嗜碱性粒细胞激活试验诊断舒更葡糖诱导的过敏性反应的有效性

Usefulness of Basophil Activation Tests for Diagnosis of Sugammadex-Induced Anaphylaxis

Horiuchi, Tatsuo, MD*; Yokohama, Akihiko, MD, PhD†; Orihara, Masaki, MD*; Tomita, Yukinari, MD, PhD‡; Tomioka, Akihiro, MD, PhD§; Yoshida, Nagahide, MD, PhD‖; Takahashi, Kenichiro, MD, PhD¶; Saito, Shigeru, MD, PhD*; Takazawa, Tomonori, MD, PhD#

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背景：舒更葡糖可以逆转许多全身麻醉情况下神经肌肉阻滞剂的作用，但有一些关于使用舒更葡糖后发生过敏性反应的报道。皮肤测试时检测过敏性反应致病因素的金标准。由于缺乏关于舒更葡糖的相关验证性试验，诊断准确性可能不足。目前，嗜碱性粒细胞激活试验已被确立为一种具有高灵敏度和特异度的检测过敏性反应致病因子的工具。然而，几乎没有试验对嗜碱性粒细胞激活试验对舒更葡糖诱导的过敏性反应的效用进行研究。

方法：本研究纳入了 8 例在全身麻醉过程中对舒更葡糖立即发生反应的患者，并进行皮肤测试以诊断是否发生舒更葡糖诱导的过敏性反应。21 名对舒更葡糖相关过敏性皮肤试阴性患者作为对照组。选择的嗜碱性粒细胞用 CD63 和 CD203c 进行标记。

结果：活化嗜碱性粒细胞比例显着高于对照组：患者和对照组 CD203c 曲线下面积的中值分别为 1,265,985（95％可信区间[CI]，77,580-5,040,270）和 116,325（95 ％CI，-268,605 至 232,690）（Mann-Whitney U 检验，P <0.01），患者和对照的 CD63 曲线下面积分别为 788,647（95％CI，120,285-3,523,410）和 220,005 95％CI，-50,346 至 404,680）（Mann-Whitney U 检验，P <0.01）。这些患者表现出明显的剂量依赖性 CD203c 上调，在 CD63 标记中结果一致。在 CD203c 标记结果中，BAT 对舒更葡糖的敏感性为 88％（95％CI，47％-100％），特异性为 100％（95％CI，84％-100％），而在 CD63 标记中敏感性和特异性分别为 75％（95％CI，35%-97%）和 100% （95% CI, 84%-100%）。

结论：该粒细胞活化试验用于皮肤测试来诊断舒更葡糖诱导的过敏性反应有比较好的准确度。因此，CD203c 和 CD63 均可以用来检测活化的嗜碱性粒细胞。

（赵明晔译 潘艳、薛张纲校）

BACKGROUND: Sugammadex is used to reverse the effects of neuromuscular blocking agents in many cases of general anesthesia. However, there are several reports of anaphylaxis after its use. Skin testing is the gold standard for detecting the causative agent of anaphylaxis. However, due to the lack of validated protocols for skin testing with sugammadex, the diagnostic accuracy might be inadequate. Recently, the basophil activation test (BAT) has been established as a tool to detect the causative agent of anaphylaxis with high sensitivity and specificity. However, few studies have investigated the utility of the BAT for sugammadex-induced anaphylaxis.

METHODS :Eight patients who presented with immediate hypersensitivity to sugammadex during general anesthesia were included in this study. We conducted skin tests to confirm the diagnosis of sugammadex-induced anaphylaxis. Twenty-one sugammadex-naive individuals who had a negative skin test for allergy to this drug were enrolled as controls. Basophils were selected on a CD3/CRTH2 gate and labeled with CD63 and CD203c.
RESULTS :The ratios of activated basophils in the patients were much higher than those in controls: the median values of areas under the curves in the patients and controls for CD203c were 1,265,985 (95% confidence interval [CI], 77,580-5,040,270) and 116,325 (95% CI, -268,605 to 232,690), respectively (Mann-Whitney U test, P < .01), and the areas under the curves in the patients and controls for CD63 were 788,647 (95% CI, 120,285-3,523,410) and 220,005 (95% CI, -50,346 to 404,680), respectively (Mann-Whitney U test, P < .01). The patients, but not controls, demonstrated clear dose-dependent CD203c upregulation. This was also true for CD63. In the case of CD203c, the sensitivity of the BAT for sugammadex was 88% (95% CI, 47%-100%), and specificity was 100% (95% CI, 84%-100%), while sensitivity and specificity for CD63 were 75% (95% CI, 35%-97%) and 100% (95% CI, 84%-100%), respectively.
CONCLUSIONS :The BAT seems to have comparable accuracy to skin tests for the diagnosis of sugammadex-induced anaphylaxis. For this purpose, both CD203c and CD63 can be used to detect activated basophils.

星状神经节阻滞对上肢局部血流动力学的影响：一项随机对照试验

Effect of Stellate Ganglion Block on the Regional Hemodynamics of the Upper Extremity: A Randomized Controlled Trial

Kim, Min, Kyoung, MD, PhD*; Yi, Myung, Sub, MD*; Park, Pyung, Gul, MD*; Kang, Hyun, MD, PhD, MPH*; Lee, Jae, Sung, MD, PhD†; Shin, Hwa, Yong, MD, PhD, FIPP, CIPS*

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背景：星状神经节阻滞（SGB）的成功与否传统上是基于如下研究结果而确定的，包括 Horner 综合征，面部温度升高，鼓膜充血和鼻充血等。然而，手臂血管阻力的降低和血流量的增加可能是更有意义的发现。迄今为止，尚未使用脉冲多普勒超声评估 SGB 对手臂局部血流动力学的影响。
方法：52 例接受前臂骨科手术的患者随机分为甲哌卡因组（SGB + 5％0.5％甲哌卡因）或生理盐水组（SGB + 5 mL 生理盐水）。手术前，一位麻醉医师在超声引导下进行 SGB。在 SGB 之前，SGB 之后 15 分钟和 30 分钟以及术后 1 小时测

量上肢温度，肱动脉阻力指数和血流量。并记录疼痛的严重程度，抢救止痛药的需求以及局部麻醉剂的副作用。

结果：SGB 后，发现在甲哌卡因的患者：阻滞指数显著下降，肱动脉中血流量显着增加（15 分钟分别为：P = 0.004 和 P <0.001，30 分钟分别为：P <0.001 和 P<0.001）。但是，这些值在手术后正常化。两组患者的疼痛的严重程度，救援镇痛药的需求以及不良反应的发生率均无显著差异。

结论：虽然 SGB 并未减少与前臂手术相关的疼痛，但超声引导的 SGB 确实增加了血流量并降低了手臂血管阻力。因此，脉冲多普勒可用于监测 SGB 的成功。

（张连芳译 潘艳、薛张纲校）

BACKGROUND: The success of stellate ganglion block (SGB) is traditionally determined on the basis of findings such as Horner's syndrome, temperature rise in the face, hyperemia of the tympanic membrane, and nasal congestion. However, decreases in vascular resistance and increases in blood flow in the arm may be more meaningful findings. To date, the effect of SGB on the regional hemodynamics of the arm has not been evaluated using pulsed-wave Doppler ultrasound.

METHODS:A total of 52 patients who were to undergo orthopedic surgery of the forearm were randomly assigned to either the mepivacaine group (SGB with 5 mL of 0.5% mepivacaine) or the saline group (SGB with 5 mL of normal saline). Before surgery, a single anesthesiologist performed a SGB under ultrasound guidance. The temperature of the upper extremity and the resistance index and blood flow in the brachial artery were measured before SGB, 15 and 30 minutes after SGB, and 1 hour after surgery. The severity of pain, requirement for rescue analgesics, and side effects of the local anesthetic agent were all documented.

RESULTS: After SGB, the resistance index decreased significantly and the blood flow increased significantly in the brachial artery of members of the mepivacaine group (15 minutes: $P=.004$ and $P<.001$, respectively; 30 minutes: $P<.001$ and $P<.001$, respectively). However, these values normalized after surgery. The severity of pain, need for rescue analgesics, and incidence of adverse effects were not significantly different between the 2 groups.

