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Perioperative Medicine

CLINICAL SCIENCE

◆◆ A Pilot Trial of Platelets Stored Cold *versus* at Room Temperature for Complex Cardiothoracic Surgery



G. Strandenes, J. Sivertsen, C. K. Bjerkvig, T. K. Fosse, A. P. Cap, D. J. del Junco, E. K. Kristoffersen, R. Haaverstad, V. Kvalheim, H. Braathen, T. H. F. Lunde, T. Hervig, K. O. Hufthammer, P. C. Spinella, T. O. Apelsest 1173

No significant difference was observed between cold-stored and room temperature–stored platelets for hemostatic function assessed by chest drainage, total blood usage, platelet function, and clinical outcomes. This pilot trial supports the potential feasibility of cold-stored platelets for clinical use and provides potential guidance for future pivotal trials.

SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

◆◆ Brief Preoperative Screening for Frailty and Cognitive Impairment Predicts Delirium after Spine Surgery



M. J. Susano, R. H. Grasfield, M. Friese, B. Rosner, G. Crosby, A. M. Bader, J. D. Kang, T. R. Smith, Y. Lu, M. W. Groff, J. H. Chi, F. Grodstein, D. J. Culley 1184

Screening for frailty and cognitive impairment preoperatively using the brief FRAIL (measuring fatigue, resistance, ambulation, illness, and weight loss) scale and the Animal Verbal Fluency test in older elective spine surgery patients identifies those at high risk for the development of postoperative delirium. SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT

◇ Refers to This Month in ANESTHESIOLOGY

◆ Refers to Editorial



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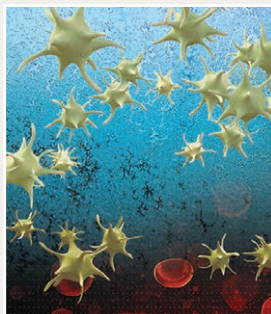
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Part of the Letheon writing competition

This article has a Visual Abstract



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ON THE COVER: Platelets for transfusion are stored at room temperature (20° to 24°C), posing risk of bacterial growth and limiting shelf life. In this issue of ANESTHESIOLOGY, Strandenes *et al.* present the results of a pilot trial aimed to provide preliminary data evaluating the hemostatic potential of cold-stored platelets (2° to 6°C) compared to standard room temperature–stored in adult patients undergoing complex cardiothoracic surgery. In an accompanying Editorial, Cohn and Shaz discuss the studies that led to the current practice of storing platelets for transfusion at room temperature and previous studies of cold-stored platelets to put the new study in perspective. Cover Illustration: A. Johnson, Vivo Visuals.

- Strandenes *et al.*: A Pilot Trial of Platelets Stored Cold *versus* at Room Temperature for Complex Cardiothoracic Surgery, p. 1173
- Cohn and Shaz: Warming Up to Cold-stored Platelets, p. 1161

◆◆ **Ketamine Pharmacokinetics: A Systematic Review of the Literature, Meta-analysis, and Population Analysis**

J. Kamp, E. Olofsen, T. K. Henthorn, M. van Velzen, M. Niesters, A. Dahan, for the Ketamine Pharmacokinetic Study Group1192

A meta-analysis was successfully performed on 18 studies that had conducted mixed-effect pharmacokinetic analyses despite large heterogeneity in study characteristics. A population pharmacokinetic analysis was performed on raw data sets obtained from 14 unique sources. Parameter estimates in the population pharmacokinetic analysis were comparable with those obtained in the meta-analysis of three-compartment pharmacokinetic models.

