Table of Contents

April 2010

Cardiovascular Anesthesiology

Ambulatory Anesthesiology

Anesth Analg April 2010 110:1007-1015;

Anesthetic Pharmacology

人体皮下给予大剂量多泡脂质体主动包裹的布比卡因证实其可缓释药物并不导致全身中毒血浆浓度

(范羽译 薛张纲校)

High-Dose Bupivacaine Remotely Loaded into Multivesicular Liposomes Demonstrates Slow Drug Release Without Systemic Toxic Plasma Concentrations After Subcutaneous Administration in Humans

- Elyad M. Davidson,
- Yechezkel Barenholz,
- Rivka Cohen,
- Simon Haroutiunian,
- Leonid Kagan,
- and Yehuda Ginosar

Anesth Analg April 2010 110:1018-1023;

乳化异氟醚对离体蟾蜍坐骨神经的可逆性神经传导阻滞

(姜旭晖译，马皓琳，李士通校)

Reversible Conduction Block in Isolated Toad Sciatic Nerve by Emulsified Isoflurane

- Zhuo Li,
- Jing Yang,
- Jin Liu,
- Chun-Yu Gong,
- Jing Gan,
- Xian Zhang,
- Wen-Jun Luo,
- and Guo-hua Li

Anesth Analg April 2010 110:1024-1029;

Technology, Computing, and Simulation

全身麻醉期间头盔显示器（HMD）监测：一项手术室的临床评估

(张磊　译　陈杰　校)

Monitoring with Head-Mounted Displays in General Anesthesia: A Clinical Evaluation in the Operating Room

- David Liu,
- Simon A. Jenkins,
- Penelope M. Sanderson,
- Perry Fabian,

- and W. John Russell

Anesth Analg April 2010 110:1032-1038;

试用报告：鼻导管－保留自主呼吸的病人中监测呼末二氧化碳的新工具

(黄剑译 薛张纲校)

A Nasal Catheter for the Measurement of End-Tidal Carbon Dioxide in Spontaneously Breathing Patients: A Preliminary Evaluation

- Mohamed Samy Abdel Raheem and
- Olaa M. Wahba

Anesth Analg April 2010 110:1039-1042;

Patient Safety

一个手术部位感染群：一个调查的过程和结果——酒精类手术消毒产品和人为行动的影响

(龚寅 译 马皓琳 李士通校)

A Surgical Site Infection Cluster: The Process and Outcome of an Investigation—The Impact of an Alcohol-Based Surgical Antisepsis Product and Human Behavior

- Sarah Haessler,
- Neil Roy Connelly,
- Gary Kanter,
- Jan Fitzgerald,
- Mary Ellen Scales,
- Anneta Golubchik,
- Michael Albert,
- and Charles Gibson

Anesth Analg April 2010 110:1044-1048; published ahead of print January 26, 2010,

非专业人员使用**Airway Scope（R）**可视喉镜、**Airtraq(R)**可视喉镜或**Macintosh**直接喉镜行困难气道插管：模拟人插管教学比较

(叶乐　译　陈杰　校)

Tracheal Intubation of a Difficult Airway Using Airway Scope, Airtraq, and Macintosh Laryngoscope: A Comparative Manikin Study of Inexperienced Personnel

- Liangji Liu,
- Koichi Tanigawa,
- Shinji Kusunoki,
- Tomoko Tamura,
- Kohei Ota,
- Satoshi Yamaga,
- Yoshiko Kida,

- Tadatsugu Otani,
- Takuma Sadamori,
- Taku Takeda,
- Yasumasa Iwasaki,
- and Nobuyuki Hirohashi

Anesth Analg April 2010 110:1049-1055;

综述：手术室的血糖测量：比看去复杂

(李莹译 薛张纲校)

Review Article: Glucose Measurement in the Operating Room: More Complicated than It Seems

- Mark J. Rice,
- Andrew D. Pitkin,
- and Douglas B. Coursin

Anesth Analg April 2010 110:1056-1065; published ahead of print February 8, 2010, doi:10.1213/ANE.0b013e3181cc07de

Anesth Analg April 2010 110:1066-1068; published ahead of print February 8, 2010,

Critical Care, Trauma, and Resuscitation

内脏神经阻滞对不耐受肠内营养的危重病人的影响：一项随机、安慰剂对照研究

(刘伍翻译，马皓琳、李士通校正)

The Effect of Celiac Plexus Block in Critically Ill Patients Intolerant of Enteral Nutrition: A Randomized, Placebo-Controlled Study

- Dilek Memis,
- Mehmet Turan Inal,
- Osman Temizoz,
- Hakan Genchallac,
- Huseyin Ozdemir,
- and Necdet Sut

Anesth Analg April 2010 110:1071-1075; published ahead of print January 26, 2010,

喉罩或气管内插管用于经皮扩张气管造口术：气管内结构可见性比较

(舒慧刚　译　陈杰　校)

Laryngeal Mask Airway or Endotracheal Tube for Percutaneous Dilatational Tracheostomy: A Comparison of Visibility of Intratracheal Structures

- Ulf Linstedt,
- Michael Zenz,

- Kirsten Krull,
- Dietrich Häger,
- and Andreas W. Prengel

Anesth Analg April 2010 110:1076-1082;

Pediatric Anesthesiology

一个能降低睡眠呼吸暂停综合症儿童增殖体切除术后呼吸系统并发症的麻醉管理方案

(姚敏敏译 薛张纲校)

An Anesthetic Management Protocol to Decrease Respiratory Complications After Adenotonsillectomy in Children with Severe Sleep Apnea

- Sreekrishna Raghavendran,
- Hema Bagry,
- Gregory Detheux,
- Xun Zhang,
- Robert T. Brouillette,
- and Karen A. Brown

Anesth Analg April 2010 110:1093-1101; published ahead of print February 8, 2010,

双亲出现在麻醉后监护室对小儿术后行为的影响：一项前瞻性随机对照试验

(徐妍君 译　马皓琳 李士通 校)

The Effects of Parental Presence in the Postanesthetic Care Unit on Children's Postoperative Behavior: A Prospective, Randomized, Controlled Study

- David R. Lardner,
- Bruce D. Dick,
- R. Psych,
- and Susan Crawford

Anesth Analg April 2010 110:1102-1108; published ahead of print January 26, 2010,

儿童及其家长的围术期行为实时评估：围术期成人儿童交互作用量表的应用与验证

(丁俊云　译　陈杰　校)

Real-Time Assessment of Perioperative Behaviors in Children and Parents: Development and Validation of the Perioperative Adult Child Behavioral Interaction Scale

- Senthilkumar Sadhasivam,
- Lindsey L. Cohen,
- Liana Hosu,
- Kristin L. Gorman,
- Yu Wang,

- Todd G. Nick,
- Jing Fang Jou,
- Nancy Samol,
- Alexandra Szabova,
- Nancy Hagerman,
- Elizabeth Hein,
- Anne Boat,
- Anna Varughese,
- Charles Dean Kurth,
- J. Paul Willging,
- and Joel B. Gunter

Anesth Analg April 2010 110:1109-1115;

围术期心电图和胸片在有可疑神经肌肉障碍患者中预测左心室功能不全的准确性

(俞佳译 薛张纲校)

Accuracy of Preoperative Electrocardiographic and Chest Radiographic Screening for Prediction of Left Ventricular Dysfunction in Patients with Suspected Neuromuscular Disorders

- David J. Clendenin,
- Umeshkumar Athiraman,
- David Zurakowski,
- Frederic Shapiro,
- and Navil F. Sethna

Anesth Analg April 2010 110:1116-1120;

儿科心脏麻醉培训计划

(胡艳译 马皓琳 李士通校)

Special Article: A Proposal for Training in Pediatric Cardiac Anesthesia

- James A. DiNardo,
- Dean B. Andropoulos,
- and Victor C. Baum

Anesth Analg April 2010 110:1121-1125;

Neuroscience in Anesthesiology and Perioperative Medicine

选择性 β-肾上腺素受体阻断剂后处理而非预处理对暂时性前脑缺血大鼠海马区的神经保护作用

(邹巧群　译　陈杰　校)

Posttreatment but Not Pretreatment with Selective β-Adrenoreceptor 1 Antagonists Provides Neuroprotection in the Hippocampus in Rats Subjected to Transient Forebrain Ischemia

- Masato Iwata,
- Satoki Inoue,
- Masahiko Kawaguchi,
- Mitsutoshi Nakamura,
- Noboru Konishi,
- and Hitoshi Furuya

Anesth Analg April 2010 110:1126-1132;

艾司洛尔和兰地洛尔，选择性 β1 的-肾上腺素受体拮抗剂，提供对脊髓缺血再灌注的保护作用。

(张玥琪译，薛张纲校)

Esmolol and Landiolol, Selective β_1-Adrenoreceptor Antagonists, Provide Neuroprotection Against Spinal Cord Ischemia and Reperfusion in Rats

- Shino Umehara,
- Toru Goyagi,
- Toshiaki Nishikawa,
- Yoshitsugu Tobe,
- and Yoko Masaki

Anesth Analg April 2010 110:1133-1137; published ahead of print January 26, 2010,

进行深部脑刺激器插入的患者的麻醉管理

(滕凌雅 译 马皓琳 李士通校)

Review Article: Anesthetic Management of Patients Undergoing Deep Brain Stimulator Insertion

- Lashmi Venkatraghavan,
- Michelle Luciano,
- and Pirjo Manninen

Anesth Analg April 2010 110:1138-1145; published ahead of print February 8, 2010,

Analgesia

Pain Medicine

联合应用扑热息痛（对乙酰氨基酚）与非甾体抗炎药：对于急性术后疼痛镇痛效果的系统评价

（唐颖　译　陈杰　校）

Combining Paracetamol (Acetaminophen) with Nonsteroidal Antiinflammatory Drugs: A Qualitative Systematic Review of Analgesic Efficacy for Acute Postoperative Pain

- Cliff K. S. Ong,

- Robin A. Seymour,
- Phillip Lirk,
- and Alan F. Merry

Anesth Analg April 2010 110:1170-1179; published ahead of print February 8, 2010,

围术期使用普瑞巴林能改善腰椎间盘摘除术后 3 个月疼痛和功能恢复

(杨秋娟　译　陈杰　校)

Perioperative Pregabalin Improves Pain and Functional Outcomes 3 Months After Lumbar Discectomy

- Siun M. Burke and
- George D. Shorten

Anesth Analg April 2010 110:1180-1185; published ahead of print January 26, 2010,

在使用吗啡使用量作为终点的急性疼痛试验中，年龄对样本量计算的影响

(王海涛译 马皓琳 李士通校)

The Influence of Age on Sample Size Calculation in Acute Pain Trials Using Morphine Consumption as an End Point

- Mark Reeves

Anesth Analg April 2010 110:1186-1190; published ahead of print February 8, 2010,

向腹壁下深穿支皮瓣间歇注射布比卡因减轻乳房再造术后疼痛的报告

（张钊译　薛张纲校）

Brief Report: Improved Pain Relief Using Intermittent Bupivacaine Injections at the Donor Site After Breast Reconstruction with Deep Inferior Epigastric Perforator Flap

- Jørgen Utvoll,
- Marianne Beausang-Linder,
- Haris Mesic,
- and Johan Raeder

Anesth Analg April 2010 110:1191-1194; published ahead of print February 8, 2010,

Pain Mechanisms

对乙酰氨基酚与奥卡西平对啮齿类动物躯体及内脏疼痛的协同交互作用

(周洁 译　马皓琳 李士通 校)

Synergistic Interactions Between Paracetamol and Oxcarbazepine in Somatic and Visceral Pain Models in Rodents

- Maja A. Tomić,
- Sonja M. Vučković,
- Radica M. Stepanović-Petrović,
- Nenad D. Ugrešić,
- Milica Š. Prostran,

- and Bogdan Bošković

Anesth Analg April 2010 110:1198-1205; published ahead of print February 8, 2010,

新型氨基酸-异缬氨酸的镇痛特性

(张蕾　译　陈杰　校)

Analgesic Properties of the Novel Amino Acid, Isovaline

- Bernard A. MacLeod,
- Jimmy T. C. Wang,
- Cheryl C. W. Chung,
- Craig R. Ries,
- Stephan K. W. Schwarz,
- and Ernest Puil

Anesth Analg April 2010 110:1206-1214;

新福林抑制大鼠弥散性伤害抑制性控制的疼痛调节

(朱兰芳译，薛张纲校)

Phenylephrine Suppresses the Pain Modulation of Diffuse Noxious Inhibitory Control in Rats

- Kenzo Makino,
- Hikaru Kohase,
- Tatsuo Sanada,
- and Masahiro Umino

Anesth Analg April 2010 110:1215-1221;

Regional Anesthesia

对比超声引导下应用 2 次或 4 次注射技术行腋路臂丛神经阻滞的一项前瞻性、随机、双盲对照的研究

(黄丽娜 译 马皓琳 李士通 校)

A Prospective, Randomized, Double-Blind Comparison of Ultrasound-Guided Axillary Brachial Plexus Blocks Using 2 Versus 4 Injections

- Ngozi Imasogie,
- Sugantha Ganapathy,
- Sudha Singh,
- Kevin Armstrong,
- and Paidrig Armstrong

Anesth Analg April 2010 110:1222-1226; published ahead of print February 8, 2010,

大鼠静脉局部麻醉模型

(於章杰　译　陈杰　校)

A Model of Intravenous Regional Anesthesia in Rats

- Wen-Jun Luo,
- Yun-Fei Chai,
- Jin Liu,
- Jing-Wen Yang,
- Xian-Hui Kang,
- Meng Gao,
- Jing Yang,
- and Jing Gan

Anesth Analg April 2010 110:1227-1232;

新的超声引导下行局麻的学习模型：不易腐烂的物品制成的产品

(陈珺珺译 薛张纲校)

Technical Communication: New Teaching Model for Practicing Ultrasound-Guided Regional Anesthesia Techniques: No Perishable Food Products!

- Yang Liu,
- Nancy L. Glass,
- and Robert W. Power

Anesth Analg April 2010 110:1233-1235; published ahead of print February 8, 2010,

低体温对于成人心肺复苏后的神经保护

(唐亮 译 马皓琳 李士通 校)

Cochrane Corner: Hypothermia For Neuroprotection In Adults After Cardiopulmonary Resuscitation

- Jasmin Arrich,
- Michael Holzer,
- Harald Herkner,
- and Marcus Müllner

Anesth Analg April 2010 110:1239;

Sugammadex，一种预防术后残留肌松的选择性拮抗药

(於章杰 译 陈杰 校)

Cochrane Corner: Sugammadex, a Selective Reversal Medication for Preventing Postoperative Residual Neuromuscular Blockade

- Amir Abrishami,
- Joyce Ho,
- Jean Wong,
- Ling Yin,
- and Frances Chung

Anesth Analg April 2010 110:1239;

儿童心肺转流术后血栓弹性描记法、止血变量和出血之间的关联

The Relationship Among Thromboelastography, Hemostatic Variables, and Bleeding After Cardiopulmonary Bypass Surgery in Children

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背景：纵膈出血在儿童心肺转流术(CPB)后很常见。血栓弹性描记法(TEG®)可以预测出血并提供对可能机制的洞察。我们的目的是：（a）比较有明显出血（出血组）和没有明显出血（对照组）患者围手术期 TEG®的暂时档案资料和实验室止血变量；（b）研究 TEG®变量和常规止血变量之间的关系；（c）建立一个预测出血的模型。
方法：50 名体重<20 kg，行 CPB 手术的儿童，前瞻性地在 8 个预定义的时间测定 TEG®和实验室止血变量。
结果：出血患者的 TEG®资料不同于未明显出血的患者。这在鱼精蛋白给药后最明显，部分可归因于肝素逆转的不充分，但也和出血组的纤维蛋白原均数的最低值（标准差）较对照组明显降低有关：分别是 0.44（0.18）和 0.71（0.40）g/L,(P = 0.01)。我们发现大多数 TEG®和实验室止血变量之间存在显著的非线性关系。关联最密切的是最大波幅和血小板—纤维蛋白原乘积(对数 r2 = 0.71)。当（a）纤维蛋白原浓度<1 g/L、（b）血小板<120 × 10^9/L 及（c）血小板—纤维蛋白原乘积<100 时，血凝块强度迅速减小。一个包括麻醉诱导时激活部分促凝血酶原激酶时间和鱼精蛋白给药后 TEG®平均波幅的双变量模型可以很好地鉴别后来的出血（C 统计值 0.859）。
结论：低纤维蛋白原血症和肝素逆转的不充分是促成儿科 CPB 后凝血块强度和围术期出血的两个重要因素。TEG®可能是一个预测和指导该组患者纵膈出血早期治疗的有用工具。
（唐李隽 译 马皓琳、李士通 校）

BACKGROUND: Mediastinal bleeding is common after pediatric cardiopulmonary bypass (CPB) surgery. Thromboelastography (TEG®) may predict bleeding and provide insight into likely mechanisms. We aimed to (a) compare perioperative temporal profiles of TEG® and laboratory hemostatic variables between patients with significant hemorrhage (BLEED) and those without (CONTROL), (b) investigate the relationship between TEG® variables and routine hemostatic variables, and (c) develop a model for prediction of bleeding.

