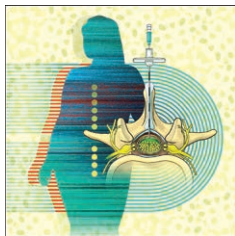


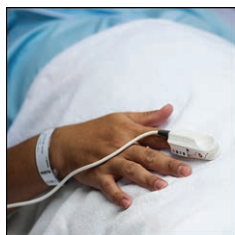
THIS MONTH IN ANESTHESIOLOGY



678 **Quality of Labor Analgesia with Dural Puncture Epidural *versus* Standard Epidural Technique in Obese Parturients: A Double-blind Randomized Controlled Study**

The dural puncture epidural analgesia technique for labor pain relief may offer advantages over the standard epidural technique by indirectly confirming correct identification of the epidural space and enhancing transfer of epidurally administered medications into the intrathecal space. Parturients who are obese have an increased risk of block failure and could benefit from these potential advantages. The hypothesis that the dural puncture epidural technique will be associated with improved quality of labor analgesia compared to the standard epidural technique was tested in a double-blind randomized controlled study of 132 obese parturients.

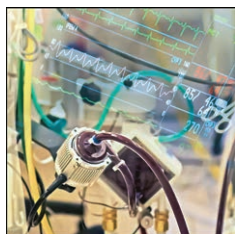
The primary outcome was the quality of labor analgesia defined as a composite of five components, including asymmetrical block and epidural top-ups, the presence of one or more of which was considered positive for the outcome. The primary outcome was observed in 34 of 66 (52%) patients in the dural puncture epidural group and 32 of 66 (49%) patients in the standard epidural group, for an odds ratio (95% CI) of 1.1 (0.5 to 2.4) when adjusted for baseline characteristics. See the accompanying Editorial on [page 667](#). (Summary: M. J. Avram. Image: A. Johnson, Vivo Visuals Studio.)



688 **Self-reported Race/Ethnicity and Intraoperative Occult Hypoxemia: A Retrospective Cohort Study**

Although measurement of blood oxygen saturation by pulse oximetry (SpO_2) is generally a reliable noninvasive measure of arterial oxygenation (SaO_2), skin pigmentation may interfere with its accuracy. The hypothesis that there is a greater prevalence of occult hypoxemia in patients whose self-reported race/ethnicity as a surrogate for skin pigmentation is other than White was tested in a retrospective study of 46,253 patients receiving an anesthetic, including at least one arterial blood gas measurement. Occult hypoxemia, defined as SaO_2 less than 88% despite SpO_2 more than 92%, was present in 2,016 of 151,070 (1.3%) paired SaO_2 – SpO_2 readings. The prevalence of occult hypoxemia was 1.1% (791 of 70,722 paired readings) in Whites, 2.1% (339 of 16,011

paired readings) in Blacks, and 1.8% (383 of 21,223 paired readings) in Hispanics. The prevalence in Asians and Other race/ethnicity patients was similar to that of Whites. The odds ratio (95% CI) for occult hypoxemia relative to Whites was 1.44 (1.11 to 1.87) for Blacks and 1.31 (1.03 to 1.68) for Hispanics. See the accompanying Editorial on [page 670](#). (Summary: M. J. Avram. Image: Adobe Stock.)



732 **Extracorporeal Membrane Oxygenation for Respiratory Failure Related to COVID-19: A Nationwide Cohort Study**

Extracorporeal membrane oxygenation (ECMO) support has been reported to improve both morbidity and mortality in severe acute respiratory distress syndrome (ARDS) patients. Severe manifestations of COVID-19 such as ARDS and acute myocardial injury suggest a possible role for ECMO support. This study determined in-hospital mortality of 429 patients in 47 centers in France with a diagnosis of COVID-19 supported by venovenous ECMO for respiratory failure with a minimum follow-up of 28 days after ECMO cannulation up to October 25, 2020. In-hospital mortality was 51% (219 of 429), with a median (interquartile range) follow-up of 49 days (33 to 70 days). Mortality at day 28 and at day 90 were 42% (180 of 429) and 60% (215 of 357), respectively. Variables associated with in-hospital mortality in multi

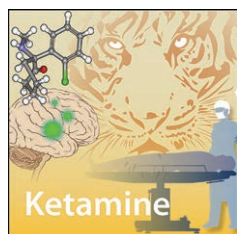
variable analysis included older age, total bilirubin of 6.0 mg/dl or more at ECMO cannulation, and ventilation for more than 7 days before ECMO cannulation. The authors suggest venovenous ECMO support should be considered early within the first week of initiation of mechanical ventilation. (Summary: M. J. Avram. Image: J. P. Rathmell.)



697 **Frequency and Risk Factors for Difficult Intubation in Women Undergoing General Anesthesia for Cesarean Delivery: A Multicenter Retrospective Cohort Analysis**

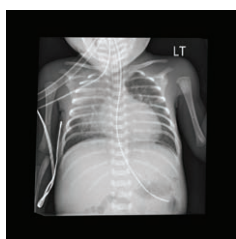
Estimates of the frequencies of difficult and failed intubation in the obstetric population are several-fold higher than those reported for the general surgical population. The purpose of this retrospective study was to provide contemporary estimates of the frequencies of difficult and failed intubation in women undergoing general anesthesia for cesarean delivery in the United States between 2004 and 2019 using data from 45 Multicenter Perioperative Outcomes Group sites. Difficult intubation was defined as difficult laryngoscopy (Cormack-Lehane view of 3 or more), three or more intubation attempts, flexible scope intubation after

failed laryngoscopy, rescue supraglottic airway, or surgical airway. Failed intubation was defined as any attempt at intubation without successful endotracheal tube placement. Difficult intubation was identified in 295 of 14,537 cases (2.0% [95% CI, 1.8 to 2.3%]) and there were 18 cases of failed intubation (0.1% [95% CI, 0.1 to 0.2%]). Most factors strongly associated with difficult intubation were nonobstetric in nature and were related to patient or airway characteristics. (Summary: M. J. Avram. Image: J. P. Rathmell.)