CONCLUSIONS: Although SGB did not decrease the pain associated with forearm surgery, ultrasound-guided SGB did increase blood flow and decrease vascular resistance in the arm. Therefore, pulsed-wave Doppler may be used to monitor the success of SGB.

- **麻醉药物和阿片受体激动剂在SD大鼠心脏建立的活性氧自由基介导的心脏保护后处理中的不同作用**

  Differential Effects of Anesthetics and Opioid Receptor Activation on Cardioprotection Elicited by Reactive Oxygen Species–Mediated Postconditioning in Sprague-Dawley Rat Hearts

  Lucchinetti E1, Lou PH2, Gandhi M3, Clanachan AS3, Zaugg M1,3

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  背景：尽管在缺血再灌入（ischemia-reperfusion (IR)）损伤的临床前模型中发现了不少心脏保护的方法，但是临床应用还未实现。本研究调查了临床麻醉中常用药物是否会通过降低心脏保护信号通道上游触发因子活性氧自由基（ROS）作用来影响心脏保护效果。通过ROS介导及Intralipid（英脱利匹特，脂肪乳剂)后处理建立缺血后功能性恢复模型,比较丙泊酚,七氟醚和瑞芬太尼的作用。
  方法：在全脑缺血（20分钟）和再灌注（30分钟）处理后隔离的Sprague-Dawley老鼠心脏中测量左心室（LV）功能的恢复，即缺血再灌注损伤指数。心脏未经处理或者给予Intralipid（1%，贯穿整个再灌注过程）的后处理。丙泊酚(10 μM), 七氟醚 (2 vol%), 瑞芬太尼 (3 nM)或者其组合在围缺血期（缺血再灌注之前及期间）给药。在磷酸化和非磷酸化条件下，通过Amplex Red测定法测定麻醉药物对左室心脏纤维中ROS生成造成的影响。
  结果：左室功能恢复（表达为缺血前数值的百分比±标准差）在未经处理的心脏中较差(20% ± 7%),而经过Intralipid后处理组有所提升(58% ± 8%, P = .001)。在未经Intralipid后处理组中，丙泊酚(28% ± 9%, P = .049), 七氟醚 (49% ± 5%, P < .001), 和瑞芬太尼(51% ± 6%, P < .001) 对左室功能恢复有改善。Intralipid后处理组的改善效果在丙泊酚 (33% ± 10%, P < .001)未见明显体现，但是可以被七氟醚 (80%± 7%, P < .001)或瑞芬太尼(80% ± 9%, P < .001)加强。左室纤维中活性氧自由基信号被丙泊酚处理组中降低，但在七氟醚和瑞芬太尼处理组中无明显变化。我们认为丙泊酚通过清扫活性氧自由基可以改善活性氧自由基介导的Intralipid后处理。七氟醚和瑞芬太尼的氧自由基介导的心脏保护作用则是本质上保护及提供额外的心脏保护。
  结论：在临床麻醉中常规使用药物的不同效果可能会影响到诸如Intralipid后处理等的心脏保护治疗法从前临床向临床应用的推进。
  (刘邱阿雪译 潘艳、薛张纲校)
  BACKGROUND: Despite an array of cardioprotective interventions identified in preclinical models of ischemia-reperfusion (IR) injury, successful clinical translation has not been achieved. This study investigated whether drugs routinely used in clinical anesthesia influence cardioprotective effectiveness by reducing effects of reactive oxygen species (ROS), upstream triggers of cardioprotective signaling. Effects of propofol, sevoflurane, or remifentanil were compared on postischemic functional recovery induced by ROS-mediated postconditioning with Intralipid.
  METHODS: Recovery of left ventricular (LV) work, an index of IR injury, was measured in isolated Sprague-Dawley rat hearts subjected to global ischemia (20 minutes) and reperfusion (30 minutes). Hearts were either

untreated or were treated with postconditioning with Intralipid (1%, throughout reperfusion). Propofol (10 μM), sevoflurane (2 vol%), remifentanil (3 nM), or combinations thereof were administered peri-ischemically (before and during IR). The effects of anesthetics on ROS production were measured in LV cardiac fibers by Amplex Red assay under phosphorylating and nonphosphorylating conditions.

RESULTS: Recovery of LV work (expressed as percentage of the preischemic value ± standard deviation) in untreated hearts was poor (20% ± 7%) and was improved by Intralipid postconditioning (58% ± 8%, P = .001). In the absence of Intralipid postconditioning, recovery of LV work was enhanced by propofol (28% ± 9%, P = .049), sevoflurane (49% ± 5%, P < .001), and remifentanil (51% ± 6%, P < .001). The benefit of Intralipid postconditioning was abolished by propofol (33% ± 10%, P < .001), but enhanced by sevoflurane (80%± 7%, P < .001) or remifentanil (80% ± 9%, P < .001). ROS signaling in LV fibers was abolished by propofol, but unaffected by sevoflurane or remifentanil. We conclude that propofol abolishes ROS-mediated Intralipid postconditioning by acting as a ROS scavenger. Sevoflurane and remifentanil are protective per se and provide additive cardioprotection to ROS-mediated cardioprotection.

CONCLUSIONS: These divergent effects of routinely used drugs in clinical anesthesia may influence the translatability of cardioprotective therapies such as Intralipid postconditioning.

减少左心室全球纵向应变预测延长住院时间:对主动脉瓣膜替换手术患者的队列分析。

Reduced Left Ventricular Global Longitudinal Strain Predicts Prolonged Hospitalization: A Cohort Analysis of Patients Having Aortic Valve Replacement Surgery.

Sonny, Abraham, MD*; Alfirevic, Andrej, MD, FASE*; Sale, Shiva, MD*; Zimmerman, Nicole, M., MS†; You, Jing, MS†; Gillinov, A., Marc, MD‡; Sessler, Daniel, I., MD§; Duncan, Andra, E., MD, MS, FASE//

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在主动脉狭窄的患者中，左心室射血分数(LVEF)通常是正常的，因此无法区分正常心肌收缩功能和亚临床功能障碍。测量心肌形变的整体纵向张力和应变率(SR)是心肌功能的可靠指标，可以检测到常规超声心动图不明显的细微心肌功能障碍。张力和 SR 可能比 LVEF 更能预测术后预后。我们调查的主要目的是评估在主动脉瓣置换术后主动脉狭窄患者的整体纵向张力与严重术后预后之间的关系。其次，我们还评估了整体纵向 SR 与 LVEF 的关系以及结果。在对随机临床试验(NCT01187329)的数据进行分析后，我们检查了心肌功能测量与下列结果之间的关系:(1)术后肌力/血管加压素的支持;(2)住院时间延长(>7 天);(3)术后房颤。麻醉诱导后进行标准化的经食管超声心动图检查。用斑点跟踪超声心动图测量心肌形变。采用多变量 logistic 回归评估心肌功能和结果之间的关系，并根据潜在的混杂因素进行调整。评估了整体纵向张力、SR 和 LVEF 的预测能力，并将其

作为接收操作特征曲线下的区域。在接受临床试验的 100 例患者中，86 例主动脉瓣狭窄患者可接受整体纵向张力分析。最主要的是，更严重的术中全球纵向应变与延长住院时间有关(比值比[98.3%置信区间]，1.22[1.01-1.47]，每 1%降低[绝对值];P = .012，但没有其他结果。其次，较差的全球纵向 SR 与延长住院时间有关(比值比[99.7%置信区间]，1.68[1.01-2.79]每 0.1 秒降低[绝对值];P = .003，但没有其他结果。LVEF 与任何结果无关。心肌整体纵向 SR 是长期住院的最佳预测指标(AUC, 0.72)，其次是整体纵向张力(AUC, 0.67)和 LVEF (AUC, 0.62)。全球纵向张力和 SR 是主动脉瓣置换术患者延长住院时间的有效预测因素。（曹雨枫译 潘艳、薛张纲校）