METHODS: TEG® and laboratory hemostatic variables were measured prospectively at 8 predefined times for 50 children weighing <20 kg undergoing CPB.
RESULTS: Patients who bled demonstrated different TEG® profiles than those who did not. This was most apparent after protamine administration and was partly attributable to inadequate heparin reversal, but was also associated with a significantly lower nadir in mean (SD) fibrinogen for the BLEED group compared with CONTROL group: 0.44 (0.18) and 0.71 (0.40) g/L, respectively (P = 0.01). Significant nonlinear relationships were found between the majority of TEG® and laboratory hemostatic variables. The strongest relationship was between the maximal amplitude and the platelet-fibrinogen product (logarithmic r^2 = 0.71). Clot strength decreased rapidly when (a) fibrinogen concentration was <1 g/L, (b) platelets were <120 × 10^9/L, and (c) platelet-fibrinogen product was <100. A 2-variable model including the activated partial thromboplastin time at induction of anesthesia and TEG® mean amplitude postprotamine discriminated well for subsequent bleeding (C statistic 0.859).
CONCLUSIONS: Hypofibrinogenemia and inadequate heparin reversal are 2 important factors contributing to clot strength and perioperative hemorrhage after pediatric CPB. TEG® may be a useful tool for predicting and guiding early treatment of mediastinal bleeding in this group.

乳化异氟醚对离体蟾蜍坐骨神经的可逆性神经传导阻滞

Reversible Conduction Block in Isolated Toad Sciatic Nerve by Emulsified Isoflurane

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背景：已经有研究表明局部应用挥发性麻醉药可以起到局部麻醉剂的作用，我们设计本实验来评估乳化异氟醚(EI)的神经传导阻滞的特性，同时通过测量离体蟾蜍坐骨神经的复合神经动作电位(CNAP)参数来比较乳化异氟醚和 1%利多卡因的神经阻滞作用。
方法：选择 100 条分离出来的蟾蜍坐骨神经，随机分成 10 组(每组 10 条)，分别给予浓度 2%到 8%的乳化异氟醚(共 8 组)、1%利多卡因、30%英脱利匹特®（中国江苏无锡华瑞制药）和林格式液（RS）十分钟。然后用 RS 清洗所有神经 10 分钟，浸泡 30 分钟。神经传导阻滞的效果通过细胞外记录仪每分钟记录的 CNAP 参数表示。
结果：结果表明 CNAP 负极的振幅在 EI 和利多卡因组减少(P<0.05)，在某些时点(D7－W3)CNAP 的传导速度同样减慢(P<0.05)。在林格式液冲洗后 2 个参数逐渐恢复。EI 引起的 2 个参数的变化比利多卡因引起的起效速度慢(7 分钟比 1 分钟)，恢复更快 (9 分钟比 30 分钟)。EI 引起的神经阻滞效应呈剂量依赖性(P<0.05)，EI 的半数最大抑制浓度是 5.46%。

结论：EI 可以引起完全可逆的剂量依赖性的神经传导阻滞，和利多卡因引起的神经传导阻滞相比，起效慢恢复快。
（姜旭晖译，马皓琳，李士通校）

BACKGROUND: Studies have shown that the local use of volatile anesthetics can produce local anesthetic effects. We designed this study to evaluate the characteristics of nerve conduction block of emulsified isoflurane (EI) and compare its nerve blockade with 1%lidocaine, by measuring compound nerve action potential (CNAP) parameters in isolated toad sciatic nerve.
METHODS: One hundred isolated toad sciatic nerves were selected and randomly assigned to 10 groups of 10 each, administered 2% to 8% EI (v/v) (EI_8 group, etc.), 1% lidocaine, 30% Intralipid® (Huarui Pharmacy, Wuxi, Jiangsu, China), and Ringer solution (RS) for 10 minutes, respectively. All nerves were then washed and soaked with RS for 10 minutes and 30 minutes. The nerve conduction block effect was represented by CNAP parameters that were recorded by an extracellular recording technique per minute.
RESULTS: The results showed that the negative amplitudes of CNAP were decreased by EI and lidocaine ($P < 0.05$), and the conduction velocities of CNAP were also decreased at some time points (D7–W3) ($P < 0.05$). After RS washing, the 2 parameters recovered gradually. The changes in the 2 parameters induced by EI had slower onset rates and faster recoveries than those produced by lidocaine (7 minutes vs 1 minute and 9 minutes vs 30 minutes). The nerve blockade induced by EI was dose dependent ($P < 0.05$), and the half maximal inhibition concentration of EI was 5.46%.
CONCLUSIONS: EI produced completely reversible and dose-dependent nerve conduction inhibition, which had slower onset and faster recovery compared with those produced by lidocaine.

一个手术部位感染群：一个调查的过程和结果——酒精类手术消毒产品和人为行动的影响

A Surgical Site Infection Cluster: The Process and Outcome of an Investigation—The Impact of an Alcohol-Based Surgical Antisepsis Product and Human Behavior

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背景：用于成功执行围术期抗生素管理系统的一个程序的制定，只是防止术后感染的一个部分。感染的连续监测是减少术后感染程序的一个重要部分。最近，我们发现术后感染患者的人数增加。我们运用标准的控制感染爆发的调查方法，跟踪多项变量从而找到一个共同的原因。我们在此记述质量改进方法运用于调查和管理外科手术部位感染（SSI）集合所通过的程序。

方法：作为 SSI 常规监测的一部分，感染控制部门找出术后感染的证据。根据国家医疗安全网络 SSI 标准定义患者是否为 SSI。每月回顾 SSI 数据并且按季度总计。SSI 率在 2007 年已连续三个季度高于我们的一般水平。这一感染率的上升导致了这一国内爆发性调查研究，称作为“集群调研”。这项调查研究包含了多元化协作的方法，包括所用患者的病历人工回顾、微生物学资料的回顾、以及手术室、仪器处理设备和储存区的检查。

结果：在三个季度期间，证实了普外科中四种手术方式的 SSI 持续增多并形成一种趋势。建立的抗生素治疗方案适用于大部分的这些 SSI 的预防。作为此项研究的一部分，还进行了对手部卫生以及手术人员手部抗菌技术的直接观察。与此同时，有两种外科手部消毒剂被采用，由临床医生自由选择：用抗菌肥皂洗刷或者应用葡萄糖酸洗必泰以及含酒精成分的外科手部抗菌产品。观察者注意到了这种含酒精的外科手部抗菌液的使用并不合适。这一产品已从手术室撤出，并且 SSI 率在接下来的两个季度中明显下降。

讨论：最后，我们报告了调查三个季度 SSI 率增高的质量改进程序的结果。我们进行了一项调查研究，且认为错误的使用含酒精的抗菌产品使感染率增长。除去这一产品，连同重新强调控制感染的重要性一起，使感染率下降至平于或者低于我们的历史水平。

（龚寅 译 马皓琳 李士通校）

BACKGROUND: The institution of a process used to successfully execute a perioperative antibiotic administration system is but 1 component of preventing postoperative infections. Continued surveillance of infections is an important part of the process of decreasing postoperative infections. We recently experienced an increase in the number of postoperative infections in our patients. Using standard infection control methods of outbreak investigation, we tracked multiple variables to search for a common cause. We describe herein the process by which Quality Improvement methodology was used to investigate and manage this surgical site infection (SSI) cluster.

METHODS: As part of routine surveillance for SSI, the infection control division seeks out evidence of postoperative infections. Patients were defined as having an SSI according to National Healthcare Safety Network SSI criteria. SSI data are reviewed monthly and aggregated on a quarterly basis. The SSI rate was above our usual level for 3 consecutive quarters of 2007. This increase in the infection rate led to an internal outbreak investigation, termed a “cluster investigation.” This investigation comprised multiple concurrent methods including manual chart review of all cases; review of microbiological data; and inspection of operating rooms, instrument processing facilities, and storage areas.

RESULTS: During 3 quarters, a trend emerged in our general surgical population that demonstrated that 4 surgical types had a sustained increase in SSI. The institutional antibiotic protocol was appropriate for prevention of the majority of these SSIs. As part of the investigation, direct observation of hand hygiene and surgical hand antisepsis technique was undertaken. At this time, there were 2 types of surgical hand preparation being used, at the discretion of the clinician: either a “standard” scrub with an antimicrobial soap or the application of a chlorhexidine gluconate and alcohol-based

surgical hand antisepsis product. Observers noted improper use of this alcohol-based surgical hand antiseptic. This product was withdrawn from our operating rooms, and the SSI rate markedly decreased in the following 2 quarters.

DISCUSSION: In conclusion, we report the results of a quality improvement process that investigated a 3-quarter increase in our SSI rate. An investigation was undertaken, and it was thought that the (mis)use of an alcohol-based hand antiseptic product was associated with the increased infection rate. Removing this product, along with reemphasizing the importance of infection control, was associated with a decrease in the infection rate to a level at or below our historical rate.

内脏神经阻滞对不耐受肠内营养的危重病人的影响：一项随机、安慰剂对照研究

The Effect of Celiac Plexus Block in Critically Ill Patients Intolerant of Enteral Nutrition: A Randomized, Placebo-Controlled Study

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背景：在本项研究中，我们评估了在危重病人中，内脏神经阻滞对肠内营养不耐受症的治疗效果。

方法：19 例机械通气后有肠内营养不耐受症且正服用胃复安的病人接受了双侧内脏神经阻滞。前路在超声引导下完成，分别注射 0.25%布比卡因 25ml（实验组，n=10）和生理盐水（对照组，n=9）。用扑热息痛吸收法测定胃排空。神经阻滞之后，开始鼻饲营养，并且每 24 小时抽吸一次鼻胃管。我们将鼻饲速度≥40 mL/h 时，每 24 小时胃潴留量<250 mL 定义为成功的肠内营养。

结果：两组病人的一般情况数据无显著差异。实验组血浆扑热息痛吸收曲线下面积(383.8 ± 248.1 mg • min • L^{-1})和血浆扑热息痛浓度峰值(C_{max}; 3.28 ± 2.15 mg/L)较对照组（1233.5 ± 771.2 和 C_{max}10.14 ± 6.04）均明显降低（均为 P < 0.001）。经过内脏神经阻滞治疗后，平均胃潴留量降低（实验组：430 ± 32 mL 降至 205 ± 30 mL, P < 0.001；对照组：450 ± 33 mL 变为 461 ± 19 mL, P > 0.05），且肠内营养的成功率提高（实验组 80%对比对照组 0%, P < 0.001）。

结论：对于危重病人，当静脉药物治疗无法改善胃肠功能紊乱时，内脏神经阻滞对肠内营养不耐受症的治疗是有效的。

（刘伍翻译，马皓琳、李士通校正）

BACKGROUND: In this study, we evaluated the efficacy of celiac plexus block for the treatment of feeding intolerance in critically ill patients.

METHODS: Nineteen mechanically ventilated medical patients intolerant of enteral nutrition and receiving metoclopramide underwent bilateral celiac plexus block. The anterior procedure was accomplished under sonographic guidance with the injection of either 25 mL bupivacaine 0.25% (celiac group, n = 10) or saline (control group, n = 9) bilaterally. Gastric emptying was assessed by the acetaminophen absorption method.

After the block, nasogastric feeding was commenced, and nasogastric aspirates were collected once every 24 hours. Successful feeding was defined as 24-hourly gastric residual volume <250 mL with a feeding rate ≥40 mL/h.

RESULTS: Demographic data were similar for the 2 groups. The area under the plasma paracetamol absorption curve (383.8 ± 248.1 mg · min · L^{-1}) and the peak plasma paracetamol concentration (C_{max}; 3.28 ± 2.15 mg/L) in the celiac group were significantly lower than the area under the curve value (1233.5 ± 771.2) and C_{max} value (10.14 ± 6.04) in controls ($P < 0.001$ for all). After treatment, celiac plexus block reduced the mean gastric residual volume (celiac group: 430 ± 32 mL to 205 ± 30 mL, $P < 0.001$; control group: 450 ± 33 mL to 461 ± 19 mL, $P > 0.05$) and improved the proportion of patients with successful feeding (celiac block 80% vs controls 0%, $P < 0.001$).

CONCLUSION: In critical illness, celiac plexus block is effective for treating feeding intolerance when IV drug therapy has failed to improve gastrointestinal dysfunction.

双亲出现在麻醉后监护室对小儿术后行为的影响：一项前瞻性随机对照试验

The Effects of Parental Presence in the Postanesthetic Care Unit on Children's Postoperative Behavior: A Prospective, Randomized, Controlled Study

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背景：很少人研究过双亲出现在麻醉后监护室（PACU）对小儿术后行为的影响，而很少的出版的研究也都是回顾性的、非随机性或无合适的对照。他们的结果显示，双亲在麻醉后监护室可以减少小儿术后哭吵和消极行为改变。我们进行了这项前瞻性随机对照试验，来证明父母在麻醉后监护室是否能影响小儿在 PACU 的哭吵和术后两周的行为改变。

方法：随机选择年龄在 2 至 8 岁 11 个月，ASA I 至 II 级，择期门诊手术，预计在麻醉后监护室逗留超过 10 分钟的患者，随机分为双亲在 PACU（n = 150）或不在 PACU（n = 150）组。所有的父母都作了相同的准备程序，双亲在场组的患儿术后睁开眼就可以看到父母。在麻醉后监护室，依据 5 分评分法从患者睁眼开始每分钟对其哭吵程度进行评分；用出院后行为调查问卷对其出院后两周的消极行为改变进行评估。由于没有预先确定麻醉方式，因此收集麻醉中的一些数据，确保两组的相似性。运用多因素逻辑回归分析来确定麻醉后监护室中的哭吵和术后两周行为改变的预计因素。

结果：麻醉后监护室双亲在场并没有减少术后小儿的哭吵，而双亲不在场的患者术后两周消极行为改变的发生率较双亲在场的要高（45.8%比 29.3%；P = 0.007），多因素回归分析证明，以下因素对预计患儿在麻醉后监护室中哭吵时间的有重要作

用(R2 = 0.256, F[5, 273] = 15.66, P < 0.001)：年龄小于 5 岁（P < 0.001），手术当日到达后 15 分钟东安大略儿童医院疼痛评分较高者(P < 0.001)。双亲是否在 PACU、社会经济地位、术中阿片类镇痛药并不影响患儿在麻醉后监护室的哭吵。逻辑回归分析证明，以下因素(χ2[4] = 26.62, P < 0.001)可以预计术后两周消极行为改变的发生：年龄小于 5 岁(P < 0.001)，双亲不在场组患儿(P = 0.003)。

结论：对于行门诊手术的健康小儿，麻醉后监护室双亲在场能够减少术后两周消极行为改变，但对麻醉后监护室的哭吵行为并没有影响。对术后行为改变的进一步研究必须考虑麻醉后监护室双亲陪同这个因素，以及有其它因素干扰时，其作用是否能持续。

（徐妍君 译　马皓琳 李士通 校）

BACKGROUND: The effects on children of parental presence in the postanesthesia care unit (PACU) have not been extensively studied. The few published studies are retrospective, nonrandomized, or lack adequate controls. They suggest that parental presence in the PACU decreases crying and negative behavior change postoperatively. We performed this prospective, randomized, controlled study to determine whether the presence of a parent affected crying behaviors in the PACU and behavior change 2 weeks postoperatively.