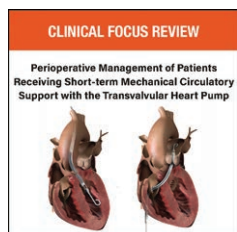
792 Ketamine Psychedelic and Antinociceptive Effects Are Connected

Ketamine produces analgesia as well as psychedelic effects related to its dissociative properties at subanesthetic doses. It has been suggested that ketamine analgesia may be generated by its dissociative effects, although there is evidence that suggests the two endpoints are independent and not connected. This was a planned secondary analysis of a study in which subjects received increasing doses of racemic ketamine and S-ketamine on different occasions and were tested for pain relief to a pressure pain stimulus and alterations in perception of external stimuli, a measure of psychotropic effect. A population pharmacokinetic–pharmacodynamic model and was developed to describe the relationship between effect site concentrations of S- and R-ketamine and their norketamine metabolites and pressure pain threshold and change in external perception. The pharmacodynamics of S-ketamine did not differ for antinociception and external perception, which had the same potency parameter (C50) and plasma-effect site equilibration half-time whether administered as racemic ketamine or S-ketamine. R-ketamine did not contribute to either endpoint while S-norketamine had a small antagonistic effect for both endpoints. See the accompanying Editorial on [page 675](#). (Summary: M. J. Avram. Image: A. Johnson, Vivo Visuals Studio.)



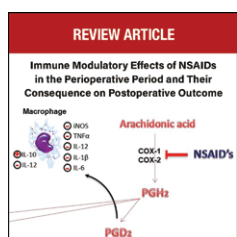
749 Early Restrictive Fluid Strategy Impairs the Diaphragm Force in Lambs with Acute Respiratory Distress Syndrome

Critical illness–associated diaphragm weakness develops in most mechanically ventilated critically ill patients. The hypothesis that a liberal fluid strategy induces diaphragm muscle fiber edema leading to a reduction in diaphragmatic force-generating capacity was tested in 19 female lambs with experimental pediatric acute respiratory distress syndrome (ARDS). The animals were randomized to receive either a restrictive (60 ml/kg per day) or liberal (120 ml/kg per day) fluid regime throughout a 6-h period of mechanical ventilation. Contrary to the hypothesis, a liberal fluid regimen did not lead to diaphragm muscle fiber edema and early fluid restriction decreased the force-generating capacity of the diaphragm. The estimated marginal mean (95% CI) decreases in the pressure-generating capacity of the diaphragm during application of 5 cmH₂O positive end-expiratory pressure (PEEP) and 10 cmH₂O PEEP after 6 h of mechanical ventilation were –9.6 cmH₂O (–14.4 to –4.8 cmH₂O) and –10.3 cmH₂O (–15.2 to –5.4 cmH₂O), respectively, in the restrictive group, and –0.8 cmH₂O (–5.8 to 4.3 cmH₂O) and –2.8 cmH₂O (–8.0 to 2.3 cmH₂O), respectively, in the liberal group. See the accompanying Editorial on [page 672](#). (Summary: M. J. Avram. Image: J. P. Rathmell.)



829 Perioperative Management of Patients Receiving Short-term Mechanical Circulatory Support with the Transvalvular Heart Pump (Clinical Focus Review)

The first line treatment for cardiogenic shock includes optimization of volume status and administration of vasopressors and inotropic medications. However, medical therapy alone may not provide adequate circulatory support and may increase myocardial oxygen consumption. When medical therapy alone does not provide adequate circulatory support, short-term mechanical circulatory support, such as that provided by the transvalvular heart pump, should be considered. The transvalvular heart pump can augment systemic blood flow while reducing myocardial oxygen consumption. The present review provides anesthesiologists with an overview of the transvalvular heart pump, including its mechanics and hemodynamic effects, as well as considerations for perioperative management for device placement and initial optimization to allow them to provide optimal patient care and contribute to the perioperative decision-making process. It also discusses the timing and management of weaning from transvalvular heart pump support and subsequent pump explantation. An overview of major studies evaluating transvalvular heart pump use in cardiogenic shock is provided. (Summary: M. J. Avram. Image: From original article.)



843 Immune Modulatory Effects of Nonsteroidal Anti-inflammatory Drugs in the Perioperative Period and Their Consequence on Postoperative Outcome (Review Article)

Nonsteroidal anti-inflammatory drugs (NSAIDs) inhibit cyclooxygenase-1 and -2, key enzymes involved in prostaglandin synthesis, to varying degrees thereby producing analgesia, antipyresis, and immune modulation. They are administered in the perioperative period to facilitate pain management but may affect postoperative outcomes in beneficial or harmful ways due to their effects on the inflammatory response elicited by surgery. This narrative review evaluates the evidence available from *in vitro* studies and randomized controlled animal and human trials, systematic reviews, and meta-analyses of potential immune system-related consequences of perioperative NSAID administration. These include effects on systemic inflammatory response syndrome (SIRS), acute respiratory distress syndrome (ARDS), immediate and persistent postoperative pain, oncological and neurological outcome, and wound, anastomotic, and bone healing. It concludes that NSAIDs have been shown to have immune modulatory effects in cellular and animal models and affect various outcomes in these models but the immune modulatory effects of these drugs on perioperative outcomes in clinical studies are much less clear. (Summary: M. J. Avram. Image: From original article.)