Left ventricular ejection fraction (LVEF) is often preserved in patients with aortic stenosis and thus cannot distinguish between normal myocardial contractile function and subclinical dysfunction. Global longitudinal strain and strain rate (SR), which measure myocardial deformation, are robust indicators of myocardial function and can detect subtle myocardial dysfunction that is not apparent with conventional echocardiographic measures. Strain and SR may better predict postoperative outcomes than LVEF. The primary aim of our investigation was to assess the association between global longitudinal strain and serious postoperative outcomes in patients with aortic stenosis having aortic valve replacement. Secondarily, we also assessed the associations between global longitudinal SR and LVEF and the outcomes.In this post hoc analysis of data from a randomized clinical trial (NCT01187329), we examined the association between measures of myocardial function and the following outcomes: (1) need for postoperative inotropic/vasopressor support; (2) prolonged hospitalization (>7 days); and (3) postoperative atrial fibrillation. Standardized transesophageal echocardiographic examinations were performed after anesthetic induction. Myocardial deformation was measured using speckle-tracking echocardiography. Multivariable logistic regression was used to assess associations between measures of myocardial function and outcomes, adjusted for potential confounding factors. The predictive ability of global longitudinal strain, SR, and LVEF was assessed as area under receiver operating characteristics curves (AUCs).Of 100 patients enrolled in the clinical trial, 86 patients with aortic stenosis had acceptable images for global longitudinal strain analysis. Primarily, worse intraoperative global longitudinal strain was associated with prolonged hospitalization (odds ratio [98.3% confidence interval], 1.22 [1.01-1.47] per 1% decrease [absolute value] in strain; P = .012), but not with other outcomes. Secondarily, worse global longitudinal SR was associated with prolonged hospitalization (odds ratio [99.7% confidence interval], 1.68 [1.01-2.79] per 0.1 second decrease [absolute value] in SR; P = .003), but not other outcomes. LVEF was not associated with any outcomes. Global longitudinal SR was the best predictor for prolonged hospitalization (AUC, 0.72), followed by global longitudinal strain (AUC, 0.67) and LVEF (AUC, 0.62).Global longitudinal

strain and SR are useful predictors of prolonged hospitalization in patients with aortic stenosis having an aortic valve replacement.

支气管热成形术患者的麻醉管理

Anesthetic Considerations for Patients Undergoing Bronchial Thermoplasty.

Saran, Jagroop, S., MD*; Kreso, Melissa, MD*; Khurana, Sandhya, MBBS†; Nead, Michael, MD, PhD†; Larj, Michael, MD†; Karan, Suzanne, MD*

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支气管热成形术（BT）是食品和药物管理局批准的非药物治疗新技术，可用于经传统药物治疗仍然不受控制的哮喘患者。BT 涉及应用受控射频能量来减少大中型气道中的气道平滑肌。尽管 BT 通常在全身麻醉下进行，但有关 BT 的麻醉管理策略仍欠缺。此次我们叙述 7 名在三级学术医疗中心接受了 19 次 BT 治疗患者的麻醉管理。

（吴俊梅译 潘艳、薛张纲校）

Bronchial thermoplasty (BT) is a novel, Food and Drug Administration-approved nondrug treatment for patients whose asthma remains uncontrolled despite traditional pharmacotherapy. BT involves application of controlled radiofrequency energy to reduce airway smooth muscle in large- and medium-sized airways. Although BT is often performed under general anesthesia, anesthetic management strategies for BT are poorly described. We describe the anesthetic management of 7 patients who underwent 19 BT treatments in a tertiary academic medical center.

老年人全身麻醉后认知恢复过程的描述：TORIE 项目的设计及理论基础

Delineating the Trajectory of Cognitive Recovery From General Anesthesia in Older Adults: Design and Rationale of the TORIE (Trajectory of Recovery in the Elderly) Project.

Mincer, Joshua, S., MD, PhD[*,†]; Baxter, Mark, G., PhD[*,‡,§]; McCormick, Patrick, J., MD, MEng[*]; Sano, Mary, PhD[†,‖]; Schwartz, Arthur, E., MD[*]; Brallier, Jess, W., MD[*]; Allore, Heather, G., PhD[¶]; Delman, Bradley, N., MD[#]; Sewell, Margaret, C., PhD[‖]; Kundu, Prantik, PhD[#,‖]; Tang, Cheuk, Ying, PhD[#,‖]; Sanchez, Angela, BS[*]; Deiner, Stacie, G., MD, MS[*,§,**]

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背景：麻醉及术后认知恢复的机制尚无明显的特征性，但这可能对明确老年人麻醉及术后认知相关并发症如谵妄、术后认知障碍的病因至关重要。本文对目前正在进行的 TORIE 项目的目标及方法学进行阐述，TORIE 项目即 Trajectory of Recovery in the Elderly，老年人康复过程，其重点在于研究老年人全麻后的认知恢复过程。

方法：本研究设计采用认知测试结合神经成像技术，如功能磁共振成像，扩散张量成像以及动脉自旋体标记，研究全麻后认知恢复的特点以及其生物学特征。研究纳入 40—80 岁年龄段的健康志愿者，仅行全身麻醉，未进行手术，采用这些

技术评估全麻后认知及功能神经网络的恢复。在麻醉前、麻醉期间、麻醉苏醒即刻以及麻醉后 1 天、7 天采集影像数据。在上述相同时间点以及麻醉后 30 天采集认知数据，并且在麻醉后 6 个月及 12 个月重复进行简易的认知评估。

结果：这项研究正在进行中，我们主要的假设是应用术后恢复质量量表认知测量评估认知恢复，老年人的认知恢复时间比年轻人显著延长，但在麻醉后 30 天内均会恢复到认知基线水平。神经影像数据将解决系统神经科学与全麻后认知恢复的相关性。

结论：不论最终结果如何，本研究项目获得的数据都将具有临床与理论上的相关性，通过研究老年人短期认知恢复的机制，这将对我们理解麻醉药品的效果有重要影响

（王雨婷译 潘艳、薛张纲校）

BACKGROUND: Mechanistic aspects of cognitive recovery after anesthesia and surgery are not yet well characterized, but may be vital to distinguishing the contributions of anesthesia and surgery in cognitive complications common in the elderly such as delirium and postoperative cognitive dysfunction. This article describes the aims and methodological approach to the ongoing study, Trajectory of Recovery in the Elderly (TORIE), which focuses on the trajectory of cognitive recovery from general anesthesia.

METHODS: The study design employs cognitive testing coupled with neuroimaging techniques such as functional magnetic resonance imaging, diffusion tensor imaging, and arterial spin labeling to characterize cognitive recovery from anesthesia and its biological correlates. Applying these techniques to a cohort of age-specified healthy volunteers 40-80 years of age, who are exposed to general anesthesia alone, in the absence of surgery, will assess cognitive and functional neural network recovery after anesthesia. Imaging data are acquired before, during, and immediately after anesthesia, as well as 1 and 7 days after. Detailed cognitive data are captured at the same time points as well as 30 days after anesthesia, and brief cognitive assessments are repeated at 6 and 12 months after anesthesia.

RESULTS: The study is underway. Our primary hypothesis is that older adults may require significantly longer to achieve cognitive recovery, measured by Postoperative Quality of Recovery Scale cognitive domain, than younger adults in the immediate postanesthesia period, but all will fully recover to baseline levels within 30 days of anesthesia exposure. Imaging data will address systems neuroscience correlates of cognitive recovery from general anesthesia.

CONCLUSIONS: The data acquired in this project will have both clinical and theoretical relevance regardless of the outcome by delineating the mechanism behind short-term recovery across the adult age lifespan, which

will have major implications for our understanding of the effects of anesthetic drugs.