METHODS: Randomly selected patients, aged 2.0 to 8 years 11 months, ASA physical status I or II, and scheduled for elective outpatient surgery with an anticipated PACU stay of >10 minutes were randomly assigned to the parent present group (n = 150) or parent absent group (n = 150) in the PACU. All parents underwent the same preparation program. Reunification occurred once children's eyes had opened for the parent present group. In the PACU, crying was scored each minute after eye opening using a 5-point scale. Negative behavior change 2 weeks after discharge was determined using the Post Hospitalization Behavior Questionnaire. Because the anesthesia technique to be used was not determined a priori, data on the technique used were collected to ensure that groups were similar. Multiple and logistic regression techniques were used to determine predictors of crying in the PACU and behavior change 2 weeks postoperatively.

RESULTS: Parental presence in the PACU made no difference in crying in the PACU. Negative behavior change 2 weeks postoperatively occurred more frequently in the parent absent group than the parent present group (45.8% vs 29.3%; P = 0.007). Multiple regression identified the following significant factors as predictive of larger proportion of time spent crying in the PACU (R^2 = 0.256, F[5, 273] = 15.66, P < 0.001): age <5 years (P < 0.001) and higher Children's Hospital of Eastern Ontario Pain Scale score at 15 minutes after arrival in day surgery (P < 0.001). Parental presence or absence from the PACU was not predictive of crying in the PACU, and neither were socioeconomic status nor intraoperative opioid analgesia. Logistic regression identified the following factors (χ^2[4] = 26.62, P < 0.001) as predictive of negative behavior change at 2 weeks postoperatively: being younger than 5 years (P < 0.001) and being in the parent absent group (P = 0.003).

CONCLUSION: For fit healthy children undergoing outpatient surgery, parental presence in the PACU decreases negative behavior change at 2 weeks postoperatively but makes

no difference in crying in the PACU. Future studies of behavior change postoperatively should consider parental presence in the PACU a factor and determine whether the effect persists with other interventions.

儿科心脏麻醉培训计划

A Proposal for Training in Pediatric Cardiac Anesthesia

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尽管有相对普遍的可适用知识库和操作规范，但是儿科心脏麻醉培训和经验在目前的系统基础麻醉和成人心胸麻醉项目中是有限的和缺乏统一规范的。儿科麻醉培训中的经验虽然是统一可利用的，但是有时间的局限性和强度的多样性。所以先天性心脏麻醉协会的一个工作组提出了一个方案用于培训儿科心脏麻醉，且国际儿科心脏麻醉学者必须认为这是一个有必要改良的模板。
（胡艳译　马皓琳 李士通校）

Despite a relatively universally applicable knowledge base and skill set, training and experience in pediatric cardiac anesthesia in currently organized basic anesthesia and Adult Cardiothoracic Anesthesia fellowship programs are very limited and not uniformly available. Experience during Pediatric Anesthesia fellowship training is uniformly available but of limited duration and varying intensity. We present a schema, developed by a working group of the Congenital Cardiac Anesthesia Society, for training in pediatric cardiac anesthesia that pediatric cardiac anesthesia educators internationally should consider as a template to be modified as necessary.

进行深部脑刺激器插入的患者的麻醉管理

Anesthetic Management of Patients Undergoing Deep Brain Stimulator Insertion

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深部脑刺激器用于治疗有功能性改变（如运动障碍、其他慢性疾病）的神经系统疾病患者。深部脑刺激器（DBS）的插入是个微创侵入的过程，包括将电极放置入深部的脑结构用以微电极记录和术中临床测试以及将 DBS 连接至一个植入起搏器。麻醉技术随着每个机构的传统和需要而不同，并且已包括了有局部麻醉的监测麻醉、清醒镇静、全身麻醉。对麻醉医生来说，监护这些病人面临的挑战和要求与功能性

神经疾病的病人的特殊关注点、麻醉药对微电极记录的影响和手术操作的要求（常包括要求病人清醒且合作）有关。这篇综述的目的是通过讨论机制、麻醉药影响和 DBS 插入的手术操作，以及功能性神经疾病病人的围手术期评估、准备、术中麻醉管理和并发症，从而使麻醉医生熟悉 DBS。
（滕凌雅 译 马皓琳 李士通校）

Deep brain stimulation is used for the treatment of patients with neurologic disorders who have an alteration of function, such as movement disorders and other chronic illnesses. The insertion of the deep brain stimulator (DBS) is a minimally invasive procedure that includes the placement of electrodes into deep brain structures for microelectrode recordings and intraoperative clinical testing and connection of the DBS to an implanted pacemaker. The anesthetic technique varies depending on the traditions and requirements of each institution performing these procedures and has included monitored anesthesia with local anesthesia, conscious sedation, and general anesthesia. The challenges and demands for the anesthesiologist in the care of these patients relate to the specific concerns of the patients with functional neurologic disorders, the effects of anesthetic drugs on microelectrode recordings, and the requirements of the surgical procedure, which often include an awake and cooperative patient. The purpose of this review is to familiarize anesthesiologists with deep brain stimulation by discussing the mechanism, the effects of anesthetic drugs, and the surgical procedure of DBS insertion, and the perioperative assessment, preparation, intraoperative anesthetic management, and complications in patients with functional neurologic disorders.

在使用吗啡使用量作为终点的急性疼痛试验中，年龄对样本量计算的影响

The Influence of Age on Sample Size Calculation in Acute Pain Trials Using Morphine Consumption as an End Point

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Anesth Analg 2010; 110:1186-1190

背景：很多急性术后痛的试验把吗啡使用量作为研究终点。虽然已证实年龄对吗啡使用量有明显的影响，但是在终点分析时，很少被考虑。
方法：使用模型观察年龄对不同样本量发现对照组和研究组吗啡使用量差异的把握度的影响。
结果：在未校正年龄情况下，使用 t 检验比较吗啡使用量时，达到 80%把握度所需的样本量大约是样本量程序预测值的两倍。
结论：此模型表明年龄的变异对样本量有明显的影响。研究者或许需要考虑到这一点，从而避免一类误差和二类误差的发生。
（王海涛译 马皓琳 李士通校）

BACKGROUND: Many trials in acute postoperative pain use morphine consumption as an end point. Age has been shown to have a significant influence on morphine consumption but is rarely considered in end point analysis.
METHODS: Simulation was used to investigate the effect of age on the power of various sample sizes to detect differences in morphine consumption in control and study groups.
RESULTS: The sample sizes required for 80% power were approximately twice that predicted by a sample size program when comparing morphine consumption using a t test without adjustment for age.
CONCLUSIONS: The model suggests that variations in age have a profound effect on sample size. Researchers may need to account for this to prevent both type 1 and type 2 error.

对乙酰氨基酚与奥卡西平对啮齿类动物躯体及内脏疼痛的协同交互作用

Synergistic Interactions Between Paracetamol and Oxcarbazepine in Somatic and Visceral Pain Models in Rodents

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背景：联合用药是疼痛治疗的一种有效途径，它可以用较少量的镇痛药达到最佳镇痛效果，同时可减少镇痛药的副反应。我们建立了一个爪炎症性痛觉过敏的大鼠模型和一个内脏痛的小鼠模型，来检验对乙酰氨基酚（一种广泛使用的非阿片类镇痛药）和奥卡西平（一种具有镇痛作用的比较新的抗惊厥药）同时用药的效果，并确定两者之间相互作用的类型。
方法：对乙酰氨基酚、奥卡西平及两者联合用药的效果由角叉藻聚糖(0.1 mL, 1%)诱导的大鼠爪炎症性痛觉过敏模型和醋酸(10 mg/kg, 0.75%)诱导的小鼠扭体试验模型来检验。在这两个模型中，两种药物以 50%有效剂量(ED_{50})的固定剂量级分同时给予，而相互作用的类型由等幅射分析法测定。
结果：在注射角叉藻聚糖的大鼠模型中，对乙酰氨基酚(口服 50－200 mg/kg)、奥卡西平(口服 40－160 mg/kg)和两者联合用药(单药 ED_{50}的 1/8、1/4、1/3 和 1/2)均显示了一个显著的、剂量依赖性抗痛觉增敏效应。在扭体试验的小鼠模型中，对乙酰氨基酚(口服 60－180 mg/kg)、奥卡西平(口服 20－80 mg/kg)，和两者联合用药(单药 ED_{50} 的 1/16、1/8、1/4 和 1/2)均显著且剂量依赖性的减少了扭体次数。在两种模型中，等辐射分析法显示对乙酰氨基酚和奥卡西平有显著的协同交互作用，与单药 ED_{50}相比联合用药可使两种药物的使用量均减少超过 1/4。
结论：对乙酰氨基酚和奥卡西平的协同交互作用为疼痛治疗的联合用药提供了新的信息，并且应该在临床上作进一步的研究，尤其是患有躯体和/或内脏疼痛的病人。

（周洁 译　马皓琳 李士通 校）

BACKGROUND: Combination therapy is a valid approach in pain treatment, in which a reduction of doses could reduce side effects and still achieve optimal analgesia. We examined the effects of coadministered paracetamol, a widely used non-opioid analgesic, and oxcarbazepine, a relatively novel anticonvulsant with analgesic properties, in a rat model of paw inflammatory hyperalgesia and in a mice model of visceral pain and determined the type of interaction between components.
METHODS: The effects of paracetamol, oxcarbazepine, and their combinations were examined in carrageenan-induced (0.1 mL, 1%) paw inflammatory hyperalgesia in rats and in an acetic acid–induced (10 mg/kg, 0.75%) writhing test in mice. In both models, drugs were coadministered in fixed-dose fractions of the 50% effective dose (ED_{50}), and type of interaction was determined by isobolographic analysis.
RESULTS: Paracetamol (50–200 mg/kg peroral), oxcarbazepine (40–160 mg/kg peroral), and their combination (1/8, 1/4, 1/3, and 1/2 of a single drug ED_{50}) produced a significant, dose-dependent antihyperalgesia in carrageenan-injected rats. In the writhing test in mice, paracetamol (60–180 mg/kg peroral), oxcarbazepine (20–80 mg/kg peroral), and their combination (1/16, 1/8, 1/4, and 1/2 of a single drug ED_{50}) significantly and dose dependently reduced the number of writhes. In both models, isobolographic analysis revealed a significant synergistic interaction between paracetamol and oxcarbazepine, with a >4-fold reduction of doses of both drugs in combination, compared with single drugs ED_{50}.
CONCLUSIONS: The synergistic interaction between paracetamol and oxcarbazepine provides new information about combination pain treatment and should be explored further in patients, especially with somatic and/or visceral pain.

对比超声引导下应用 2 次或 4 次注射技术行腋路臂丛神经阻滞的一项前瞻性、随机、双盲对照的研究

A Prospective, Randomized, Double-Blind Comparison of Ultrasound-Guided Axillary Brachial Plexus Blocks Using 2 Versus 4 Injections

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Anesth Analg 2010; 110:1222-1226;

背景：在该项前瞻性、随机、双盲研究中，我们比较了手术期间应用 2 种不同的技术进行腋路臂丛神经阻滞的有效性和时间效能，一种是有 2 个皮肤穿刺点，另一种有 4 个不同的皮肤穿刺点。
方法：120 名行上肢手术的患者随机分入以下两组：（1）应用 2 次注射方法行腋路臂丛神经阻滞，30mL 局麻药注射入腋动脉背面（如果需要，变换方向注射，以达到周围扩散），加 10mL 局麻药至肌皮神经，上述操作在超声引导下完成（第 1 组，n=56）；（2）分别注射 4 次，每次 10mL 至正中神经、尺神经、桡神经和肌皮

神经，复合应用超声技术及神经刺激技术（第 2 组，n=58）。所有病人应用 40mL0.5%的罗哌卡因，并加入 1:400000 的肾上腺素。主要观察指标为神经阻滞的成功率，以能满足手术需要定义为成功。次要观察指标为完成阻滞的时间、运动感觉神经阻滞的起效时间、手术准备就绪的时间以及不良事件的发生率。

结果：2 次注射技术完成得稍微快一些（8 比 11 min， P = 0.003）。在 10min、15min、20min、30min 时间点时，4 次注射组的平均阻滞分数稍许较高，而总的阻滞有效的累积百分比在上述时间点并没有明显差异，在 2 次注射组为 0.0%、5.4%、12.5%和 37.5%，而在 4 次注射组分别为 6.9%、10.4%、19.0%和 48.3%，P = 0.20。30min 时达到完全阻滞的百分比没有明显差异（32.1%比 37.5%，P = 0.55）。最终的阻滞成功率也没有差异（89.3%比 87.9%， P = 0.99）。

结论：超声引导下的 2 次注射阻滞腋路臂丛神经可能与 4 次注射技术是同样有效的，同时更有时间有效性。

（黄丽娜 译 马皓琳 李士通 校）

INTRODUCTION: In this prospective, randomized, double-blind study, we compared the effectiveness and time efficiency of perioperative axillary blocks performed via 2 different techniques, 1 involving 2 and the other 4 separate skin punctures.

METHODS: One hundred twenty patients undergoing upper limb surgery were randomized to receive either (1) an axillary brachial plexus block involving 2 injections, with 30 mL local anesthetic injected posterior to the axillary artery (with redirection, as needed, to achieve circumferential spread), plus 10 mL local anesthetic to the musculocutaneous nerve, guided by ultrasound (group 1, n = 56); or (2) 4 separate 10-mL injections to the median, ulnar, radial, and musculocutaneous nerves, using a combined ultrasound and neurostimulation technique (group 2, n = 58). All patients received 40 mL of 0.5% ropivacaine with 1:400,000 epinephrine. The primary outcome was the success rate of the block, defined as anesthesia adequate for surgery. Secondary outcomes were the time to administer the block, time to the onset of motor-sensory block, time to surgical readiness, and incidence of adverse events.

RESULTS: The 2-injection technique was slightly faster to administer (8 vs 11 minutes, P = 0.003). The mean nerve block score was slightly higher for the 4-injection group at the 10-, 15-, 20-, and 30-minute time points, but the cumulative percentages of blocks having taken effect were not significantly different over these time points, at 0.0%, 5.4%, 12.5%, and 37.5% among those who had received a 2-injection block versus 6.9%, 10.4%, 19.0%, and 48.3%, respectively, with the 4-injection block (P = 0.20). There was no difference in the percentage of patients with complete block by 30 minutes (32.1% vs 37.5%, P = 0.55) or in final block success rates (89.3% vs 87.9%, P = 0.99).

CONCLUSIONS: An ultrasound-guided 2-injection axillary block may be as effective as, and more time efficient than, a 4-injection technique.

