharge (54% vs. 28.4%, P < 0.001). Outcomes were not affected by intra-group comparisons based on intubation status. ROSC, survival to ICU, and hospital discharge were noted to be improved in inter-group comparisons of non-intubated patients, but not intubated ones. |
| Early Use of Norepinephrine in Septic Shock Resuscitation (CENSER). A Randomized Trial. AJRCCM Vol. 199, No. 9 \| May 01, 2019 | PERMPIKUL | Recent retrospective evidence suggests the efficacy of early norepinephrine administration during resuscitation; however, prospective data to support this assertion are scarce. | This single-center, randomized, double-blind, placebo-controlled clinical trial was conducted at Siriraj Hospital, Bangkok, Thailand. The study enrolled 310 adults diagnosed with sepsis with hypotension. Early norepinephrine was significantly associated with increased shock control by 6 hours. More trials needed |
| Prolonged targeted temperature management reduces memory retrieval deficits six months post-cardiac arrest. RCT. RESUS. Jan 2019. Vol 132 P1-9 | EVALD | Cognitive sequelae, most frequently memory, attention, and executive dysfunctions, occur commonly in out-of-hospital cardiac arrest (OHCA) survivors. Targeted temperature management (TTM) following OHCA is associated with improved cognitive function. However, the relationship between the duration of TTM and cognitive outcome remains unclear. | This study reports an association between the duration of TTM and cognitive outcome. In OHCA survivors with perceived good cognitive outcome (CPC ≤ 2), TTM48 was associated with reduced memory retrieval deficits and lower relative risk of cognitive impairment six months after OHCA compared to standard TTM24. |
| Early Manipulation of Arterial Blood Pressure in Acute Ischemic Stroke (MAPAS). Neurocritical Care 2019. April. Vol 30. Issue 2 pp372-379 | NASI | There is uncertainty over the optimal level of systolic blood pressure (SBP) in the setting of acute ischemic stroke (AIS). | 218 patients were randomized within 12 h of AIS to maintain the SBP during 24 h within three ranges. Good outcome in 90 days was not significantly different among the 3 blood pressure ranges. After logistic regression analysis, the odds of having good outcome was greater in Group 2 (SBP 161–180 mmHg). SICH occurred more frequently in Group 3 (181–200 mmHg). |
| Early goal-directed haemodynamic optimization of cerebral oxygenation in comatose survivors after cardiac arrest: the Neuroprotect post-cardiac arrest trial. European Heart Journal, Volume 40, Issue 22, 7 June 2019, Pages 1804–1814, | AMELOOT | During the first 6–12 h of intensive care unit (ICU) stay, post-cardiac arrest (CA) patients treated with a mean arterial pressure (MAP) 65 mmHg target experience a drop of the cerebral oxygenation that may cause additional cerebral damage. | Targeting a higher MAP in post-CA patients was safe and improved cerebral oxygenation but did not improve the extent of anoxic brain damage or neurological outcome |
| Effectiveness of a national quality improvement programme to improve survival after emergency abdominal surgery (EPOCH): a stepped-wedge cluster-randomised trial | PEDEN | Emergency abdominal surgery is associated with poor patient outcomes. We studied the effectiveness of a national quality improvement (QI) programme to implement a care pathway to improve survival for these patients. We did a stepped-wedge cluster-randomised trial of patients aged 40 years or older undergoing emergency open major abdominal surgery. 22 754 patients were assessed for elegibility. Of 15 873 eligible patients from 93 NHS hospitals, primary outcome data were analysed for 8482 patients in the usual care group and 7374 in the QI group. | No survival benefit was observed from this QI programme to implement a care pathway for patients undergoing emergency abdominal surgery. Future QI programmes should ensure that teams have both the time and resources needed to improve patient care. |
| Effect of Trans-Nasal Evaporative Intra-arrest Cooling on Functional Neurologic Outcome in Out-of-Hospital Cardiac Arrest. PRINCESS. JAMA. 2019;321(17):1677-1685. doi:10.1001/jama.2019.4149 | NORDBERG | Does cooling of the brain initiated during cardiopulmonary resuscitation improve survival with good neurologic outcome in patients with out-of-hospital cardiac arrest? | 677 randomised patients. Among patients with out-of-hospital cardiac arrest, trans-nasal evaporative intra-arrest cooling compared with usual care did not result in a statistically significant improvement in survival with good neurologic outcome at 90 days. |
| The effect of adhesive tape versus endotracheal tube fastener in critically ill adults: the endotracheal tube securement (ETTS) randomized controlled trial. Critical Care volume 23, Article number: 161 (2019) | LANDSPERGER | The optimal securement method of endotracheal tubes is unknown but should prevent dislodgement while minimizing complications. The use of an endotracheal tube fastener might reduce complications among critically ill adults undergoing endotracheal intubation. | The use of the endotracheal tube fastener to secure the endotracheal tubes reduces the rate of a composite outcome that included lip ulcers, facial skin tears, or endotracheal tube dislodgement compared to adhesive tape. |
| Positive End-expiratory Pressure and Postoperative Atelectasis: A Randomized Controlled Trial. Anesthesiology. 131(4):809–817, OCTOBER 2019 | OSTBERG | Thirty patients undergoing nonabdominal surgery under general anesthesia were randomized to maintained (7 or 9 cm H2O) or zero PEEP before being given 100% oxygen for emergence preoxygenation. Postoperative atelectasis (assessed by computed tomography) was small with no effect on oxygenation, whether or not PEEP was used during emergence. | Withdrawing PEEP before emergence preoxygenation does not reduce atelectasis formation after nonabdominal surgery. Despite using 100% oxygen during awakening, postoperative atelectasis is small and does not affect oxygenation, possibly conditional on an open lung during anesthesia, as achieved by intraoperative PEEP. |
| Effect of an ICU Diary on Posttraumatic Stress Disorder Symptoms Among Patients Receiving Mechanical Ventilation. JAMA. 2019;322(3):229-239. doi: 10.1001/jama.2019.9058 | FLAHAULT | What is the effect of an intensive care unit (ICU) diary, filled out by family members and ICU clinicians, on posttraumatic stress disorder symptoms among patients receiving mechanical ventilation? 657 PATIENTS. | These findings do not support the use of ICU diaries for preventing posttraumatic stress disorder symptoms after ICU hospitalization. |
| SHINE: Intensive vs Standard Treatment of Hyperglycemia and Functional Outcome in Patients With Acute Ischemic Stroke. JAMA. 2019;322(4):326-335. doi:10.1001/jama.2019.9346 | JOHNSTON | Does intensive glucose control improve functional outcome in patients with hyperglycemic acute ischemic stroke? 1151 patients. | Intensive compared with standard glucose control did not improve 90-day functional outcomes in patients with acute ischemic stroke and hyperglycemia. |

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