当代麻醉中眼内压的生理及作用

Physiology and Role of Intraocular Pressure in Contemporary Anesthesia

Kelly, Dermot, J., MRCPI, FFARCSI, DABA; Farrell, Sinéad, M., MRCPI, MCAI
From the Department of Anesthesia, Royal Victoria Eye and Ear Hospital, Dublin, Ireland

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在美国有超过两千六百万人白内障患者，每年有三百六十万人行白内障手术，白内障手术是最常见的手术。调解视力的眼睛微妙结构的完整性依赖于眼内压（IOP）。然而，眼内压会挤压眼球内的血管——类似于 Starling 电阻——是决定眼内灌注压的主要结构，定义为动脉压与眼内压之差。视网膜是机体内代谢活动最高的组织之一，它的功能完整性取决于充足的血供，其功能与眼内灌注压线性相关。已经证明视网膜细胞会在低灌注压（低于 50mmHg）下死亡。现代眼科手术中涉及眼球冲洗、操作、设备，这些会导致眼内压力动态变化。许多眼科手术过程中长时间出现眼压升高（高达正常值的 4-5 倍）并达到视网膜和视盘灌注压临界值。普通外科手术，包括腹腔镜、脊柱、心脏手术，特别是要求头低脚高体位或长时间俯卧位和/或控制性降压麻醉，都可以导致眼内压改变及眼内灌注失衡。眼内压及灌注快速改变在视野缺失的发病机理中起到一定作用且与眼睛的并发症有关，这些并发症通常使其他一些小手术变得复杂。这些不良后果的准确病因是多种因素的，但眼内低灌注是最显著且通常可以避免的因素。术前存在眼内血流受损的患者特别容易导致术中缺血，包括高血压、糖尿病、动脉粥样硬化、青光眼。然而，考虑到患者的合并症状况，对动脉压和眼压的过度积极治疗可能是不可能的，并且可能导致患者暴露于灾难性脉络膜出血的风险中。麻醉管理可以显著影响整个围术期眼内压力变化。保护视网膜灌注，减少缺血风险，降低不必要出血可能的策略必须是所选麻醉方案的核心。本篇综述概括：重要的生理机制；眼科及普通外科手术很可能导致眼内压水平受损及它的风险因素；麻醉药物及方法对眼内压的影响；最近的科学证据强调手术期间灌注变化的重要性；高危患者进行手术后术后视力丧失和管理方法的关键方面。

（胡翔翔译 潘艳、薛张纲校）

More than 26 million Americans suffer with cataracts, and with 3.6 million cataract extractions performed annually in the United States, it is the most common surgical procedure.The integrity of the delicate structures of the eye that mediate vision is dependent on the intraocular pressure (IOP).Yet, IOP acts to compress the vessels within the globe—akin to a Starling resistor—and is a key component that determines the ocular perfusion pressure, defined as the difference between arterial pressure

and IOP.The retina is one of the most metabolically active tissues in the body, and its functional integrity is dependent on an adequate blood supply, with retinal function linearly related to the ocular perfusion pressure.Retinal cell death has been demonstrated at low perfusion pressures (below 50 mm Hg). Modern ophthalmic surgery involves globe irrigation, manipulation, and instrumentation, resulting in dynamic pressure fluxes within the eye. Marked elevations of IOP (up to 4–5 times the normal value) with consequent borderline retinal and optic disk perfusion pressures occur for prolonged periods during many ophthalmic procedures.General surgeries, including laparoscopic, spinal, and cardiac procedures, especially, with their demand for steep Trendelenburg or prolonged prone positioning and/or hypotensive anesthesia, can induce IOP changes and ocular perfusion imbalance. These rapid fluctuations in IOP, and so in perfusion, play a role in the pathogenesis of the visual field defects and associated ocular morbidity that frequently complicate otherwise uneventful surgeries. The exact etiology of such outcomes is multifactorial, but ocular hypoperfusion plays a significant and frequently avoidable role. Those with preexisting compromised ocular blood flow are especially vulnerable to intraoperative ischemia, including those with hypertension, diabetes, atherosclerosis, or glaucoma. However, overly aggressive management of arterial pressure and IOP may not be possible given a patient’s comorbidity status, and it potentially exposes the patient to risk of catastrophic choroidal hemorrhage. Anesthetic management significantly influences the pressure changes in the eye throughout the perioperative period. Strategies to safeguard retinal perfusion, reduce the ischemic risk, and minimize the potential for expulsive bleeding must be central to the anesthetic techniques selected. This review outlines: important physiological principles;ophthalmic and general procedures most likely to develop damaging IOP levels and their causative factors; the effect of anesthetic agents and techniques on IOP; recent scientific evidence highlighting the significance of perfusion changes during surgery; and key aspects of postoperative visual loss and management approaches for high-risk patients presenting for surgery.

分娩镇痛作为降低产后抑郁评分的预测因子：一项回顾性观察研究
Labor Analgesia as a Predictor for Reduced Postpartum Depression Scores: A Retrospective Observational Study

Lim, Grace, MD, MS[*]; Farrell, Lia, M., BS[*]; Facco, Francesca, L., MD, MS[†]; Gold, Michael, S., PhD[‡]; Wasan, Ajay, D., MD, MSc[§,//]
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背景：使用分娩镇痛——硬膜外镇痛与产后抑郁症的风险降低有关，但其中分娩镇痛的作用尚不清楚。本研究的目的是为了验证这一假设，即分娩时有效的硬膜外镇痛与产后抑郁症状减轻相关。
方法：我们采用了单一的回顾性观察性队列研究。主要终点是在产后 6 周进行的爱丁堡产后抑郁量表（EPDS）评分。纳入最终分析中的受试者（1）接受了分娩硬膜外镇痛；（2）开始分娩硬膜外镇痛前和分娩期间通过 0-10 数值评分评估分娩疼痛;和（3）在产后 6 周访视记录的 EPDS 评估的抑郁症风险。在调整了焦虑或抑郁史，其他精神病史，药物滥用，创伤，分娩方式以及其他母亲或胎儿共患疾病后，采用简单多元线性回归作为确定疼痛改善（定义为疼痛改善百分比（PIP））和产后抑郁之间关联的最佳模型。
结果：最终分析中纳入了 201 名患者。疼痛改善程度较高的妇女 EPDS 评分较低（r = 0.025; P = .002）。已知与抑郁症有关的变量（体重指数，焦虑和/或抑郁，三度和四度会阴撕裂以及贫血）与 EPDS 评分显着相关，并包含在最终模型中。在我们调整了这些协变量后，PIP 仍然是 EPDS 评分的显著预测因子（r = 0.49; P = .008），占产后抑郁评分变异的 6.6％。包括疼痛，体重指数，焦虑和/或抑郁，会阴裂伤和贫血的完整模型解释了产后抑郁评分变异的 24％。
结论：尽管硬膜外镇痛减轻分娩疼痛的程度预示着产后抑郁评分较低，但 PIP 对产后抑郁症状风险的相对影响可能低于其他已确定的抑郁症危险因素。这些数据提示，分娩镇痛对于产后抑郁影响的临床意义需要进一步研究。
（刘雯珺译 潘艳、薛张纲校）

BACKGROUND: Using labor, epidural analgesia has been linked to a reduced risk of postpartum depression, but the role of labor pain relief in this association remains unclear. The goal of this study was to test the hypothesis that effective epidural analgesia during labor is associated with reduced postpartum depression symptomatology.
METHODS:A single, institutional, retrospective, observational cohort design was chosen. The primary outcome was Edinburgh postnatal depression scale (EPDS) score, measured at the 6-week postpartum visit. Subjects included in the final analysis had (1) received labor epidural analgesia; (2) pain assessed during labor both before and during initiation of labor epidural analgesia by 0–10 numeric rating scores; and (3) depression risk assessed by the EPDS and documented at their 6-week postpartum visit. Simple and multiple linear regression was used to identify the best model for assessing the association between pain improvement, defined as percent improvement in pain (PIP), and depression, after adjusting for a history of anxiety or depression, other psychiatric history, abuse, trauma, mode of delivery, and other maternal or fetal comorbid diseases.
RESULTS: Two hundred one patients were included in the final analysis. Women with higher improvements in pain were associated with lower EPDS scores (*r* =

0.025; *P* = .002). Variables known to be associated with depression (body mass index, anxiety and/or depression, third- and fourth-degree perineal lacerations, and anemia) were significantly correlated with EPDS score and included in the final model. After we adjusted for these covariates, PIP remained a significant predictor of EPDS score (*r* = 0.49; *P* = .008), accounting for 6.6% of the variability in postpartum depression scores. The full model including pain, body mass index, anxiety and/or depression, perineal lacerations, and anemia explained 24% of the variability in postpartum depression scores.

CONCLUSIONS: Although the extent of labor pain relief by epidural analgesia predicts lower postpartum depression scores, the relative contribution of PIP to risk for postpartum depression symptoms may be less than other established risk factors for depression. These data support that the clinical significance of labor analgesia in the development of postpartum depression needs to be more clearly defined.