低体温对于成人心肺复苏后的神经保护

Hypothermia For Neuroprotection In Adults After Cardiopulmonary Resuscitation

Jasmin Arrich, Michael Holzer, Harald Herkner and Marcus Müllner

Anesth Analg 2010; 110:1239;

背景：在心脏停搏之后神经系统很难有好的转归。在复苏阶段进行干预和事件后第一时间的治疗是非常关键的。实验证据表明治疗性的低体温是有帮助的，已经有大量关于这方面临床研究的文章发表了。
目的：我们进行一个系统性的回顾与荟萃分析来评估治疗性低体温对心脏停搏后患者的有效性。神经系统的转归、存活和不良事件是我们主要的转归参数。如果数据能够获得，就进行个别患者的数据分析，并根据心脏停搏的情况分成不同的亚组，
搜索方法：我们搜索了以下的数据库：Cochrane 中心对照试验注册资料库（Cochrane 图书馆，2007，第 1 版）、MEDLINE（1971 年到 2007 年 1 月）、EMBASE（1987 到 2007 年 1 月）、CINAHL（1988 到 2007 年 1 月）、PASCAL（2000 到 2007 年 1 月）和 BIOSIS（1989 到 2007 年 1 月）。
选择标准：我们涵盖了所有评估治疗性低体温在心脏停跳后应用，而没有语言能力丧失的有效性的随机对照实验。研究限定为在心脏停搏后 6 小时之内应用任何降温方法来降温的成人。
数据收集和分析：有效的措施、干预、转归参数和附加基础变量收集到资料库。只有在有可忽略的异质性的相似研究的亚组中进行荟萃分析。因为这些研究的各个患者的数据是可以得到的。
主要结果：报道了 481 例患者的 4 个试验和一个摘要收入在本系统性回顾中。其中 3/5 的研究质量是比较好的。运用常规降温方法的三个对比研究的所有作者都提供了每个患者的数据。相对于标准的复苏后监护，运用常规降温方法的低体温组更可能在住院期间达到一个最好的脑表现范畴 1 或 2 分的得分（CPC，5 分制；1 为好的脑表现，5 为脑死亡）（个别病人的数据；RR，1.55；95%CI 1.22-1.96），更可能存活到出院（个别病人的数据；RR，1.35；95%CI 1.10-1.65）。在所有的研究中低体温组和对照组在报道的不良事件方面没有显著性差异。
作者的结论：常规的降温方法引起的轻度治疗性低体温可以改善心脏停搏后的生存率和神经系统的转归。我们的综述支持国际复苏指南推荐的这个当前最好的治疗手段。
（唐亮 译　马皓琳 李士通 校）

BACKGROUND: Good neurologic outcome after cardiac arrest is hard to achieve. Interventions during the resuscitation phase and treatment within the first hours after the event are critical. Experimental evidence suggests that therapeutic hypothermia is beneficial, and a number of clinical studies on this subject have been published.
OBJECTIVES: We performed a systematic review and meta-analysis to assess the effectiveness of therapeutic hypothermia in patients after cardiac arrest. Neurologic outcome, survival and adverse events were our main outcome parameters. We aimed to perform individual patient data analysis if data were available, and to from subgroups according to the cardiac arrest situation.
SEARCH STRATEGY: We searched the following databases: the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library, 2007 Issue 1); MEDLINE (1971 to January 2007); EMBASE (1987 to January 2007); CINAHL (1988 to January 2007); PASCAL (2000 to January 2007); and BIOSIS (1989 to January 2007).

SELECTION CRITERIA: We included all randomized controlled trials assessing the effectiveness of the therapeutic hypothermia in patients after cardiac arrest without language restrictions. Studies were restricted to adult populations cooled with any cooling method applied within six hours of cardiac arrest.
DATA COLLECTION AND ANALYSIS: Validity measures, the intervention, outcome parameters and additional baseline variables were entered into the database. Meta-analysis was only done for a subset of comparable studies with negligible heterogeneity. For these studies individual patient data were available.
MAIN RESULTS: Four trials and one abstract reporting on 481 patients were included in the systematic review. Quality of the included studies was good in three out of five included studies. For the three comparable studies on conventional cooling methods all authors provided individual patient data. With conventional cooling methods patients in the hypothermia group were more likely to reach a best cerebral performance categories score of one or two (CPC, five point scale; 1=good cerebral performance, to 5=brain death) during hospital stay (individual patient data; RR, 1.55; 95% CI 1.22 to 1.96) and were more likely to survive to hospital discharge (individual patient data; RR, 1.35; 95% CI 1.10 to 1.65) compared to standard post-resuscitation care. Across all studies there was no significant difference in reported adverse events between hypothermia and control.
AUTHORS' CONCLUSIONS: Conventional cooling methods to induce mild therapeutic hypothermia seem to improve survival and neurologic outcome after cardiac arrest. Our review supports the current best medical practice as recommended by the International Resuscitation Guidelines.

一个简易围手术期睡眠呼吸暂停预测评分的衍生和验证

Derivation and Validation of a Simple Perioperative Sleep Apnea Prediction Score .

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背景：阻塞性睡眠呼吸暂停（OSA）常未被诊断而又普遍存在，其术前明确诊断对围术期处理有重要意义。作者此研究目的是确定一些普通手术患者 OSA 诊断的临床独立预测因子，在此基础上建立一种围手术期睡眠呼吸暂停的预测评分（P - SAP），并通过夜间多导睡眠图的标准诊断来验证 P - SAP 评分。
方法：此项回顾性，观察性研究针对术前 OSA 明确诊断的患者。独立 OSA 诊断预测因子由 Logistic 回归得出，在此基础上预测工具（对 SAP 的评分）建立。该 P - SAP 的得分，用夜间多导睡眠监测进行验证。
结果：该 P - SAP 的评分是得自接受麻醉的 43576 例成人患者。其中，3884 例（7.17％）有诊断为 OSA。3 个人口统计变量：年龄＞43 岁，男性，肥胖；3 个既往史变量：打鼾，2 型糖尿病和高血压;和 3 个气道测量变量：厚厚的颈部，改良

Mallampati 3 或 4 级，并减少甲颏距离被确定为独立的 OSA 诊断预测因子。将诊断阈值的 P - SAP 的评分设定为≥2 具有出色的灵敏度（0.939），但特异性差（0.323），而诊断阈值 P - SAP 的评分设定为≥6 时，灵敏度差（0.239）而特异性较好（0.911）。在 512 例患者中验证此 P - SAP 的评分，其有类似的准确性。
结论：随着症状的由轻到重，P - SAP 的评分预测 OSA 的准确度也随之上升。该 P - SAP 的评分来自有代表性的大学医院外科患者。
（刘世文　译　陈杰　校）

BACKGROUND: Obstructive sleep apnea (OSA) is a largely underdiagnosed, common condition, which is important to diagnose preoperatively because it has implications for perioperative management. Our purpose in this study was to identify independent clinical predictors of a diagnosis of OSA in a general surgical population, develop a perioperative sleep apnea prediction (P-SAP) score based on these variables, and validate the P-SAP score against standard overnight polysomnography.
METHODS: A retrospective, observational study was designed to identify patients with a known diagnosis of OSA. Independent predictors of a diagnosis of OSA were derived by logistic regression, based on which prediction tool (P-SAP score) was developed. The P-SAP score was then validated in patients undergoing overnight polysomnography.
RESULTS: The P-SAP score was derived from 43,576 adult cases undergoing anesthesia. Of these, 3884 patients (7.17%) had a documented diagnosis of OSA. Three demographic variables: age >43 years, male gender, and obesity; 3 history variables: history of snoring, diabetes mellitus Type 2, and hypertension; and 3 airway measures: thick neck, modified Mallampati class 3 or 4, and reduced thyromental distance were identified as independent predictors of a diagnosis of OSA. A diagnostic threshold P-SAP score ≥2 showed excellent sensitivity (0.939) but poor specificity (0.323), whereas for a P-SAP score ≥6, sensitivity was poor (0.239) with excellent specificity (0.911). Validation of this P-SAP score was performed in 512 patients with similar accuracy.
CONCLUSION: The P-SAP score predicts diagnosis of OSA with dependable accuracy across mild to severe disease. The elements of the P-SAP score are derived from a typical university hospital surgical population.

全身麻醉期间头盔显示器（HMD）监测：一项手术室的临床评估

Monitoring with Head-Mounted Displays in General Anesthesia: A Clinical Evaluation in the Operating Room.

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背景：麻醉医师在手术室时执行某些操作时很难看到病人的监护。HMD 可以通过将病人的生命体征数据传递到麻醉医生的视野来帮助麻醉医生监测患者。模拟研究表明，通过使用 HMD 麻醉医师可以花更多的时间监测病人并花更少的时间在检测仪上。作者设计了一项临床试验拟检测 HMD 是否适用于实践。
方法：6 名麻醉主治医生对行硬式膀胱镜检查的患者进行麻醉。每位麻醉医生行 6 例麻醉交替使用标准监测飞利浦 IntelliVue™MP70 和标准的监测另加头盔显示器（Microvision Nomad™ ND2000 HMD）监测。HMD 与 MP70 监测无线连接并显示波形和数字性生命体征的数据。记录所有病例过程并进行分析以确定时间，以及在麻醉工作站看的频率和时间，病人和手术期间各麻醉阶段的一些情况。使用重复测量的方差分析来统计两种显示方式的差异。
结果：视频数据收集来自 36 个病例，持续时间为 7～75 分钟（平均 31 分钟）。参加者使用 HMD 显示器与标准的监测相比，他们花更少的时间在麻醉工作站（21.0%比 25.3%，p= 0.003）和更多的时间观测病人和手术野（55.9%比 51.5%，p= 0.014）。该 HMD 显示对不论是观察患者频率或观察患者、术野或麻醉工作站的平均时间均无影响。
结论：在正常麻醉中使用 HMD 可减少麻醉医生对麻醉工作站监视，并允许他们花更多的时间在监测病人麻醉和手术。需要更多的研究来确定行为改变是否可以提高麻醉医师在手术室的工作效能。
（张磊　译　陈杰　校）

BACKGROUND: Patient monitors in the operating room are often positioned where it is difficult for the anesthesiologist to see them when performing procedures. Head-mounted displays (HMDs) can help anesthesiologists by superimposing a display of the patient's vital signs over the anesthesiologist's field of view. Simulator studies indicate that by using an HMD, anesthesiologists can spend more time looking at the patient and less at the monitors. We performed a clinical evaluation testing whether this finding would apply in practice.
METHODS: Six attending anesthesiologists provided anesthesia to patients undergoing rigid cystoscopy. Each anesthesiologist performed 6 cases alternating between standard monitoring using a Philips IntelliVue™ MP70 and standard monitoring plus a Microvision Nomad™ ND2000 HMD. The HMD interfaced wirelessly with the MP70 monitor and displayed waveform and numerical vital signs data. Video was recorded during all cases and analyzed to determine the percentage of time, frequency, and duration of looks at the anesthesia workstation and at the patient and surgical field during various anesthetic phases. Differences between the display conditions were tested for significance using repeated-measures analysis of variance.
RESULTS: Video data were collected from 36 cases that ranged from 17 to 75 minutes in duration (median 31 minutes). When participants were using the HMD, compared with standard monitoring, they spent less time looking toward the anesthesia workstation (21.0% vs 25.3%, *P* = 0.003) and more time looking toward the patient and surgical field (55.9% vs 51.5%, *P* = 0.014). The HMD had no effect on either the frequency of looks or the average duration of looks toward the patient and surgical field or toward the anesthesia workstation.

CONCLUSIONS: An HMD of patient vital signs reduces anesthesiologists' surveillance of the anesthesia workstation and allows them to spend more time monitoring their patient and surgical field during normal anesthesia. More research is needed to determine whether the behavioral changes can lead to improved anesthesiologist performance in the operating room.

非专业人员使用 Airway Scope（R）可视喉镜、Airtraq(R)可视喉镜或 Macintosh 直接喉镜行困难气道插管：模拟人插管教学比较

Tracheal Intubation of a Difficult Airway Using Airway Scope, Airtraq, and Macintosh Laryngoscope: A Comparative Manikin Study of Inexperienced Personnel .

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背景： Airway Scope 喉镜(Pentax-AWS®, Hoya Corp., Tokyo, Japan)和 Airtraq(R)可视喉镜(Prodol, Vizcaya, Spain)的喉镜片结构相似。本研究采用模拟人困难气道来评估 Airway Scope 喉镜，和 Airtraq(R)视频喉镜，以及 Macintosh 直接喉镜对初学者困难气道插管的易用性。
方法： 24 名五年级医学生，之前未经过气道插管的培训。使用先进的模型人(SimMan®, Laerdal Medical, Stavanger, Norway)，模拟不同困难气道情况包括：颈椎强直，张口受限，咽喉狭窄等。器材以及困难气道方式的选择均为随机。对气管插管成功率，声门暴露时间，插管，肺机械通气，最佳手法的数量，以及翘牙声响等进行分析。以四种不同方案在 24 名学生中进行测试来评估三种不同的插管装置。
结果： 与 Macintosh 直接喉镜 ML 比较，AWS 和 ATQ 均有着较高的插管成功率（AWS 100%*;ATQ 98%*; Macintosh 直接喉镜 89%; *P < 0.05 AWS, ATQ vs ML)；AWS 插管所需时间显著快于 ATQ 和 ML (AWS 11 ± 6 秒; ATQ 16 ± 12 秒; and ML 16 ± 11 秒; *P < 0.05 AWS vs ATQ, ML)；最佳手法的数量在使用 AWS 时明显低于 ATQ 和 ML；翘牙声响的发生率在 ML 显著多于 AWS 和 ATQ。
结论： Airway Scope 喉镜和 Airtraq(R)可视喉镜适用于初学者处理模拟人困难气道，但仍需进一步的临床研究来证实这些发现。
（叶乐　译　陈杰　校）

BACKGROUND: The Airway Scope (AWS) (Pentax-AWS®, Hoya Corp., Tokyo, Japan) and the Airtraq® (ATQ) (Prodol, Vizcaya, Spain) have similarities in the novel structures of their blades. In this study, we evaluated the ease of use of the AWS and ATQ compared with the Macintosh laryngoscope (ML) by inexperienced personnel in a simulated manikin difficult airway.

METHODS: Twenty-four fifth-year medical students with no previous experience in tracheal intubation participated in this study. We used an advanced patient simulator (SimMan®, Laerdal Medical, Stavanger, Norway) to simulate difficult airway scenarios including cervical spine rigidity, limited mouth opening, and pharyngeal obstruction. The sequences in selecting devices and scenarios were randomized. Success rates for tracheal intubation, and the time required for visualization of the glottis, tracheal intubation, and inflation of the lungs, and the number of optimization maneuvers and dental click sounds were analyzed. The 3 different intubation devices were tested in 4 different scenarios by 24 students.

RESULTS: Both the AWS and ATQ had very high success rates of tracheal intubation compared with the ML (AWS 100%*; ATQ 98%*; and ML 89%; *$P < 0.05$ AWS, ATQ versus ML). The time to intubation with the AWS was significantly shorter than with the ATQ and ML (AWS 11 ± 6 seconds; ATQ 16 ± 12 seconds; and ML 16 ± 11 seconds; *$P < 0.05$ AWS versus ATQ, ML). The number of optimization maneuvers with the AWS was significantly lower than with the ATQ and ML. There were significantly more audible dental click sounds with the ML than with the AWS and ATQ.

CONCLUSION: Both the AWS and ATQ may be suitable devices for difficult intubation by inexperienced personnel in this manikin simulated scenario. Further studies in a clinical setting are necessary to confirm these findings.

喉罩或气管内插管用于经皮扩张气管造口术：气管内结构可见性比较

Laryngeal Mask Airway or Endotracheal Tube for Percutaneous Dilatational Tracheostomy: A Comparison of Visibility of Intratracheal Structures. Ulf Linstedt, MD, PhD*, Michael Zenz, MD, Kirsten Krull, MD*, Dietrich Häger, MD* and Andreas W. Prengel, MD, PhD

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目的：经皮扩张气管造口术（PDT）中的一些严重并发症可能与气管结构的暴露欠佳有关。一般认为喉罩(LMA)提供的支气管镜下视野似乎优于气管内插管(ETT)。在本前瞻性，随机性研究中，作者采用 LMA 和 ETT 作为通气设备应用于 PDT 中，比较气管结构的暴露程度，同时记录通气质量和气道相关并发症。

方法：在本前瞻性，随机研究中，使用喉罩（LMA，33 例）或气管内插管（ETT，30 例）完成 PDT。通气质量和气管结构可见性（甲状腺，环状软骨，气管软骨）分级如下：非常好（1），良好（2），困难（3），LMA/ETT 不可行（4）。第四级需要备用气道。组间比较采用卡方检验。

结果：使用喉罩的气管结构可见性较好：94%使用喉罩的患者等级为 1 或 2，而使用气管内插管则为 66%（P <0.05）。97%使用喉罩的患者气管穿刺时可视化分级为 1 或 2，而使用气管内插管的为 77%（P <0.05）。LMA 组出现 1 例 4 级患者，气管导管有 3 例。血流动力学指标两组相似。PDT 术中血气分析显示两组动脉血氧分

压均降低，二氧化碳分压都升高，但 ETT 组比 LMA 组更为显著（59 ± 14 mm Hg vs 51 ± 11 mm Hg，$P < 0.05$）.。在 ETT 组，发生 2 例意外拔管，并且另一位病人由于气管穿刺部位视野暴露不佳造成气管镜损坏。**结论：**就气管结构和经皮扩张过程的可见性而言，LMA 与 ETT 相比具有一定的优势。尤其便于缺乏经验的重症监护师使用，且应用于困难气道病人，提高可见性能改善操作条件。

（舒慧刚　译　陈杰　校）

PURPOSE: Some severe complications during percutaneous dilatational tracheostomy (PDT) may be related to poor visualization of tracheal structures. Subjectively, the bronchoscopical view obtained via a laryngeal mask airway (LMA) seems to be better than that obtained with an endotracheal tube (ETT). In this prospective, randomized study, we compared LMA and ETT as the ventilatory device during PDT mainly with respect to visualization of tracheal structures. The quality of ventilation and airway-related complications are also reported.