◆◆ **Hypotension Prediction Index for Prevention of Hypotension during Moderate- to High-risk Noncardiac Surgery: A Pilot Randomized Trial**

K. Maheshwari, T. Shimada, D. Yang, S. Khanna, J. B. Cywinski, S. A. Irefin, S. Ayad, A. Turan, K. Ruetzler, Y. Qiu, P. Saha, E. J. Mascha, D. I. Sessler1214

Of 214 noncardiac surgical patients, 105 (49%) patients randomized to management with a hypotension prediction algorithm, intraoperative hypotension was not reduced compared with controls. A lower alert threshold enabling adequate warning time and a simpler treatment algorithm that emphasizes prompt treatment after alert may help. *SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT*

◆ **A Pharmacokinetic and Pharmacodynamic Study of Oral Dexmedetomidine**

S. Chamadia, J. C. Pedemonte, L. E. Hobbs, H. Deng, S. Nguyen, L. I. Cortinez, O. Akeju1223

The hypotheses that oral dexmedetomidine would be associated with hemodynamic stability and plasma concentrations consistent with rousable sedation were tested in a phase I dose-escalation study in 15 normal volunteers. Oral dexmedetomidine bioavailability was low (7.2% [95% CI, 4.7 to 14%]). Oral dexmedetomidine (300 µg, 500 µg, and 700 µg) was associated with plasma concentration-dependent decreases in mean arterial pressure and heart rate. Only the 700-µg oral dose produced plasma concentrations associated with sedation. *SUPPLEMENTAL DIGITAL CONTENT IS AVAILABLE IN THE TEXT*

◆ **Oral Dexmedetomidine Promotes Non-rapid Eye Movement Stage 2 Sleep in Humans**

S. Chamadia, L. Hobbs, S. Marota, R. Ibalá, E. Hahm, J. Gitlin, J. Mekonnen, B. Ethridge, K. M. Colon, K. S. Sheppard, D. S. Manoach, A. DiBiasio, S. Nguyen, J. C. Pedemonte, O. Akeju1234

The hypothesis that oral dexmedetomidine would promote non-rapid eye movement stage 2 sleep was tested in a single-center, randomized, double-blind, crossover trial in 15 healthy volunteers. Oral dexmedetomidine increased the duration of non-rapid eye movement stage 2 sleep by 63 (95% CI, 19 to 107) min. Oral dexmedetomidine may possibly impair sleep-dependent motor memory consolidation.

Pain Medicine

BASIC SCIENCE

◆ **Acid-sensing Ion Channel 3 Overexpression in Incisions Regulated by Nerve Growth Factor Participates in Postoperative Nociception in Rats**

H. Li, H. Li, J. Cheng, X. Liu, Z. Zhang, C. Wu1244

Using a rat model of surgical incision, it was shown that both male and female animals demonstrated less wound area sensitization when acid-sensing ion channel 3 channels were pharmacologically blocked or knocked down using small interfering RNA. Anti-nerve growth factor treatment blocked the upregulation of acid-sensing ion channel 3 expression after incision and reduced the pain-related behaviors.

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K. Tao, C. Zhu, Z. Lu1260

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◆ **Severe Intraoperative Hemorrhage during Craniectomy in a Patient with Polyostotic Fibrous Dysplasia**

A. E. Oesterling, B. E. Hansen1261

CLINICAL FOCUS REVIEW

◆ **Platelet Function Testing in Patients on Antiplatelet Therapy before Cardiac Surgery**

E. Mahla, U. S. Tantry, M. Schoerghuber, P. A. Gurbel1263

Based on variable pharmacodynamic responsiveness and platelet reactivity recovery after discontinuation of P2Y₁₂ receptor inhibitors, preoperative platelet function testing may individualize discontinuation and be a part of transfusion algorithm triggering targeted postpump hemostatic management.

◆ **Genomic Screening for Malignant Hyperthermia Susceptibility**

L. G. Biesecker, R. T. Dirksen, T. Girard, P. M. Hopkins, S. Riaz, H. Rosenberg, K. Stowell, J. Weber1277

It is timely to consider the utility and practicability of screening for malignant hyperthermia susceptibility using genomic testing. Here the authors pose a simple, but bold question: what would it take to end deaths from malignant hyperthermia? The authors review recent advances and propose a scientific and clinical pathway toward this audacious goal to provoke discussion in the field.

REVIEW ARTICLE

- ◇ **Perioperative Management of Aneurysmal Subarachnoid Hemorrhage: A Narrative Review**
D. Sharma1283

Aneurysmal subarachnoid hemorrhage has multisystem manifestations. Perioperative priorities include physiologic optimization, facilitating timely definitive treatment and careful selection of an anesthetic technique based on patient characteristics and the planned intervention.

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