- **美国儿童外科医学院验证质量改进计划：麻醉医师现在需要了解的内容。**

American College of Surgeons Children’s Surgery Verification Quality Improvement Program: What Anesthesiologists Need to Know Now

Brooks Peterson, Melissa, MD*; Houck, Constance, S., MD, MPH, FAAP†; Deshpande, Jayant, K., MD, MPH, FAAP‡; Flick, Randall, P., MD, MPH, FAAP§

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在美国外科医师学会的支持下，由儿科外科专家组成的工作小组最近启动了一项小儿外科验证计划，即儿童外科验证质量改进计划，其目标是改善儿科手术、术中和围手术期护理。该计划中包含了各种实践环境中提供儿科麻醉护理的具体标准。我们回顾了全国儿科麻醉实践的背景、可用证据、验证要求、验证过程及其影响。此外，我们还对最近 3 名儿童外科验证认证的项目主管进行了特别访谈，以提供该儿童手术质量改善计划的最新最现实的世界统一观点。

（刘娟兰译 潘艳、薛张纲校）

A task force of pediatric surgical specialists with the support of The American College of Surgeons recently launched a verification program for pediatric surgery, the Children's Surgery Verification quality improvement program, with the goal of improving pediatric surgical, procedural, and perioperative care. Included in this program are specific standards for the delivery of pediatric anesthesia care across a variety of practice settings. We review the background, available evidence, requirements for verification, and verification process and its implications for the practice of pediatric anesthesia across the country. In addition, we have included a special roundtable interview of 3 recently Children's Surgery Verification-verified program directors to provide an up-to-date real-world perspective of this children's surgery quality improvement program.

一种新的自动选择术中红细胞输注案例的方法的验证

Validation of a New Method to Automatically Select Cases With Intraoperative Red Blood Cell Transfusion for Audit

Dexter, Franklin, MD, PhD*; Epstein, Richard, H., MD†; Ledolter, Johannes, PhD‡; Dasovich, Susan, M., MD§; Herman, Jay, H., MD‖; Maga, Joni, M., MD¶; Schwenk, Eric, S., MD#

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背景：医院审查同种异体红细胞（RBC）输血是否合适。审核标准已经公布，适用于5种常见过程。我们扩展了这项工作，以研究在所有手术过程（包括之前研究过的手术过程)中选择涉及输入至少1个RBC单元的审计(复查)的管理决策。

方法：这项回顾性观察性研究包括11年间1891种不同手术中的40万例病例。有12,616例红细胞输血病例。我们研究了根据最低血红蛋白（Hb）大于医院选择的输血阈值的标准或贫血或漏掉预计出血量（EBL）的EBL中值<500 mL的患者进行审核的病例比例。 选择这个EBL阈值是因为它大约是在血库中捐献一个单位全血的过程中被移除的体积。 EBL缺失对于EBL <500 mL的病例的审计决定非常重要，因为如果没有出血的程度指标，没有足够的数据来判断是否有足够的失血量来证明输血的合理性。

结果：绝大多数情况下（> 50％）需要接受审核，而大部分情况下（> 50％）的患者在输血中位数均在EBL <500 mL（P <.0001）之间。 在输血和最低Hb> 9 g / dL的病例中，手术的中位EBL <500 mL，比中位EBL≥500 mL的病例多3.0倍。 根据Hb和/或EBL的缺失值，建议进行审计的比例要比基于EBL 500 mL（P<.0001）的程序中超过Hb阈值的情况高。有血红蛋白和/或EBL缺失值的输血病例是≥500 mL中Hb>9g/dL和EBL中位数的3.7倍。

结论：一个自动化的流程来选择红细胞术中输注的审核，需要考虑手术的中位EBL，最低血红蛋白Hb是否低于医院的外科手术病例的Hb输血阈值，以及是否缺乏Hb或EBL的情况。这个结论适用于所有手术病例和手术。

（吴静怡译 潘艳、薛张纲校）

BACKGROUND: Hospitals review allogeneic red blood cell (RBC) transfusions for appropriateness.

Audit criteria have been published that apply to 5 common procedures. We expanded on this work to study the management decision of selecting which cases involving transfusion of at least 1 RBC unit to audit (review) among all surgical procedures, including those previously studied.

METHODS: This retrospective, observational study included 400,000 cases among 1891 different procedures over an 11-year period. There were 12,616 cases with RBC transfusion. We studied the proportions of cases that would be audited based on criteria of nadir hemoglobin (Hb) greater than the hospital's selected transfusion threshold, or absent Hb or missing estimated blood loss (EBL) among procedures with median EBL <500 mL.

This threshold EBL was selected because it is approximately the volume removed during the donation of a single unit of whole blood at a blood bank. Missing EBL is important to the audit decision for cases in which the procedures' median EBL is <500 mL because, without an indication of the extent of bleeding, there are insufficient data to assume that there was sufficient blood loss to justify the transfusion.

RESULTS: Most cases (>50%) that would be audited and most cases (>50%) with transfusion were among procedures with median EBL <500 mL (P < .0001). Among cases with transfusion and nadir Hb >9 g/dL, the procedure's median EBL was <500 mL for 3.0 times more cases than for procedures having a median EBL ≥500 mL. A greater percentage of cases would be recommended for audit based on missing values for Hb and/or EBL than based on exceeding the Hb threshold among cases of procedures with median EBL ≥500 mL (P < .0001). There were 3.7 times as many cases with transfusion that had missing values for Hb and/or EBL than had a nadir Hb >9 g/dL and median EBL for the procedure ≥500 mL.

CONCLUSIONS: An automated process to select cases for audit of intraoperative transfusion of RBC needs to consider the median EBL of the procedure, whether the nadir Hb is below the hospital's Hb transfusion threshold for surgical cases, and the absence of either a Hb or entry of the EBL for the case. This conclusion applies to all surgical cases and procedures.

相关系数：合理使用和解释

Correlation Coefficients: Appropriate Use and Interpretation

Schober, Patrick, MD, PhD, MMedStat; Boer, Christa, PhD, MSc; Schwarte, Lothar, A., MD, PhD, MBA

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最广义上的相关性是表示变量之间关联性的一种方法。在相关数据中，1 个变量的变化幅度与另一个变量的变化幅度相关，无论是相同的（正相关）还是相反的（负相关）方向。通常，相关性用于两个连续变量之间的线性关系，表示为 Pearson 积 - 矩相关。Pearson 相关系数通常用于联合正态分布数据（遵循二元正态分布的数据）。对于非正态分布的连续数据，对于有序数据或具有相关异常值的数据，Spearman 秩相关可以用作单调关联的量度。两个相关系数的比例都在-1 到+1 之间，其中 0 表示不存在线性关系或单调关联，并且关系变得更强并且最终接近直线（Pearson 相关）或持续增加或减少的曲线（Spearman 相关），因为该系数接近 1 的绝对值。假设检验和置信区间可以用来解决结果的统计显著性，并估计采样数据人群关系的强度。本教程旨在指导研究人员和临床医生适当使用和解释相关系数。

（马益梅译 潘艳、薛张纲校）

Correlation in the broadest sense is a measure of an association between variables. In correlated data, the change in the magnitude of 1 variable is associated with a change in the magnitude of another variable, either in the same (positive correlation) or in the opposite (negative correlation) direction. Most often, the term correlation is used in the context of a linear relationship between 2 continuous variables and expressed as Pearson product-moment correlation. The Pearson correlation coefficient is typically used for jointly normally distributed data (data that follow a bivariate normal distribution). For nonnormally distributed continuous data, for ordinal data, or for data with relevant outliers, a Spearman rank correlation can be used as a measure of a monotonic association. Both correlation coefficients are scaled such that they range from −1 to +1, where 0 indicates that there is no linear or monotonic association, and the relationship gets stronger and ultimately approaches a straight line (Pearson correlation) or a constantly increasing or decreasing curve (Spearman correlation) as the coefficient approaches an absolute value of 1. Hypothesis tests and confidence intervals can be used to address the statistical significance of the results and to estimate the strength of the relationship in the population from which the data were sampled. The aim of this tutorial is to guide researchers and clinicians in the appropriate use and interpretation of correlation coefficients.