METHODS: In this prospective, randomized study, PDT was performed using an LMA (*n* = 33) or an ETT (*n* = 30). Quality of ventilation and visualization of tracheal structures (thyroid, cricoid, and tracheal cartilages) were rated as follows: very good (1), good (2), difficult (3), and not possible (4) with LMA/ETT. A rating of 4 required the alternate airway. Groups were compared using the χ^2 test.

RESULTS: Visualization of tracheal structures was better with the LMA: ratings were 1 or 2 in 94% of patients with an LMA, compared with 66% of patients with an ETT (P <0.05). Visual control during puncturing the trachea was 1 or 2 in 97% of patients using an LMA and 77% of patients for an ETT ($P < 0.05$). A rating of 4 was assigned to 1 patient with an LMA and to 3 patients with an ETT. Hemodynamic variables were similar in both groups. Blood gas analysis during PDT showed decreased PaO_2 in both groups, and increased $PaCO_2$, which was more pronounced with an ETT compared with an LMA (59 ± 14 mm Hg and 51 ± 11 mm Hg [$P < 0.05$]). In the ETT group, 2 patients were extubated accidentally, and in another patient, the bronchoscope was damaged because of insufficient visualization of the tracheal puncture site.

CONCLUSION: The LMA technique showed definite advantages regarding visualization of relevant tracheal structures and the dilation process compared with an ETT. This may be especially relevant in the hands of inexperienced intensivists and in cases of difficult patient anatomy where improved structural visualization optimizes operating conditions.

儿童及其家长的围术期行为实时评估：围术期成人儿童交互作用量表的应用与验证

Real-Time Assessment of Perioperative Behaviors in Children and Parents: Development and Validation of the Perioperative Adult Child Behavioral Interaction Scale.

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背景：门诊小儿手术中不良事件可导致术后适应不良行为的发生，如发脾气，梦魇，尿床，寻求关注等。目前可用的围术期行为评估工具对于指导干预改善术后适应不良行为的实用性有限，因为它们不能实时使用，仅限于某个阶段（如围术期），或仅提供儿童的静态评估（如焦虑水平）。为了鉴别在围术期任意时间点是儿童还是家长对于不良事件的应答行为受益于实时行为干预需要一个简单可靠的实时工具。作者研究目的是：（1）完善围手术期成人儿童行为的互动量表（PACBIS），以改善其对围手术期行为识别的可靠性（2）通过与以往的认可的方法对比来证实改良后的PACBIS。
方法：用 PACBIS 来评估 89 例 3 岁至 12 岁的行增殖腺扁桃体切除术的儿童及其家长的围术期行为。使用 PACBIS 来评估儿童和/或父母在围手术期遭受的可能不良刺激事件（围术期血压监测，麻醉诱导和拔除静脉留置针）。分别采用改良耶鲁术前焦虑量表(mYPAS)和诱导期顺从性量表（ICC）来静态测量术前焦虑水平和麻醉诱导过程中的顺从性。每个事件都被录像后 用儿童成人医学操作互动量表短表(CAMPIS-SF)和伤害动作观察量表(OSBD)进行最后评分。采用线性加权卡帕（κw）分析了评分间可靠度并用 Spearman 相关系数进行了多重验证。
结果：PACBIS 表现出很好的可靠性，其卡帕值范围为 0.62 至 0.94。儿童的心理应对及不良应激 PACBIS 因子分与改良耶鲁术前焦虑量表，诱导期顺从性量表（ICC），儿童成人医学操作互动量表短表(CAMPIS-SF)和伤害动作观察量表(OSBD)有很强的相关性。家长的 PACBIS 正性因子分与 CAMPIS-SF 和 OSBD 明显相关，而其负性因子分与 ICC 显著相关。PACBIS 具有较强的指导和预测效应。
结论：PACBIS 是一个简单，易用，实时的评估儿童和家长围手术期行为的工具。它有优良的可靠性并与目前公认的方法有相同的效度。PACBIS 能实时鉴别儿童或家长的适应不良行为，使其能及时进行干预和改善。
（丁俊云　译　陈杰　校）

BACKGROUND: Behavior in response to distressful events during outpatient pediatric surgery can contribute to postoperative maladaptive behaviors, such as temper tantrums, nightmares, bed-wetting, and attention seeking. Currently available perioperative behavioral assessment tools have limited utility in guiding interventions to ameliorate maladaptive behaviors because they cannot be used in real time, are only intended to be used during 1 phase of the experience (e.g., perioperative), or provide only a static assessment of the child (e.g., level of anxiety). A simple, reliable, real-time tool is needed to appropriately identify children and parents whose behaviors in response to distressful events at any point in the perioperative continuum could benefit

from timely behavioral intervention. Our specific aims were to (1) refine the Perioperative Adult Child Behavioral Interaction Scale (PACBIS) to improve its reliability in identifying perioperative behaviors and (2) validate the refined PACBIS against several established instruments.

METHODS: The PACBIS was used to assess the perioperative behaviors of 89 children aged 3 to 12 years presenting for adenotonsillectomy and their parents. Assessments using the PACBIS were made during perioperative events likely to prove distressing to children and/or parents (perioperative measurement of blood pressure, induction of anesthesia, and removal of the IV catheter before discharge). Static measurements of perioperative anxiety and behavioral compliance during anesthetic induction were made using the modified Yale Preoperative Anxiety Scale and the Induction Compliance Checklist (ICC). Each event was videotaped for later scoring using the Child-Adult Medical Procedure Interaction Scale-Short Form (CAMPIS-SF) and Observational Scale of Behavioral Distress (OSBD). Interrater reliability using linear weighted kappa (κ_w) and multiple validations using Spearman correlation coefficients were analyzed.

RESULTS: The PACBIS demonstrated good to excellent interrater reliability, with κ_w ranging from 0.62 to 0.94. The Child Coping and Child Distress subscores of the PACBIS demonstrated strong concurrent correlations with the modified Yale Preoperative Anxiety Scale, ICC, CAMPIS-SF, and OSBD. The Parent Positive subscore of the PACBIS correlated strongly with the CAMPIS-SF and OSBD, whereas the Parent Negative subscore showed significant correlation with the ICC. The PACBIS has strong construct and predictive validities.

CONCLUSIONS: The PACBIS is a simple, easy to use, real-time instrument to evaluate perioperative behaviors of both children and parents. It has good to excellent interrater reliability and strong concurrent validity against currently accepted scales. The PACBIS offers a means to identify maladaptive child or parental behaviors in real time, making it possible to intervene to modify such behaviors in a timely fashion.

选择性 β-肾上腺素受体阻断剂后处理而非预处理对暂时性前脑缺血大鼠海马区的神经保护作用

Posttreatment but Not Pretreatment with Selective β-Adrenoreceptor 1 Antagonists Provides Neuroprotection in the Hippocampus in Rats Subjected to Transient Forebrain Ischemia.

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背景： β-肾上腺素受体阻断剂对大鼠局灶性脑缺血有神经保护作用，但对实验性全脑缺血的影响尚不清楚。β-肾上腺素受体阻断剂对缺血性损伤后脆弱的脑组织的作用还未研究。因此，作者研究了缺血前或缺血后应用普奈洛尔（非选择性 β-肾上腺素受体拮抗剂），艾司洛尔和兰地洛尔（选择性 β1-肾上腺素受体拮抗

剂）对大鼠前脑缺血的神经保护作用。
方法： 雄性 SD 大鼠，夹闭双侧颈总动脉 8 分钟。在夹闭前 30 分钟，或夹闭后 60 分钟，分别静脉输注生理盐水 10 μL • h^{-1},普奈洛尔 100 μg • kg^{-1} • min^{-1}, 艾司洛尔 200 μg • kg^{-1} • min^{-1}或兰地洛尔 50 μg • kg^{-1} • min^{-1}，同时辅以异氟醚（浓度 1.5%）麻醉行控制性降压（约 35mmHg）。所有药物连续输注至再灌注后 5 天， 5 天后对这些大鼠进行神经学和组织学方面的评估。
结果：缺血前采用普奈洛尔，艾司洛尔，或兰地洛尔预处理对海马区前脑缺血性损伤没有神经保护作用。应用普奈诺尔的大鼠的运动活动性更差，死亡率更高（达 64%），但和其他组相比差异无统计学意义。缺血后采用艾司洛尔和兰地洛尔后处理能降低脑缺血后神经元损伤，而普奈洛尔不能。然而，采用 β-肾上腺素受体阻断剂或者生理盐水进行缺血后处理的大鼠的运动活动性均无差异。
结论：对夹闭双侧颈总动脉且合并失血性休克的大鼠，采用艾司洛尔和兰地洛尔进行缺血后处理有神经保护作用，而普奈洛尔无此作用。作者认为，随着 β 受体阻断及休克引起系统抑制，不是产生神经保护作用，而是发生脑缺血的发作。
（邹巧群　译　陈杰　校）

BACKGROUND: β-Adrenoreceptor antagonists provide neuroprotection against focal cerebral ischemia, but the effects of these antagonists on experimental global cerebral ischemia are unknown. That is, the effect of β-adrenoreceptor antagonism in vulnerable brain regions after ischemic insult has not been examined. Therefore, we investigated the neuroprotective effects of preischemic or postischemic administration of propranolol (a nonselective β-adrenoreceptor antagonist), esmolol, and landiolol (selective β-adrenoreceptor 1 antagonists) against forebrain ischemia in rats.
METHODS: IV administration of saline 10 μL · h^{-1}, propranolol 100 μg · kg^{-1} · min^{-1}, esmolol 200 μg · kg^{-1} · min^{-1}, or landiolol 50 μg · kg^{-1} · min^{-1} in male Sprague-Dawley rats was started 30 minutes before or 60 minutes after 8-minute bilateral carotid artery occlusion combined with hypotension (35 mm Hg) under isoflurane (1.5%) anesthesia. All drugs were administered continuously until 5 days after reperfusion, and the animals were evaluated neurologically and histologically after this 5-day period.
RESULTS: Preischemic treatment with propranolol, esmolol, or landiolol failed to provide neuroprotection against forebrain ischemia in the hippocampus. Rats treated with propranolol tended to have a worse score for motor activity and a higher mortality rate (up to 64%), but the differences with other groups were not statistically significant. Postischemic treatment with esmolol and landiolol, but not with propranolol, reduced neuronal injury after forebrain ischemia. However, motor activity did not differ among rats treated postischemically with any of the β-adrenoreceptor antagonists or saline.
CONCLUSIONS: Postischemic treatment with esmolol and landiolol provided neuroprotection in the hippocampus in rats subjected to bilateral carotid artery occlusion combined with hemorrhagic shock, whereas treatment with propranolol failed to show neuroprotection. We suggest that concomitant β-blockade and shock might work as a systemic depressant, rather than a neuroprotectant, resulting in exacerbation of cerebral ischemia.

联合应用扑热息痛（对乙酰氨基酚）与非甾体抗炎药：对于急性术后疼痛镇痛效果的系统评价

Combining Paracetamol (Acetaminophen) with Nonsteroidal Antiinflammatory Drugs: A Qualitative Systematic Review of Analgesic Efficacy for Acute Postoperative Pain.

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背景：近年来联合应用非甾体抗炎药（NSAID）与对乙酰氨基酚（扑热息痛）进行镇痛已形成一种趋势。然而，扑热息痛和NSAID联合应用相对于单独服用的治疗优势仍存在争议。作者在多种急性疼痛模型中评估了对乙酰氨基酚（扑热息痛）和非甾体抗炎药联合应用与两种药物单独使用的效能。

方法：通过对医学文献分析和检索系统、医学文摘资料库、护理学和有关卫生学文献累积索引的系统文献检索，涵盖了从 1988 年 1 月到 2009 年 6 月期间专门比较扑热息痛与多种非甾体抗炎药合用与至少这些药物中的一种药物单用的人类随机对照试验。研究分为 2 组：扑热息痛与非甾体抗炎药合用，扑热息痛或非甾体抗炎药单用。主要分析疼痛强度评分和镇痛剂追加量。另外，使用可靠的量表对每个研究进行质量分级。

结果：21 项研究共包括 1909 例病人。所用的非甾体抗炎药有布洛芬（6），双氯芬酸（8），酮洛芬（3），酮咯酸（1），阿司匹林（1），替诺昔康（1），和罗非昔布（1）。在 85%和 64%的相关研究中扑热息痛与非甾体抗炎药联合应用比扑热息痛或非甾体抗炎药单用更有效。疼痛强度及镇痛剂追加量在联合用药与对乙酰氨基酚单用的阳性研究中分别降低了 35.0% ± 10.9% 和 38.8% ± 13.1%，而在联合用药与NSAID单用的阳性研究中分别降低了 26.6% 和 31.3% ± 13.4%。实验组间的中位数质量分差无统计学差异。

结论：现有的数据表明，对乙酰氨基酚与非甾体抗炎药联合应用较对乙酰氨基酚或非甾体抗炎药单用可以提供更好的镇痛效果。

（唐颖　译　陈杰　校）

BACKGROUND: There has been a trend over recent years for combining a nonsteroidal antiinflammatory drug (NSAID) with paracetamol (acetaminophen) for pain management. However, therapeutic superiority of the combination of paracetamol and an NSAID over either drug alone remains controversial. We evaluated the efficacy of the combination of paracetamol and an NSAID versus either drug alone in various acute pain models.

METHODS: A systematic literature search of Medline, Embase, Cumulative Index to Nursing and Allied Health Literature, and PubMed covering the period from January 1988 to June 2009 was performed to identify randomized controlled trials in humans

that specifically compared combinations of paracetamol with various NSAIDs versus at least 1 of these constituent drugs. Identified studies were stratified into 2 groups: paracetamol/NSAID combinations versus paracetamol or NSAIDs. We analyzed pain intensity scores and supplemental analgesic requirements as primary outcome measures. In addition, each study was graded for quality using a validated scale.

RESULTS: Twenty-one human studies enrolling 1909 patients were analyzed. The NSAIDs used were ibuprofen (*n* = 6), diclofenac (*n* = 8), ketoprofen (*n* = 3), ketorolac (*n* = 1), aspirin (*n* = 1), tenoxicam (*n* = 1), and rofecoxib (*n* = 1). The combination of paracetamol and NSAID was more effective than paracetamol or NSAID alone in 85% and 64% of relevant studies, respectively. The pain intensity and analgesic supplementation was 35.0% ± 10.9% and 38.8% ± 13.1% lesser, respectively, in the positive studies for the combination versus paracetamol group, and 37.7% ± 26.6% and 31.3% ± 13.4% lesser, respectively, in the positive studies for the combination versus the NSAID group. No statistical difference in median quality scores was found between experimental groups.

CONCLUSION: Current evidence suggests that a combination of paracetamol and an NSAID may offer superior analgesia compared with either drug alone.

围术期使用普瑞巴林能改善腰椎间盘摘除术后 3 个月疼痛和功能恢复

Perioperative Pregabalin Improves Pain and Functional Outcomes 3 Months After Lumbar Discectomy.

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背景：通过腰椎间盘摘除术治疗神经根性腰痛的患者，其预后差异很大且疗效不确定。许多患者在术后 3 个月仍然疼痛。普瑞巴林，一种膜稳定剂，有可能降低术中中枢致敏和并发的持续性疼痛。

方法： 40 例实施腰椎间盘摘除术的患者使用双盲法随机给予普瑞巴林（术前 90 分钟给予 300mg，术后 12 小时和 24 小时给予 150mg）或在对应时间给予安慰剂。主要观察术前至术后 3 个月疼痛强度（PPI）（视觉评估量表 VAS，0-100mmPPI-VAS，麦-吉疼痛问卷）的改变。

结果：3 个月期间，接受普瑞巴林治疗的患者其疼痛强度的 VAS 评分（37.6±19.6mm）(均数± 标准差)较接受安慰剂治疗的患者(25.3 ± 21.9 mm) (*P* = 0.08)明显降低。3 个月期间，接受普瑞巴林治疗的患者其 Roland-Morris 功能障碍分数(2.7 ± 2.4)低于安慰剂治疗的患者(5.6 ± 4.8) (*P* = 0.032)。术后 24 小时，与安慰剂相比，普瑞巴林使用后双下肢痛域有所提高。

结论：围术期使用普瑞巴林与腰椎间盘摘除术后 3 个月疼痛强度降低和改善术后功能恢复有关。

（杨秋娟 译 陈杰 校）

BACKGROUND: Patient outcome after lumbar discectomy for radicular low back pain is variable and the benefit is inconsistent. Many patients continue to experience pain 3

months after surgery. Pregabalin, a membrane stabilizer, may decrease perioperative central sensitization and subsequent persistent pain.
METHODS: Forty patients undergoing lumbar discectomy were randomly allocated to receive either pregabalin (300 mg at 90 minutes preoperatively and 150 mg at 12 and 24 hours postoperatively) or placebo at corresponding times in a double-blinded manner. Our primary outcome was the change in the present pain intensity (PPI) (visual analog scale [VAS], 0–100 mm [PPI-VAS, McGill Pain Questionnaire]) from preoperatively to 3 months postoperatively.
RESULTS: The decrease in PPI-VAS score at 3 months was greater in patients who received pregabalin (37.6 ± 19.6 mm) (mean ± SD) than those who received placebo (25.3 ± 21.9 mm) (P = 0.08). The Roland Morris disability score at 3 months was less in patients who received pregabalin (2.7 ± 2.4) than in those who received placebo (5.6 ± 4.8) (P = 0.032). Pregabalin administration was associated with greater pain tolerance thresholds in both lower limbs compared with placebo at 24 hours postoperatively.
CONCLUSION: Perioperative pregabalin administration is associated with less pain intensity and improved functional outcomes 3 months after lumbar discectomy.

新型氨基酸-异缬氨酸的镇痛特性

Analgesic Properties of the Novel Amino Acid, Isovaline.

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背景：异缬氨酸，一种生物圈中罕见的非蛋白质 a-氨基酸，在结构上类似于抑制性神经递质甘氨酸和 γ-氨基丁酸。由于甘氨酸和 γ-氨基丁酸受体激动剂具有抗痛觉超敏作用，作者推测异缬氨酸能在小鼠中产生镇痛作用。
方法：雌性 CD - 1 小鼠，双盲、随机、对照设计。RS-异缬氨酸的作用通过观察小鼠对于（1）福尔马林注入后爪;（2）谷氨酸注入后爪;（3）士的宁注入腰椎管内或者小脑延髓池伤害性疼痛反应来判断。通过后爪注入福尔马林的伤害性疼痛反应来确定静脉注射 DL 型异缬氨酸（50, 150, 或 500 mg/kg; n=10）或腰椎鞘内注射 DL 型，D 型和 L 型 异缬氨酸，甘氨酸和 γ-氨基丁酸（60, 125, 250 和 500 mmol 每 5 μL ; *n=9*）的作用。比较足底注射 20 μL 谷氨酸(750 mmol)和注射谷氨酸(750 mmol)复合异缬氨酸的反应。另外确定足底注射士的宁的反应。腰椎椎管内（100 μM)）或脑池内（200 μM)）士的宁注射到腰椎椎管内空间或小脑延髓池诱导异常性疼痛以此衡量甘氨酸的抑制功能障碍。比较鞘内注射或脑池内注射士的宁和注射异缬氨酸复合士的宁的作用（ n=8 ）。

结果：在福尔马林的实验中，静脉注射异缬氨酸第一阶段没有改变，但降低第二阶段的反应且呈剂量依赖性（50% 有效剂量为 66 mg/kg, n = 10, P < 0.01）。对于小鼠的旋转活动，形态，或行为无影响，也没有呼吸抑制。鞘内注射异缬氨

酸，甘氨酸和 β-丙氨酸减弱第一和第二阶段的反应（$P < 0.01$ 每个药物）。与β-丙氨酸和甘氨酸比较，异缬氨酸在最大有效剂量不产生搔抓，撕咬，或激动。鞘内注射 DL 型和 D 型异缬氨酸减弱第一阶段反应（$P < 0.05$ 每组）和注射 DL 型，D 型和 L 型 异缬氨酸减弱第二阶段的反应（$P < 0.05$ 每组），在疗效上 D 型和 L 型异构体间并无显著性差异。脑池内（P <0.01）和鞘内注射（P <0.01）异缬氨酸均能显著减轻士的宁诱导的甘氨酸抑制性功能障碍。虽然足底注射士的宁没有引起外周异常痛觉，但是高剂量的异缬氨酸并不能阻止谷氨酸诱导的痛觉异常。
结论：异缬氨酸能降低小鼠的疼痛反应，但不产生急性毒性，可能是通过增强伤害性疼痛信息的受体调节来实现的。
（张蕾　译　陈杰　校）

BACKGROUND: Isovaline, a nonproteinogenic α-amino acid rarely found in the biosphere, is structurally similar to the inhibitory neurotransmitters glycine and γ-aminobutyric acid. Because $glycine_A$ and γ-aminobutyric acid receptor agonists are antiallodynic, we hypothesized that isovaline produces antinociception in mice.
METHODS: All experiments were performed on female CD-1 mice using a blinded, randomized, and controlled design. The effects of RS-isovaline were studied on nociceptive responses to (1) formalin injection into the hindpaw; (2) glutamate injection into the hindpaw; and (3) strychnine injection either into the lumbar intrathecal space or cisterna magna. We determined the effects of IV RS-isovaline (50, 150, or 500 mg/kg; *n* = 10/dose) or intrathecal RS-, R-, and S-isovaline, glycine, and β-alanine into the lumbar intrathecal space (5-μL volumes of 60, 125, 250, and 500 mM; *n* = 9/dose/group) on the response to formalin in the paw. The response to 20 μL intraplantar glutamate (750 mM) was compared with glutamate (750 mM) coadministered with isovaline. We also determined the response to intraplantar strychnine. Lumbar intrathecal (100 μM) or intracisternal (200 μM) injections of strychnine into the lumbar intrathecal space or the cisterna magna were used to induce allodynia as a measure of glycine inhibitory dysfunction. The effects of intrathecal or intracisternal strychnine were compared with isovaline coapplied with the strychnine (*n* = 8/group).
RESULTS: In the formalin paw test, IV isovaline did not change phase I but decreased phase II responses in a dose-dependent manner (50% effective dose = 66 mg/kg, *n* = 10, *P* < 0.01). There was no effect on rotarod performance, appearance, or behavior of the mouse, and no respiratory depression. Intrathecal isovaline, glycine, and β-alanine attenuated phase I and II responses (*P* < 0.01 for each drug). In contrast to β-alanine and glycine, isovaline at maximally effective doses did not produce scratching, biting, or agitation. Intrathecal RS- and S-isovaline attenuated phase I (*P* < 0.05 for each group) and RS-, R-, and S-isovaline attenuated phase II responses (*P* < 0.05 for each group), with no significant difference between the efficacies of R- and S-enantiomers. Localized strychnine-induced glycine inhibitory dysfunction was greatly reduced by intracisternal (*P* < 0.01) and intrathecal (*P* < 0.01) isovaline. Although intraplantar strychnine did not induce peripheral allodynia, high doses of isovaline did not block the peripheral allodynia induced by glutamate.
CONCLUSIONS: Isovaline reduced responses in mouse pain models without producing acute toxicity, possibly by enhancing receptor modulation of nociceptive information.

大鼠静脉局部麻醉模型

A Model of Intravenous Regional Anesthesia in Rats

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背景：作者采用大鼠尾巴建立了静脉局部麻醉模型，评价临床前静脉局部麻醉和镇痛的有效性和安全性。

方法： 连续 3 个实验测定大鼠尾静脉注入局部麻醉药和镇痛药的有效性。以夹尾试验的反应来评定麻醉效果，通过记录甩尾试验的反应时间来评估镇痛效果。在前两个实验中，分别研究甩尾试验和夹尾试验对不同环境温度(15° C, 25° C, and 37° C)和止血带时间长度的效应。实验组 3 在这两个试验结果的基础上，通过比较 1%利多卡因（L 组）和 0.5%布比卡因（B 组）与生理盐水的药理作用来评价这个模型。

结果：实验 1，与基础值相比，15 ° C 组甩尾潜伏期迅速延长（P <0.0001），而尾巴浸泡在水中 20 分钟后， 25 ° C 组（P = 0.3640）和 37 ° C 组（P = 0.0641）的甩尾潜伏期没有变化。在整个观察期，夹尾试验均为阳性。实验 2，应用止血带的前 20 分钟与基础值相比，甩尾潜伏期没有改变（P = 0.0902），但在 30 ，40，50 和 60 分钟时均显著延长（P = 0.0001）。所有大鼠夹尾试验均为阳性。实验 3， L 和 B 组的尾巴上（止血带远端）产生的局部麻醉麻醉起效时间类似（约 1 分钟），但 B 组的麻醉与镇痛的恢复时间（56.0 ± 22.0 分钟）较 L 组（31.0 ± 19.0 分钟）明显延长，生理盐水组没有麻醉和镇痛作用。

结论：建立了一可靠的静脉局部麻醉和镇痛的大鼠模型

BACKGROUND: We developed an IV regional anesthesia (IVRA) model using the tails of rats to allow preclinical evaluation of the safety and efficacy of drugs used in IVRA and analgesia.

METHODS: Three sequential experiments were designed to determine local anesthetic and analgesic effects of drugs injected IV in the tail. The anesthesia was assessed by monitoring the response of the tail-clamp (RTC) test on the tail, whereas the analgesia was assessed by recording the latency in the tail-flick test on the tail. In the first 2 experiments, we studied the effects of different environmental temperatures (15°C, 25°C, and 37°C) and length of tourniquet time on the tail-flick and tail-clamp tests, respectively. Based on the outcomes of these 2 experiments, the pharmacological effects of 1% lidocaine (L group) and 0.5% bupivacaine (B group) were compared with normal saline (NS group) to evaluate this model in experiment 3.

RESULTS: In experiment 1, compared with its baseline, tail-flick latency increased rapidly in the 15°C group ($P < 0.0001$), whereas there were no changes in tail-flick latency in the 25°C group ($P = 0.3640$) and the 37°C group ($P = 0.0641$) after the first 20 minutes of tail submersion in a water bath. RTCs in all rats were positive during the entire observation period. In experiment 2, tail-flick latency did not change compared with baseline tail-flick latency after the first 20 minutes of tourniquet application ($P = 0.0902$), but significantly increased at the 30-, 40-, 50-, and 60-minute intervals ($P = 0.0001$). RTCs in all rats were positive during the experiment. In experiment 3, local anesthesia was generated in the tail (distal to the tourniquet) in the L and B groups with a similar onset time of anesthesia (approximately 1 minute), but with a longer recovery time of anesthesia and analgesia in the B group (56.0 ± 22.0 minutes) than the L group (31.0 ± 19.0 minutes), whereas no anesthetic and analgesic effects were observed in the NS group.
CONCLUSIONS: A reliable model for studying IVRA and analgesia has been developed in rats.

Sugammadex, 一种预防术后残留肌松的选择性拮抗药

Sugammadex, a Selective Reversal Medication for Preventing Postoperative Residual Neuromuscular Blockade.
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背景： Sugammadex 是第一个选择性肌松拮抗剂，该药被证明能逆转罗库溴铵和其他甾体类非去极化肌松药诱导的神经肌肉阻滞。
目的：评估 sugammadex 在逆转甾体类非去极化肌松药诱导的神经肌肉阻滞和预防术后残留肌松过程的有效性和安全性。
检索方法：检索了 Cochrane（CENTRAL）（Cochrane 图书馆 2008 年 第三期），MEDLINE（1950 年至 2008 年 8 月）和 EMBASE（1980 年至 2008 年 8 月）三大数据库。另外手工检索了相关文章参考书目和会议摘要。同时联系了药物供应商以获得更多信息。
纳入标准：有关 sugammadex 与安慰剂或其他药物，或不同剂量的 sugammadex 互相比较的所有随机对照研究，且研究对象为成人（大于等于 18 岁）。排除非随机化试验和健康志愿者试验。
数据收集和分析：试验纳入决策，质量评估和数据剔除由专人独立进行。用标准的 META 分析技术。
主要结果：共纳入 18 项随机对照研究（1321 个对象）。7 项为全文发表，11 项为会议摘要。所有纳入的研究具有合适的随机法和盲法。结果表明：与安慰剂或新斯的明相比，无论阻滞程度如何，sugammadex 可以更快地逆转罗库溴铵诱导的神经肌肉松弛。2mg/kg，4mg/kg，16mg/kg 的 sugammadex 各自在 T2 反应出现，1 到 2 个强直后刺激和应用罗库溴铵 3 到 5 分钟后逆转罗库溴铵诱导的肌松效应。关于维库溴铵和泮库溴铵的研究很少。1%接受药物的对象出现严重不良事件。药物相关不良事件发生率，sugammadex 和安慰剂无统计学差异（5 个 RCT 研究：危险比

1.20。 95%可信区间 0.61 到 2.37；P 值 0.59，异质性 0%）。另外，sugammadex 和新斯的明在不良事件方面没有统计学差异（3 个 RCT 研究：危险比 0.98。 95%可信区间 0.48 到 1.98；P 值 0.95，异质性 43%）。

结论：sugammadex 在逆转罗库溴铵诱导神经肌肉松弛方面被证明是有效的。没有证据显示在不良反应方面 sugammadex 与安慰剂或新斯的明有差异。这些结果需要今后更大样本量及患者相关预后的研究来确认。

（於章杰　译　陈杰　校）

BACKGROUND: Sugammadex is the first selective relaxant binding agent that has been studied for reversal of neuromuscular blockade induced by rocuronium and other steroidal non-depolarizing neuromuscular blocking agents (NMBAs).

OBJECTIVES: To assess the efficacy and safety of sugammadex in reversing neuromuscular blockade induced by steroidal non-depolarizing NMBAs and in preventing postoperative residual neuromuscular blockade.

SEARCH STRATEGY: We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2008, Issue 3), MEDLINE (1950 to August 2008), and EMBASE (1980 to August 2008). In addition, we handsearched reference lists of relevant articles and meeting abstracts. Furthermore, we contacted the medication's manufacturer for more information.

SELECTION CRITERIA: All randomized controlled trials (RCTs) on adult patients (≥ 18 years old) in which sugammadex was compared with placebo or other medications, or in which different doses of sugammadex were compared with each other. We excluded non-randomized trials and studies on healthy volunteers.

DATA COLLECTION AND ANALYSIS: We independently performed determination of trial inclusion, quality assessment, and data extraction. We applied standard meta- analytic techniques.

MAIN RESULTS: We included18 RCTs (n=1321 patients). Seven trials were published as full-text papers, and 11 trials only as meeting abstracts. All the included trials had adequate methods of randomization and allocation concealment. The results suggest that, compared with placebo or neostigmine, sugammadex can more rapidly reverse rocuronium-induced neuromuscular blockade regardless of the depth of the block. We identified 2, 4, and 16 mg/kg of sugammadex for reversal of rocuronium-induced neuromuscular blockade at T2 reappearance , 1 to 2 post-tetanic counts, and 3 to 5 minutes after rocuronium, respectively. The number of trials are very limited regarding vecuronium and pancuronium. Serious adverse events occurred in < 1% of all patients who received the medication. There was no significant difference between sugammadex and placebo in terms of the prevalence of drug-related adverse events (RR 1.20, 95% CI 0.61 to 2.37; P=0.59, I2=0%, 5 RCTs). Also, no significant difference was found between sugammadex and neostigmine for adverse events (RR 0.98, 95% CI 0.48 to1.98; P=0.95, I2=43%, 3 RCTs).