心脏计算机断层扫描在术后心肌损伤患者中的新发现

Unexpected Cardiac Computed Tomography Findings in Patients With Postoperative Myocardial Injury

Grobben, Remco, B., MD, PhD[*,†]; van Waes, Judith A., R., MD, PhD[†]; Leiner, Tim, MD, PhD[‡]; Peelen, Linda, M., PhD[†,§]; de Borst, Gert, Jan, MD, PhD[‖]; Vogely, Henri, C., MD, PhD[¶]; Grobbee, Diederick, E., MD, PhD[§]; Doevendans, Pieter, A., MD, PhD[*]; van Klei, Wilton, A., MD, PhD[†]; Nathoe, Hendrik, M., MD, PhD[*]on behalf of the CHASE Investigators

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背景：术后心肌损伤（PMI）是非心脏手术后死亡率的一项有力预测指标。据信PMI可归因于冠状动脉疾病（CAD），但其病因尚不清楚。作者旨在使用冠状动脉断层扫描血管造影术（CCTA）来量化PMI患者和对照者CAD的患病率。

方法：这项前瞻性队列研究纳入60岁以上，无心脏病史，接受中高危非心脏手术的PMI和非PMI患者。PMI定义为术后前3天血清肌钙蛋白I水平≥60ng／L。主要排除标准是已知的心脏疾病和术后心肌缺血症状或心电图异常。无创性影像学检查即一次术后CCTA。主要结局定义为CCTA证实冠状动脉狭窄＞50％。

结果：统计分析纳入66名患者。 PMI组（n = 46）和对照组（n = 20）峰值肌钙蛋白水平中位数分别为150（四分位范围，120-298）和15（四分位间距，10-31）ng / L（P <0.01）。 23例PMI患者（50％）与3例对照组患者（15％;相对危险度3.3; 95％置信区间1.1-9.8）被诊断为CAD。值得注意的是，15例PMI患者（33％）与4例对照组患者（20％;相对危险度1.6; 95％置信区间0.6-4.3）存在肺栓塞。无一患者在30天内死亡。

结论：在没有心脏病史的患者中，接受非心脏手术后的PMI与CAD相关。另外，三分之一的PMI患者被发现存在无临床症状的肺栓塞。这促使采用影像学检查来改善临床检查的相关研究进一步发展，并可能具有重要的临床意义。

（崔璀 译 陈杰 校）

BACKGROUND: Postoperative myocardial injury (PMI) is a strong predictor of mortality after noncardiac surgery. PMI is believed to be attributable to coronary artery disease (CAD), yet its etiology is largely unclear. We aimed to quantify the prevalence of significant CAD in patients with and without PMI using coronary computed tomography angiography (CCTA).

METHODS: This prospective cohort study included patients of 60 years or older without a history of cardiac disease and with and without PMI after intermediate- to high-risk noncardiac surgery. PMI was defined as any serum troponin I level ≥60 ng/L on the first 3 postoperative days. Main exclusion criteria were known cardiac disease and postoperative ischemic symptoms or electrocardiography abnormalities. Noninvasive imaging consisted of a postoperative CCTA. Main outcome was CAD defined as >50% coronary stenosis on CCTA

RESULTS: The analysis included 66 patients. Median peak troponin levels in the PMI (n = 46) and control group (n = 20) were 150 (interquartile range, 120-298) vs 15 (interquartile range, 10-31) ng/L (P < .01). CAD was found in 23 patients with PMI (50%) vs 3 without PMI (15%; relative risk, 3.3; 95% confidence interval, 1.1-9.8). Remarkably, pulmonary embolism was present in 15 patients with PMI (33%) versus in 4 without PMI (20%; relative risk, 1.6; 95% confidence interval, 0.6-4.3). None of the patients died within 30 days.

CONCLUSIONS: In patients without a history of cardiac disease, PMI after noncardiac surgery was associated with CAD. In addition, a clinically silent pulmonary embolism was found in one-third of patients with PMI. This urges further research to improve clinical workup using imaging and may have important clinical implications.

接受原位肝移植术的受体患者的重症监护病房加速康复途径:一项前瞻性观察研究

Intensive Care Unit Enhanced Recovery Pathway for Patients Undergoing Orthotopic Liver Transplants Recipients: A Prospective, Observational Study

King, Adam, B., MD*; Kensinger, Clark, D., MD†; Shi, Yaping, MS‡; Shotwell, Matthew, S., PhD‡; Karp, Seth, J., MD†; Pandharipande, Pratik, P., MD*; Wright, J., Kelly, MD†; Weavind, Liza, M., MB, BCh*

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背景:尽管围术期监护的改善,肝移植受体往往占用较多的围术期资源且更长的住院时间。加速康复途径在其他外科手术人群中已证明能降低医疗资源利用率。

方法:此项前瞻性观察研究旨在检验加速康复途径(ESP)对肝移植术后患者恢复效果的影响。将2013年11月1日至2014年10月31日接受肝移植且ESP的

患者预后与实施 ESP 前一年的肝移植受体进行比较。使用多元回归分析来评估临床路径与临床预后的关联。

结果：干预组和对照组分别纳入 141 例和 106 例患者。对照组和干预组在人口学方面，也包括手术时间和冷缺血时间，没有组间差异。重症监护病房停留时间中位数从 4.4 天缩短至 2.6 天（P <.001）。干预组较早出院的可能性较高（风险比[95%CI]，2.01 [1.55-2.62]; P <.001），接受血浆或浓缩红细胞输注的可能性更低（比值比分别为 69%和 65%，P<.001 和 P<.001）。院内死亡率（P = 0.40），重症监护室再入住率（P = 0.75）或术后感染（尿路感染：P = .09; 肺炎：P = .27）无显著区别。

结论：ERP 侧重于重症监护室管理的基于 ICU 管理里程碑式的要素和预先确定的管理触发因素，包括血流动力学目标，液体疗法，围手术期抗生素，血糖控制和标准化输血触发因素。这些促成该类患者重症监护病房停留时间缩短而未增加围手术期并发症。

（陈聪 译 陈杰 校）

BACKGROUND: Liver transplant recipients continue to have high perioperative resource utilization and prolonged length of stay despite improvements in perioperative care. Enhanced recovery pathways have been shown in other surgical populations to produce reductions in hospital resource utilization.

METHODS: A prospective, observational study was performed to examine the effect of an enhanced recovery pathway for postoperative care after liver transplantation. Outcomes from patients undergoing liver transplantation from November 1, 2013, to October 31, 2014, managed by the pathway were compared to transplant recipients from the year before pathway implementation. Multivariable regression analysis was used to assess the association of the clinical pathway on clinical outcomes.

RESULTS: The intervention and control groups included 141 and 106 patients, respectively. There were no demographic differences between the control and intervention group including no differences between the length of surgery and cold ischemic time. Median intensive care unit length of stay was reduced from 4.4 to 2.6 days (P < .001). The intervention group had a higher likelihood of earlier discharge (hazard ratio [95% CI], 2.01 [1.55-2.62]; P < .001), and a 69% and 65% lower odds of receiving a plasma (P < .001) or packed red blood cell (P < .001) transfusion. There was no

significant effect on hospital mortality (P = .40), intensive care unit readmission rates (P = .75), or postoperative infections (urinary traction infections: P = .09; pneumonia: P = .27).

CONCLUSIONS: An enhanced recovery pathway focused on milestone-based elements of intensive care unit management and predetermined management triggers including hemodynamic goals, fluid therapy, perioperative antibiotics, glycemic control, and standardized transfusion triggers led to reductions in intensive care unit length of stay without an increase in perioperative complications.

无创脉搏血氧饱和度-血红蛋白测量在深色皮肤的危重病患者中的临床应用

The Clinical Utility of Noninvasive Pulse Co-oximetry Hemoglobin Measurements in Dark-Skinned Critically Ill Patients

Murphy, Susan, M., MBBCh, FCPaed(SA), Crit Care (SA); Omar, Shahed, FCPath (Chem Path), Crit Care (SA)

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背景：这项研究的主要目的是评估一个用于无创血红蛋白（SpHb）测量的床旁设备用于患有黑色皮肤色素沉着的危重病人时的临床价值。

方法：来自多学科重症监护病房的 146 名成人和儿童患者接受无创血红蛋白的测量，周期为至少每 4 小时一次。共分析了 371 个数据。使用床旁血气分析仪采集并评估血红蛋白水平，同时将血液样本送至中心试验室，使用十二烷基硫酸钠方法测量血红蛋白水平。构建 Bland-Altman 图评估即时合理设备与参考标准（实验室血红蛋白水平）之间的一致性。

结果：与实验室血红蛋白相比，SpHb 表现出明显的偏倚，而血气分析中血红蛋白测量则没有。SpHb 的平均偏倚为+1.64（-1.03~4.31），血气血红蛋白的平均偏倚为 0.26（-0.84~1.37）。SpHb 的偏倚幅度随着平均血红蛋白水平的增加而增加。在所有附加的研究变量评估对偏倚的影响中，只有成年患者的 APACHEⅡ评分（P<0.0001）和平均动脉压（P=0.001）有影响。皮肤色素沉着对偏倚的大小没有任何影响。

结论：无创血红蛋白测量对于低血红蛋白水平的深色皮肤危重患者是一项有前途的工具，但需要进一步改进才具有临床实用性。

（丁曦冰 译 陈杰 校）

BACKGROUND: The primary objective of this study was to assess the clinical usefulness of a point-of-care device which measures hemoglobin noninvasively (SpHb) in a group of critically ill participants with dark skin pigmentation.