AUTHORS' CONCLUSIONS: Sugammadex was shown to be effective in reversing rocuronium-induced neuromuscular blockade. This review has found no evidence of a difference in the instance of unwanted effects between sugammadex, placebo or

neostigmine. These results need to be confirmed by future trials on larger patient populations and with more focus on patient-related outcomes.

血栓弹力图检测分析正常人群对照中年龄及性别对凝血功能的影响

In Normal Controls, Both Age and Gender Affect Coagulability as Measured by Thrombelastography

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背景：我们旨在利用血栓弹力图（TEG(R)），这一可同时检测全血中血浆凝固因子和细胞因子的方法，来分析研究年龄、性别以及口服避孕药（OCs）的使用对于凝血功能的影响。
方法：研究对象为 120 名不同年龄段的健康成人（60 个男性，60 个女性），以及 29 名使用口服避孕药的健康女性，利用血栓弹力图分别检测研究对象未处理过的全血以及枸橼酸钙化过的血液。
结果：我们发现，女性比男性血液高凝，而同年龄段的女性，使用口服避孕药者比不使用者血液高凝。此外，我们还发现，随着年龄的增加，血液更为高凝。应用 Bland 和 Altman 方法（Lancet 1986;1:307-10），我们并没有发现未处理过的全血与枸橼酸钙化过的血液之间存在着关联。
结论：年龄增长、女性、使用口服避孕药以及低于正常的红细胞压积是主要的促凝血因素。用两种检测方法比较血栓弹力图测量结果后发现，未处理过的全血和枸橼酸钙化过的血液两者的凝血时间差异幅度达 20%-246%，由此证实血栓弹力图测量两种血液的结果之间并无相关性。此外，其一致性的限制范围已大大超出了临床可接受的相关性范围。
（单嘉琪译 薛张纲校）

BACKGROUND: Our objective was to analyze the effects of age, gender, and the use of oral contraceptives (OCs) on coagulation using thrombelastography (TEG(R)), a single test to analyze both plasma coagulation factors and cellular elements in whole blood.
METHODS: TEG(R) variables were measured in native whole blood and in recalcified citrated blood from 120 healthy adults (60 men and 60 women) with various ages and in an additional 29 healthy women using OCs.
RESULTS: We observed hypercoagulability in women compared with men and in women using OCs compared with age-matched nonusers. Moreover, we found hypercoagulability with aging. Using the method of Bland and Altman (Lancet 1986;1:307-10), we demonstrated no correlation between TEG(R) measurements in native and recalcified citrated blood.
CONCLUSIONS: Aging, female gender, use of OCs, and low-normal hematocrit levels have significant procoagulant effects. TEG(R) measurements in native and recalcified

citrated blood are not interchangeable, as indicated by differences between the 2 measurements ranging from 20%in maximal amplitude to 246% in clotting time. Furthermore, the limits of agreement strongly exceeded clinical acceptability to conclude interchangeability.

人体皮下给予大剂量多泡脂质体主动包裹的布比卡因证实其可缓释药物并不导致全身中毒血浆浓度

High-dose bupivacaine remotely loaded into multivesicular liposomes demonstrates slow drug release without systemic toxic plasma concentrations after subcutaneous administration in humans.

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背景：贮藏配方可延长局麻药的镇痛效果，减少高峰血药浓度。这可使大剂量使用局麻药更安全，并进一步延长镇痛效果的持续时间。我们先前报道开发了大多泡小囊泡（LMVVs）主动包裹的布比卡因（LMVV 脂质体布比卡因），并证实在动物和人类体内其可 5 倍延长镇痛效果。在此研究中，我们呈现人体内 LMVV 脂质体布比卡因的药代动力学数据。

方法：在这项公开的前瞻性配对对照研究中，健康志愿者先予皮下注射 20ml0.5%的普通布比卡因，一星期后，再接受 20ml2%的 LMVV 脂质体布比卡因。

结果：共有 8 名受试者参与此项研究。局部麻醉药的非主观副作用被观察。通过血浆药物浓度-时间表模型评估最大血药浓度及其达峰时间。两组间最大血药浓度无明显差异（普通布比卡因 0.87±0.45 microg/mL，脂质体布比卡因 0.83±0.34 microg/mL，P=0.83，无统计学差异）。这些值远低于公认的 2 至 4 microg/mL 的中毒血药浓度。对脂质体制剂而言，其达峰时间是普通剂型的 7 倍（262±149 分钟 vs 37.5±16 分钟，P<0.01）。

结论：尽管新型的脂质体制剂其布比卡因的总使用效率较普通剂型提高了 4 倍，但两组间血药浓度峰值并无显著差异。血浆中脂质体布比卡因的延迟消除和延长再分布效应与先前所报道的贮藏相关缓释效应可致药代动力学效果延长是一致的。

（范羽译 薛张纲校）

BACKGROUND: Depot formulations prolong the analgesic effect of local anesthetics and reduce peak plasma drug concentration. This allows for safer administration of larger doses of local anesthetics, which further prolongs the duration of analgesic effect. We previously reported the development of large multivesicular vesicles (LMVVs) remotely

loaded with bupivacaine (LMVV liposomal bupivacaine) and demonstrated a >5-fold prolongation of analgesic effect in animals and humans. In this study, we present pharmacokinetic data of LMVV liposomal bupivacaine in humans. **METHODS**: Healthy volunteers received subcutaneous injections of 20 mL plain 0.5% bupivacaine and, 1 week later, 20 mL of 2% LMVV liposomal bupivacaine in a prospective, open-label, crossover, controlled study. **RESULTS**: Eight subjects were studied. No subjective side effects of local anesthetics were observed. The maximal plasma concentration and the time to achieve maximal plasma concentration were assessed by modeling plasma concentration-time profiles. Maximal plasma concentration was not significantly different between groups (0.87 +/- 0.45 microg/mL and 0.83 +/- 0.34 microg/mL for plain and liposomal bupivacaine, respectively; P = not significant, 0.83). These values are well below the putative toxic plasma concentration of 2 to 4 microg/mL. Time to achieve maximal plasma concentration was 7-fold greater for the liposomal preparation (262 +/- 149 minutes vs 37.5 +/- 16 minutes, P < 0.01). **CONCLUSIONS**: Peak plasma bupivacaine concentrations were not different in the 2 groups, despite a 4-fold increase in total bupivacaine dose administered in the novel liposomal preparation. The delayed elimination and prolonged redistribution of liposomal bupivacaine to plasma is compatible with the depot-related slow-release effect leading to the prolonged pharmacodynamic effect previously reported.

试用报告：鼻导管－保留自主呼吸的病人中监测呼末二氧化碳的新工具

A nasal catheter for the measurement of end-tidal carbon dioxide in spontaneously breathing patients: a preliminary evaluation.

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背景：为了监测保留自主呼吸病人的呼气末二氧化碳浓度，人们发明了许多种工具，可是许多工具的测量并不准确。我们想要通过研究发明一种新型的带气囊的鼻导管用于精确监测不插气管导管保留自主呼吸病人的呼气末二氧化碳浓度。
方法：导管由一个14号的橡胶Foley导管，一个气管导管前端的气囊以及一个18号套管针的塑料外套管组成。导管连接至气体分析器的采样管，监测20个不同的健康术后患者在吸氧状态下的呼气末二氧化碳与动脉血二氧化碳。
结果：呼气末二氧化碳与动脉血二氧化碳的平均差值为-4.4+/-1.6个标准差。其相关系数r=0.87(P<0.001)
结论：研究结果表明，我们的这种带气囊的鼻导管可以为未行气管内插管保留自主呼吸的患者提供一种简单明了可信的监测呼气末二氧化碳的方法。
（黄剑译 薛张纲校）

BACKGROUND: Several devices have been proposed to monitor end-tidal carbon dioxide tension (Petco(2)) in spontaneously breathing patients; however, many have been reported to be inaccurate. We designed this study to investigate the accuracy of a

balloon-tipped nasal catheter in measuring Petco(2) in nontracheally intubated, spontaneously breathing patients.
METHODS: The catheter was assembled using a 14-F rubber Foley catheter, a tracheal tube pilot balloon, and the plastic sheath from an 18-gauge needle. The catheter was connected to the sampling tube of a gas analyzer. Petco(2) and Paco(2) were determined simultaneously in 20 otherwise healthy postsurgical patients while receiving oxygen.
RESULTS: The mean Petco(2) – Paco(2) difference was -4.4 +/- 1.6 (SD) mm Hg with a correlation coefficient r = +0.87 (P < 0.001).
CONCLUSION: Our results suggest that a balloon-tipped nasal catheter can provide a simple, easy, and reliable method for Petco(2) measurement in nontracheally intubated, spontaneously breathing patients.

综述：手术室的血糖测量：比看去复杂

Review Article: Glucose Measurement in the Operating Room: More Complicated than It Seems

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血糖异常常见于手术患者，最近几年围手术期内严格控制血糖很受关注。任何密切控制血糖制度的执行都需要更频繁地测定血糖，小型，廉价，迅速反映的保健设备可能更合适。但是，围术期中让许多麻醉医生和看护病人的其他工作人员难以理解的是，设计给病人自我监测血糖的家用血糖仪缺乏准确性。这些设备被再销售给医院，既没有适当的附加检测，也没有一个适当的规章制度。临床医生谁会习惯由一个中央实验室设备或自动血气分析仪高水平测量出的血糖值可能存在潜在的错误，这些错误是由许多自测血糖仪引起的，尤其是低血糖时。围手术期的医生了解这些仪器的限制，可以尽量减少出现测量误差。在本文中，我们将重点介绍并回顾这些仪器的技术和准确性以及围手术期血糖测量使用仪器的规范。
（李莹译 薛张纲校）

Abnormalities of blood glucose are common in patients undergoing surgery, and in recent years there has been considerable interest in tight control of glucose in the perioperative period. Implementation of any regime of close glycemic control requires more frequent measurement of blood glucose, a function for which small, inexpensive, and rapidly responding point-of-care devices might seem highly suitable. However, what is not well understood by many anesthesiologists and other staff caring for patients in the perioperative period is the lack of accuracy of home glucose meters that were designed for self-monitoring of blood glucose by patients. These devices have been remarketed to hospitals without appropriate additional testing and without an appropriate regulatory framework.Clinicians who are accustomed to the high level of

accuracy of glucose measurement by a central laboratory device or by an automated blood gas analyzer may be unaware of the potential for harmful clinical errors that are caused by the inaccuracy exhibited by many self-monitoring of blood glucose devices, especially in the hypoglycemic range.Knowledge of the limitations of these meters is essential for the perioperative physician to minimize the possibility of a harmful measurement error. In this article, we will highlight these areas of interest and review the indications, technology, accuracy, and regulation of glucose measurement devices used in the perioperative setting.

一个能降低睡眠呼吸暂停综合症儿童增殖体切除术后呼吸系统并发症的麻醉管理方案

An Anesthetic Management Protocol to Decrease Respiratory Complications After Adenotonsillectomy in Children with Severe Sleep Apnea

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背景：据报道，在睡眠呼吸暂停综合症儿童进行增殖体切除术后呼吸系统并发症较高。为了减少并发症，我们在围术期睡眠研究中出现反复严重低氧血症的睡眠呼吸暂停综合症儿童中遵循了围术期的指南，它调整了阿片类药物、地塞米松和阿托品的应用。
方法：我们进行了一项回顾性研究，比较了 2001 年以来的历史数据。主要结局变量是呼吸系统医疗干预。睡眠呼吸暂停综合症的严重程度用 McGill 血氧测定系统进行评估，关注重点是反复氧饱和度<80%的儿童(MOS4)。
结果：在 2002 年 10 月至 2006 年 2 月期间记录到共有 292 名符合入选标准的儿童进行增殖腺扁桃体切除术，其中记录了 97 名 MOS4 的儿童。11 名儿童（11.3%）需要呼吸系统医疗干预。在 2001 年记录了 8 名儿童 MOS4,并且需要呼吸系统医疗干预。比较新老指南下，调整的 MOS4 呼吸系统医疗干预比值比为 0.30（95%置信区间：0.10-0.85）。呼吸系统医疗干预得以下降的关键因素是地塞米松的使用和阿片类药物用量减少。在 2002 年至 2006 年，MOS4 组中术中阿片类药物的用量（以吗啡的等效剂量表示）为 0.1 毫克/公斤（0.06-0.12 毫克/公斤），术后的吗啡剂量为 0.02 毫克/公斤（0-0.07 毫克/公斤）。剂量均少于对照组的使用量，P 值<0.001。
结论：包括注射地塞米松和阿片类药物应用减少的改变使需要呼吸系统医疗干预的反复严重低氧血症儿童减少了 50%。
（姚敏敏译 薛张纲校）

BACKGROUND: A high incidence of respiratory morbidity after adenotonsillectomy is reported in children with obstructive sleep apnea syndrome (OSAS). In an effort to

decrease this morbidity, we implemented perioperative guidelines recommending an adjustment in the administration of opioids, dexamethasone, and atropine in children with OSAS who demonstrated recurrent episodes of profound hypoxemia during the perioperative sleep study.

METHODS: We performed a retrospective review and compared results with historic data from 2001. The primary outcome variable was a major respiratory medical intervention ($MMI_{Respiratory}$). The severity of OSAS was classified with the McGill Oximetry Scoring (MOS) system, and our focus was on those children demonstrating repetitive desaturation <80% (MOS4).

RESULTS: The medical records of 292 children who underwent adenotonsillectomy between October 2002 and February 2006 met the inclusion criteria and 97 had been assigned MOS4. Eleven children (11.3%) required an $MMI_{Respiratory}$. In 2001, 8 children (29.6%), assigned MOS4, required an $MMI_{Respiratory}$. Comparing the new and old guidelines, the adjusted odds ratio for $MMI_{Respiratory}$ in MOS4 was 0.30 (95% CI: 0.10–0.85). The key elements achieving this reduction in $MMI_{Respiratory}$ were dexamethasone administration and a reduced opioid dosage. In 2002 to 2006, the intraoperative opioid dose, expressed in morphine equivalents, administered to the MOS4 group was 0.10 $mg \cdot kg^{-1}$ (0.06–0.12 $mg \cdot kg^{-1}$), and the postoperative morphine dose was 0.02 $mg \cdot kg^{-1}$ (0–0.07 $mg \cdot kg^{-1}$). Both doses were lower than the ones administered to the concurrent comparison group, *P* values <0.001.

CONCLUSIONS: A change in practice that included a dexamethasone administration and a reduction in opioid administration to children with profound recurrent hypoxia reduced the incidence of $MMI_{Respiratory}$ by >50%.

围术期心电图和胸片在有可疑神经肌肉障碍患者中预测左心室功能不全的准确性

Accuracy of preoperative electrocardiographic and chest radiographic screening for prediction of left ventricular dysfunction in patients with suspected neuromuscular disorders.