METHODS: One hundred forty-six adult and pediatric participants from a multidisciplinary intensive care unit had intermittent readings of noninvasive hemoglobin measurements performed at a minimum of 4 hourly intervals. A total of 371 readings were analyzed. Concurrent blood samples were taken to assess hemoglobin levels using point-of-care blood gas analyzer, as well as sent to a central laboratory where hemoglobin was measured using the sodium lauryl sulfate method. Bland-Altman plots were constructed to assess the agreement between results from the 2 point-of-care devices with the reference standard (laboratory hemoglobin).

RESULTS: SpHb exhibited significant bias when compared to laboratory hemoglobin, while blood gas hemoglobin did not. Mean bias for SpHb was +1.64 with limits of agreement of -1.03 to 4.31 compared to blood gas hemoglobin which showed a bias of 0.26 and limits of agreement of -0.84 to 1.37. The magnitude of the bias for SpHb increased with increasing mean hemoglobin levels. Of all the additional study variables assessed for effect on the bias, only Acute Physiology and Chronic Health Evaluation II score in adult patients ($P < .0001$) and mean arterial blood pressure ($P = .001$) had an effect. Skin pigmentation did not have any effect on the magnitude of bias.

CONCLUSIONS: Noninvasive Hemoglobin measurement is a promising tool in dark-skinned critically ill patients with low hemoglobin levels, but requires further refinements for it to have clinical usefulness.

白内障手术患者的伤害：马萨诸塞州不良事件的系列报道

Patient Harm in Cataract Surgery: A Series of Adverse Events in Massachusetts

Roberto, Sarah, A., MPP[*]; Bayes, Joseph, MD[†]; Karner, Paul, E., PhD[*]; Morley, Michael, G., MD, ScM[‡]; Nanji, Karen, C., MD, MPH[§]

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马萨诸塞州州政府自2011年至2015年收到涉及白内障手术的37件不良事件(AE)报告。其中15件与麻醉有关，包括5例眼部阻滞失误、3例血流动力学不稳定、2例球后血肿/出血，和5例眼球穿孔导致永久性视力丧失。虽然马萨诸塞州不良事件报告不足以代表白内障手术中发生不良事件的真实数量，但它们提供有用的数据提示在这类手术中会发生的患者伤害类型。

（葛家希 译 陈杰 校）

Massachusetts state agencies received reports of 37 adverse events (AEs) involving cataract surgery from 2011 to 2015. Fifteen were anesthesia related, including 5 wrong eye blocks, 3 cases of hemodynamic instability, 2 retrobulbar hematoma/hemorrhages, and 5 globe perforations resulting in permanent loss of vision. While Massachusetts' reported AEs likely underrepresent the true number of AEs that occur during cataract surgery, they do offer useful signal data to indicate the types of patient harm occurring during these procedures.

采用调查和德菲程序来理解创伤麻醉监护实践

Use of Survey and Delphi Process to Understand Trauma Anesthesia Care Practices

Kuza, Catherine, M., MD*; Vavilala, Monica, S., MD†; Speck, Rebecca, M., MPH‡,§; Dutton, Richard, P., MD, MBA‖; McCunn, Maureen, MD, MIPP, FCCM¶

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背景：如今，很少有创伤相关的指南评估和推荐麻醉实践，且没有创伤麻醉专用指南存在。同时没有关于麻醉科医师如何看待临床实践模式的信息。因此作者进行该项调查的目标是了解麻醉医生对创伤麻醉实践的看法。

方法：将评估创伤患者的麻醉管理的调查问卷分发给21,491名麻醉医师。其中10个问题设为一个子集，由创伤麻醉学专业小组通过3轮基于网络的德菲分析程序进行评阅。如果在第1轮和第2轮时，达成一致意见比例最高的答复保持不变，那么这个问题就被视为达成共识。

结果：共有2360名麻醉医师（回答率为11%）回应了这项调查。结果显示，从业人员的答案与现有外科创伤协会的建议（如何时进行成分输血治疗）以及几个缺乏任何指导原则的领域相冲突，导致麻醉医师间回答存在差异，其中没有1

个答案达到了> 75%的一致性(如对病史不清的颈髓损伤患者选择的插管技术)。13 位创伤麻醉医师参与了第 1 轮 (有效率 100%) 德菲分析程序，12 位参与了第 2 轮和第 3 轮 (有效率 92%) 的德菲分析程序。没有任何问题达成 100%统一意见。有关创伤麻醉监护的 10 条陈述中有 9 条得到了共识。对于病史不清的颈髓损伤合并血流动力学不稳定的患者相关气管插管技术无法达成一致意见。德菲分析程序参与者的意见与现有的 2 条陈述的指导原则相冲突 :是否采用环状软骨加压以及何时开始成分输血的时间。

结论 : 创伤麻醉实践中有几个重要领域没有麻醉指南，有些麻醉指南并未得到大多数参与此项调查的麻醉医师的认可。缺乏对创伤麻醉管理的共识和调查反映出的差异性表明需要制定基于循证医学的创伤麻醉指南。

(黄莉莉 译 陈杰 校)

BACKGROUND: Few trauma guidelines evaluate and recommend anesthesiology practices and there are no trauma anesthesia-specific guidelines. There is no information on how anesthesiologists perceive clinical practice patterns. Our objective was to understand the perceptions of anesthesiologists regarding trauma anesthesia practices.

METHODS: A survey assessing anesthesia management of trauma patients was distributed to 21,491 anesthesiologists. A subset of 10 of these questions was subsequently reviewed by a trauma anesthesiology focus group through a 3-round web-based Delphi process. A question was deemed to have respondent consensus if the response with the highest percentage of agreement was unchanged between rounds 1 and 2.

RESULTS: A total of 2360 anesthesiologists (11% response rate) responded to the survey. Results demonstrated that the practitioners' answers conflicted with existing surgical trauma society recommendations (ie, when to transfuse component therapy), and several areas that lacked any guidelines, resulted in response variability among anesthesiologists where not 1 answer achieved >75% agreement (ie, intubation technique of choice for patients with uncleared cervical spine). Thirteen trauma anesthesiologists participated in round 1 (response rate 100%), and 12 responded in rounds 2 and 3 (response rate 92%) of the Delphi process. None of the questions received 100% agreement. Consensus was achieved on 9 of 10 statements pertaining to trauma anesthesia care. Consensus was not reached on the intubating technique in a hemodynamically unstable patient with an uncleared cervical spine with deficits. Delphi

participant opinion conflicted with existing guidelines on 2 statements: the use of cricoid pressure, and when to begin blood component therapy.

CONCLUSIONS: There are several important areas of trauma anesthesia practice where guidelines do not exist and several where existing guidelines are not endorsed by the majority of practitioners who completed our survey. The lack of consensus on trauma anesthesia management and the variation in survey responses demonstrate a need to develop evidence-based trauma anesthesia guidelines.