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背景:我们试图确定心电图和胸片在麻醉前评估中接受肌肉活检，可疑有神经肌接头障碍的患者中预测左心室功能不全的可靠性。

方法：在这个回顾性研究中，255 例患者通过肌肉活检前的麻醉前检查，包括病史、体格检查和实验室检查做出神经肌肉障碍的初步诊断。检查包括心电图，胸片，超声心动图，以评估潜在左心室功能不全相关的围手术期风险。选用多因素 logistic 回归分析确定是否可用胸片及心电图独立预测左心室功能不全。此外，接收机操作特性曲线分析在“金标准”超声心动图数据的基础上来评估每个测试诊断的准确性和联合使用胸片及心电图在鉴别左心室功能不全的准确性。

结果：这项研究包括 255 例进行超声心动图检查的患者，而在这些患者中，235 进行的胸片的检查和 237 进行了心电图检查。 44 名患者被超声心动图诊断为左室功能不全（17.3%）。在 255 例患者中，经超声心动图诊断，有 24 人发现有轻度左室功能不全（9.4%）和 20 个中度至重度左室功能不全（7.8%）。根据超声心动图提供的左心室功能不全的诊断标准，我们发现，单独使用胸片可以预测 37 例左心室功能不全，单独使用心电图可以预测 14%的病例，而两者结合可以预测 81 % 的病例。联合使用心电图和胸片提供最高的诊断准确率（0.95 的曲线下面积，P<0.0001），在正常的左心室功能患者中鉴别中度至重度左心室功能不全。

结论：在有可疑神经肌肉疾病的患者中，胸片和心电图独立预测左心室功能不全与否的准确性较低。联合使用两种检查在与性别年龄无关的可疑有神经肌肉障碍的患儿中，对心肌病变有相对较高的准确性，特别在具有中度到重度左心室功能不全的患者中。虽然我们的研究提示联合使用心电图和胸片可以作为一种可靠的方法来检测左心室功能不全，这种方法无法区分心肌病的严重程度或可能存在的类型。因此，肌肉活检前的超声心动图检查必须仔细考虑怀疑疾病、心电图和胸片结果、实验室检查、年龄、体格检查和家族史。

（俞佳译 薛张纲校）

BACKGROUND: We sought to determine the reliability of electrocardiography (ECG) and chest radiography (CXR) in predicting left ventricular (LV) dysfunction in patients with suspected neuromuscular disorders (NMDs) undergoing preanesthetic evaluation for muscle biopsy.

METHODS: In this retrospective study, 255 patients with a preliminary diagnosis of NMDs based on history, physical examination, and laboratory testing underwent preanesthetic screening before muscle biopsy. The screening included various combinations of ECG, CXR, and transthoracic echocardiography (Echo) to assess perioperative risk associated with potentially undiagnosed LV dysfunction. Multivariate logistic regression analysis was applied to ascertain whether CXR and ECG were independently predictive of LV dysfunction. In addition, receiver-operating characteristic curve analysis was used to assess the diagnostic accuracy of each test and the combination of CXR and ECG in differentiating LV dysfunction from normal function based on Echo "gold standard" data.

RESULTS: The study consisted of 255 patients who had a transthoracic Echo, and among these patients, 235 had CXR and 237 had ECG. Forty-four patients were diagnosed by transthoracic Echo to have LV dysfunction (17.3%). Of the 255 patients in the study population, 24 were found to have mild LV dysfunction (9.4%) and 20 had moderate to severe LV dysfunction (7.8%) on Echo. With Echo providing the definitive standard for the diagnosis of LV dysfunction, we found that a CXR alone was predictive in 37% of cases of LV dysfunction, an ECG alone was predictive in 14% of cases, and the combination of both was predictive in 81% of cases. The combination of ECG and CXR test offered the highest diagnostic accuracy (area under the curve of 0.95, $P < 0.0001$) for differentiating moderate to severe LV dysfunction from normal LV function.

CONCLUSIONS: In patients with suspected neuromuscular disease, CXR and ECG provided low independent diagnostic prediction for the presence or absence of LV

dysfunction. The combination of both tests can identify cardiomyopathy with relatively high accuracy in children with suspected NMDs independent of age and gender, particularly in patients with moderate to severe LV dysfunction. Although our findings suggest that combination ECG and CXR screening is a reliable means of detecting LV dysfunction, this approach fails to differentiate the severity or type of cardiomyopathy that may exist. Therefore, the decision to obtain a perioperative Echo before muscle biopsy should involve careful consideration of the disease suspected, ECG and CXR results, laboratory studies, patient age, physical examination, and family history.

艾司洛尔和兰地洛尔，选择性 β1 的-肾上腺素受体拮抗剂，提供对脊髓缺血再灌注的保护作用。

Esmolol and landiolol, selective beta1-adrenoreceptor antagonists, provide neuroprotection against spinal cord ischemia and reperfusion in rats.

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背景：截瘫是一种伤害性的和难以预料的并发症，偶尔由于胸外科和胸腹主动脉手术造成。由于超短效选择性 β（1）-肾上腺素受体拮抗剂后提供脑缺血的神经保护作用，我们推测，它们也将改善大鼠短暂性脑缺血和再灌注损伤所致的脊髓损伤。
方法：雄性 SD 大鼠随机分为一分为以下 4 组：生理盐水（静脉注射 0.9％盐水输注 0.5 毫升/小时，8 只），艾司洛尔（艾司洛尔 200 微克/公斤/分率，每组 8），兰地洛尔（兰地洛尔 50 微克/公斤/分钟），或假外科手术（n = 6）。脊髓缺血开始前 30 分钟输注生理盐水或药物并在随后的 24 小时持续灌注。脊髓缺血由持续 10 分钟的主动脉内球囊近端动脉阻塞合并低血压诱导。随后脊髓再灌注 24 小时。脊髓损伤由再灌注 24 小时后的缺血性损伤由后肢活性减少指数评分和有活性的脊髓前角运动神经细胞数目共同评估。
结果：活性减少指数得分艾司洛尔和兰地洛尔组显著低于生理盐水组（P <0.05）。脊髓组织病理学评估表明艾司洛尔和兰地洛尔组的损害少于生理盐水组（P <0.05）。
结论：这些数据表明，超短效选择性 β（1）-肾上腺素受体拮抗剂可减少脊髓缺血再灌注大鼠模型的神经损伤。
（张玥琪译，薛张纲校）

BACKGROUND: Paraplegia is a devastating and unpredictable complication occasionally resulting from surgery of the thoracic and thoracoabdominal aorta. Because ultrashort-acting selective beta(1)-adrenoreceptor antagonists provide neuroprotective effects after brain ischemia, we hypothesized that they would also ameliorate spinal cord injury after transient ischemia and reperfusion in rats.

METHODS: Male Sprague-Dawley rats were randomly assigned to one of the following 4 groups: saline (received IV infusion of 0.9% saline at a rate of 0.5 mL/h, n = 8), esmolol (esmolol 200 microg/kg/min, n = 8), landiolol (landiolol 50 microg/kg/min), or sham surgical (n = 6). Infusion of saline or drugs was initiated 30 minutes before spinal cord ischemia and continued for the subsequent 24-hour reperfusion. Spinal cord ischemia was induced by intraaortic balloon occlusion combined with proximal arterial hypotension for 10 minutes. The spinal cord was then reperfused for 24 hours. Ischemic injury was assessed in terms of the motor deficit index score of the hindlimb and the number of viable motor nerve cells in the anterior spinal cord at 24 hours after reperfusion.
RESULTS: The motor deficit index scores were significantly lower in the esmolol and landiolol groups compared with the saline group ($P < 0.05$). Histopathologic evaluation of the spinal cord showed less damage in the esmolol and landiolol groups than in the saline group ($P < 0.05$).
CONCLUSIONS: These data show that ultrashort-acting selective beta(1)-adrenoreceptor antagonists can reduce neurological injury in a rat model of spinal cord ischemia-reperfusion.

向腹壁下深穿支皮瓣间歇注射布比卡因减轻乳房再造术后疼痛的报告

Brief report: improved pain relief using intermittent bupivacaine injections at the donor site after breast reconstruction with deep inferior epigastric perforator flap.

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背景：运用腹壁下深穿支皮瓣的术式常引起术后皮瓣部位的疼痛，需阿片类药物进行治疗。
方法：本研究是一项双盲、对照研究，试验组和对照组各 20 例。我们在术后通过预留在皮瓣部位的细管向试验组患者每隔三个小时注射 2.5 mg/mL 的布比卡因 20 mL，持续 72 小时来检验其镇痛效果。
结果：试验组患者在安静和咳嗽时，疼痛均显著减轻。对照组患者在观察的 72 小时内均需要多于 2 到 3 次的阿片类药物。两组患者术后恶心的发生率和止吐药的用量无差异。
结论：我们推断向皮瓣部位间歇注射布比卡因克显著减轻术后该部位的疼痛，同时应备好急救药物。
（张钊译 薛张纲校）

BACKGROUND: Deep inferior epigastric perforator flap surgery usually results in postoperative pain from the donor site requiring opioids.

METHOD: We examined the effect of bupivacaine 2.5 mg/mL, 20 mL given every third hour for 72 hours postoperatively through 2 thin catheters placed on the donor site in a double-blind placebo-controlled study consisting of 2 x 20 patients.
RESULTS: The bupivacaine group had significantly reduced pain at rest and during coughing. The placebo group needed 2 to 3 times more opioids in the 72-hour observation period. No difference was seen in the frequency of nausea or the consumption of antiemetic drugs.
CONCLUSION: We conclude that intermittent delivery of bupivacaine at the abdominal donor site significantly reduces the postoperative pain and need for narcotic rescue medication.

新福林抑制大鼠弥散性伤害抑制性控制的疼痛调节

Phenylephrine Suppresses the Pain Modulation of Diffuse Noxious Inhibitory Control in Rats

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背景：弥散性伤害抑制性控制(DNIC)是指广范而动态的神经元为何通过中枢神经系统被异位兴奋远离感受野身体部位的伤害性刺激选择性强烈抑制的一种现象。以往的研究表明全身性给予一种 α1 肾上腺受体激动剂新福林可阻断 DNIC。我们假设下行抑制通路介导 DNIC 的机制，并且 DNIC 神经网络环存在于脑干中部一个较以往假定的更加接近嘴部的部位，可能位于中缝大核。此项研究的目的是确定 DNIC 是否被直接在中缝大核旁给予的新福林调节。
方法：实验在麻醉的雄性 SD 大鼠上实施。为了向中缝大核旁注射不同的药物，根据 Paxinos-Watso 图谱将一根 33 号导管尖端置入中缝大核旁区域。使用单个矩形波电刺激刺激左后爪的脚趾。在尾巴浸入 50° C 热水带来的伤害缺失和存在时从股二头肌记录同侧腓肠神经的感受野,其中包括电刺激引出的 C-纤维反射性反应。把从记录的肌电图计算出的 DNIC 效果作为抑制率。0.05 μL 盐水和 0.05 μg/0.05 μL 新福林通过导管显微注射入中缝大核旁。同样的方法记录肌电图描记的活动所诱发的 C-纤维反射。注药前后比较 C-纤维的抑制率。同种药物组之间使用成对 t 检验进行统计比较。不同药物组之间使用单因素方差分析和 Bonferroni 多重比较法进行统计分析。所有实验结束时，用电流烧灼导管与组织接触的末端来定位药物注射的位置。取出大脑，冠状面切片，苏木精和伊红染色。
结果：在中缝大核旁注射新福林后伤害性热刺激（DNIC）抑制的 C-纤维反射明显被阻滞。

结论：中缝大核旁直接注射新福林可抑制 DNIC，从而影响和调节内部疼痛抑制系统。这些结果表明中缝大核可能涉及 DNIC 的调节。
（朱兰芳译，薛张纲校）

BACKGROUND: Diffuse noxious inhibitory control (DNIC) is a phenomenon whereby wide dynamic range neurons are selectively and powerfully inhibited through the central nervous system by noxious stimuli heterotopically applied to a body area distant from their excitatory receptive fields. Previous work has shown that systemic administration of an α1-adrenoceptor agonist, phenylephrine (PE), blocked the DNIC. We hypothesized that descending inhibitory pathways mediate the DNIC mechanism and that the neural network of the DNIC loop exists in the middle brainstem, likely in a more rostral part than formerly assumed, possibly the nucleus raphe magnus (RMg). The aim of this study was to determine whether DNIC is directly modulated by PE when administered close to the RMg.
METHODS: The experiments were performed on anesthetized male Sprague-Dawley rats. For administration of different drugs close to the RMg, the tip of a 33-gauge cannula was placed into an area close to the RMg as determined using the atlas of Paxinos and Watson. Single square-wave electrical stimuli were applied to the digits of the left hindpaw. The C-fiber reflex response elicited by electrical stimulation within the receptive field of the ipsilateral sural nerve was recorded from the biceps femoris muscle in the absence and presence of noxious tail immersion in warm water at 50°C. The DNIC effect was calculated from a recorded electromyogram as the "inhibition rate." Saline (0.05 μL) or PE (0.05 μg/0.05 μL) was microinjected close to the RMg through the cannula. The C-fiber reflex evoked by electromyographic activity was recorded the same way. The inhibition rate of the C-fiber reflex was compared before and after administration of drugs. A paired *t* test was used for statistical comparison between same drug administration groups, and 1-way analysis of variance and Bonferroni multiple comparison were used for statistical analysis between different drugs. At the end of all experiments, the tissue-contacting end of the cannula tip was cauterized with an electric current to localize the drug administration site. The brain was removed, sliced in coronal sections, and stained with hematoxylin and eosin.
RESULTS: The C-fiber reflex inhibited by noxious thermal stimuli (DNIC) was significantly blocked after the injection of PE close to the RMg.
CONCLUSION: Direct administration of PE close to the RMg inhibited DNIC, thereby affecting and modulating the intrinsic pain inhibition system. These findings suggest that the RMg may be involved in the regulation of DNIC.

新的超声引导下行局麻的学习模型：不易腐烂的物品制成的产品

New Teaching Model for Practicing Ultrasound-Guided Regional Anesthesia Techniques: No Perishable Food Products!

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背景：有一个关于超声引导下局部麻醉的学习曲线。通过仿真模型可以加快掌握各种超声引导下行局麻操作的技能。然而，超声引导下局部麻醉的商业模型太昂贵或无法即时获得。 利用火鸡乳房或豆腐制成模型由于是由易腐食品制成，有感染的风险。我们描述了一个便宜的、使用不易腐烂的在手术室可得的材料制成的模型。

方法：所需材料包括 1 个干净的 500 毫升的静脉输液袋，一瓶 Premisorb（TYCO 医疗集团，Mansfield, MA），以及一块修剪为直径约 0.3 厘米、长 5 厘米长的手术室中可得的泡沫垫。 在静脉输液袋中加入自来水，从静脉输液袋出口处加入泡沫材料，三分之一瓶 Premisorb（约 15 克）。 该瓶子的出口用橡胶瓶塞密封。

结果：Premisorb，一种常用的手术室吸引器罐中冲洗液或血液的凝固剂，在静脉输液袋中产生凝胶状物质。在输液袋中加入泡沫物质可以产生相对高回声目标。这种在输液袋中的凝胶样物质可以密封由于多次穿刺产生的孔并出现的细小泄漏。半透明的凝胶性质使学员直观的观察到目标及和超声影像。

结论：我们描述的这个模型是价格低廉的，制作材料在手术室可得并且容易制造，还具有不易腐烂、便于携带和可重复使用的优点。

（陈珺珺译 薛张纲校）

BACKGROUND: There is a pronounced learning curve for the technique of ultrasound-guided regional anesthesia. Practicing with a simulator model has been shown to speed the acquisition of these skills for various ultrasound-guided procedures. However, commercial models for ultrasound-guided regional anesthesia may be too costly or not readily available. Models using turkey breasts or tofu blocks have the disadvantage of containing perishable food products that can be a source for infection. We describe an alternative inexpensive model that is made from nonperishable components readily available in the operating room.

METHODS: The materials required include 1 clean used 500-mL bag of IV fluids, a bottle of Premisorb® (TYCO Healthcare Group, Mansfield, MA), and a piece of foam material approximately 0.3 cm in diameter and 5 cm in length trimmed from operating room foam pads. After filling the IV bag with tap water and inserting the foam into the IV bag from the outlet port of the IV bag, one-third of a bottle of Premisorb (approximately 15 g) is poured into the IV bag. The outlet port of the bag is then sealed by taping the rubber stopper that originally came with the bag.

RESULTS: Premisorb, a solidifying agent frequently used to absorb irrigating fluids or blood in operating room suction canisters, produces a gel-like material in the IV bag. The foam inserted into the bag creates a relatively hyperechoic target. This gel-like substance in the bag will seal the holes created after multiple practice needle insertions, resulting in minimal leakage. The semitransparent nature of the gel allows the trainee to visualize the target directly and on the ultrasound screen.

CONCLUSION: The model we describe is inexpensive and easy to make from materials readily available in the operating room with the advantages of being nonperishable, easy to carry, and reusable.