预测剖宫产术后急性疼痛的严重程度：一篇叙述性综述

Predicting Severity of Acute Pain After Cesarean Delivery: A Narrative Review

Gamez, Brock, H., BS; Habib, Ashraf, S., MBBCh, MSc, MHSc, FRCA

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剖宫产是美国最常见的外科手术之一，年手术量达 130 万台以上。剖宫产术后五分之一的妇女后会经历围术期急性疼痛，导致其发展为慢性疼痛和产后抑郁症的风险增加，并对母乳喂养和新生儿监护产生负面影响。越来越多的研究试图寻求一些评估工具用以预测那些会经历围术期严重疼痛并需要加强术后镇痛的患者。这些预测工具包括定量感觉测试，创伤痛觉过敏评估，局麻药浸润反应，以及术前心理测量评估，如有效的心理问卷和简单的筛选工具。在这篇综述中，对于预测剖宫产后 48 小时内出现严重疼痛和/或阿片类药物使用量的各种评估工具，作者检索了 MEDLINE、Cochrane 数据库和谷歌学术，纳入了一些评价此类工具功效的文章。最终纳入 13 篇文章：其中 5 篇使用定量感觉测试，包括患者对压力、电和热刺激的反应；1 篇使用痛觉过敏测试；1 篇使用局麻药浸润反应；4 篇使用术前心理测量评估，包括状态-特质焦虑量表、疼痛灾难量表、匹兹堡睡眠质量指数、医院焦虑抑郁量表以及简单问卷；此外，有 2 篇则是将定量感觉测试和心理测量评价相结合。一些预测工具显示出了其预测结果与剖宫产术后疼痛结果的相关性，并且具有统计学意义，但大多数工具显示的相关性为弱到中等，并且很多预测工具临床可行性不高。局麻药浸润反应和一项使用 3 个简单问题询问关于焦虑、预期疼痛和镇痛需求的工具显示了其临床使用的潜力，但需要进一步的研究来评估这些预测试验在临床实践中的价值。

（徐侨翌 译 陈杰 校）

Cesarean delivery is one of the most common surgical procedures in the United States, with over 1.3 million performed annually. One-fifth of women who undergo cesarean delivery will experience severe pain in the acute postoperative period, increasing their risk of developing chronic pain and postpartum depression, and negatively impacting breastfeeding and newborn care. A growing body of research has investigated tools to predict which patients will experience more severe pain and have increased analgesic consumption after cesarean delivery. These include quantitative sensory testing, assessment of wound hyperalgesia, response to local anesthetic infiltration, and preoperative psychometric evaluations such as validated psychological questionnaires and simple screening tools. For this review, we searched MEDLINE, the Cochrane database, and Google Scholar to identify articles that evaluated the utility of various tools to predict severe pain and/or opioid consumption in the first 48 hours after cesarean delivery. Thirteen articles were included in the final review: 5 utilizing quantitative sensory testing, including patient responses to pressure, electrical, and thermal stimuli; 1 utilizing hyperalgesia testing; 1 using response to local anesthetic wound infiltration; 4 utilizing preoperative psychometric evaluations including the State-Trait Anxiety Inventory, the Pain Catastrophizing Scale, the Pittsburgh Sleep Quality Index, the Hospital Anxiety and Depression Scale, and simple questionnaires; and 2 utilizing a combination of quantitative sensory tests and psychometric evaluations. A number of modalities demonstrated statistically significant correlations with pain outcomes after cesarean delivery, but most correlations were weak to modest, and many modalities might not be clinically feasible. Response to local anesthetic infiltration and a tool using 3 simple questions enquiring about anxiety and anticipated pain and analgesic needs show potential for clinical use, but further studies are needed to evaluate the utility of these predictive tests in clinical practice.

颌面部手术患者可视喉镜经鼻气管插管时使用与不使用插管探条引导的比较：一项随机临床试验

Comparison of Nasal Intubations by GlideScope With and Without a Bougie Guide in Patients Who Underwent Maxillofacial Surgeries: Randomized Clinical Trial

Pourfakhr, Pejman, MD*; Ahangari, Ailar, MD†; Etezadi, Farhad, MD*; Moharari, Reza, Shariat, MD*; Ahmadi, Ayat, PhD‡; Saeedi, Negin, BS*; Najafi, Atabak, MD*

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背景：经鼻气管插管可提供安全气道（的保障），在颌面部手术的全身麻醉维持中经常使用。常规全麻下经鼻气管插管使用直接喉镜进行操作，且常常需要麦氏插管钳的辅助。这种方法比较耗时，且可能引起视野内出血。弹性引导探条（GEB）是一个廉价、细长且柔韧的用具，可加速经鼻气管插管（的进程）。本研究的目的是评估GEB在经鼻气管插管中的使用（是否）能否促进插管进程并减少并发症的发生。

方法：本随机临床试验中，美国麻醉医师协会（ASA）生理状况Ⅰ~Ⅱ级，年龄15~65岁的110位患者被随机平均分为2组。两组均使用了可视喉镜和钢丝圈气管导管。GEB组使用了GEB辅助经鼻气管插管，常规组则不使用。本研究的主要结果是困难插管（定义为尝试超过1次的气管插管）（次数），次要结果为插管所用时间，需要更换导管及使用麦氏插管钳。

结果：出血的发生率在GEB组中为1.81%，较常规组的43.63%，差异具有显著统计学意义（P<0.001）。在GEB组中，有5.5%的患者需要使用麦氏插管钳，而常规组则为63.7%（P<0.001）。平均插管时间GEB组为48.63 ± 8.53s，常规组为55.9 ± 10.76s（P<0.001）。

结论：GEB在经鼻气管插管中是一个非常实用的辅助用具，可减少出血的发生率，减少麦氏插管钳的使用并在一定程度上减少插管所用时间。为此，在此种情况下推荐常规使用GEB。

（姚雪雅 译　陈杰 校）

Background: Nasotracheal intubation is commonly performed to provide a secure airway for the maintenance of general anesthesia in maxillofacial surgeries. Routine nasotracheal intubation is performed under general anesthesia by direct laryngoscopy, frequently with the aid of Magill forceps. This method can be time-consuming and may cause bleeding in the field of view. A gum elastic bougie (GEB) is a cheap, slender, and flexible device that could expedite nasotracheal intubation. The aim of this study was to evaluate the use of a GEB during nasotracheal intubation to facilitate the procedure and reduce the rate of complications.

Methods: In this randomized clinical trial study, 110 patients with American Society of Anesthesiologists (ASA) physical status I-II from 15 to 65 years of age were randomized into 2 equal groups. In both groups, a GlideScope and armored tube were used. In the GEB group, GEB was used to facilitate nasal intubation while the nasal intubation was performed without the aid of GEB in the routine group. The difficult intubation (defined as >1 attempt for intubation) was the primary outcome, and the duration of the intubation, the presence of traces of bleeding, the need for a tube replacement, and the usage of Magill forceps were the secondary outcomes.

Results: The incidence of bleeding in the GEB group was 1.81% vs 43.63% in the routine group (P < .001). In 5.5% of the GEB group, Magill forceps were used to advance the tube versus 67.3% in the routine group (P < .001). The mean time for intubation in GEB group was 48.63 ± 8.53 vs 55.9 ± 10.76 seconds in the routine group (P < .001).

Conclusions: The GEB is a useful aid to nasotracheal intubation, reducing bleeding, the requirement for Magill forceps and, to a small degree, intubation time. A case exists for its routine use for this purpose.

循证质量改进新措施后手术室血浆浪费在减少

Reduction in Operating Room Plasma Waste After Evidence-Based Quality Improvement Initiative

Meyer, Matthew, J., MD; Dzik, Walter, H., MD; Levine, Wilton, C., MD

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麻醉医师根据预计输血量拿取血浆。术中血浆输注量少于配给量（申请、解冻和发送）。作者提供了关于血浆使用的机构相关数据，包括麻醉医师间血浆配给-输注率的差异。从提供数据之前的半年（2015年6月-12月）到7个月后（2016年6月-12月）的逐月比较中，手术室的血浆使用量从434.9 ± 81 个单位降至327.3 ± 65 个单位，逐月变化107.6个单位（95%置信区间CI，22-193）；血库丢弃血浆从109.7 ± 48 个单位降至69.1 ± 9 个单位，逐月变化40.6个单位（95%CI，0.2-81）；血浆输注量从188.4 ± 42 个单位降至 160.7 ± 52 个单位，逐月变化27.7单位（95%CI，-27-83），变化并不明显。

（杨柳 译 陈杰 校）

Anesthesiologists request units of plasma in anticipation of transfusion. The amount of plasma transfused intraoperatively is less than that issued (requested, thawed, and sent). We presented institutional-specific data on plasma usage including anesthesiologist-specific ratios of plasma issued-to-transfused. In month-to-month comparisons from the year before the presentation (June–December 2015) to 7 months after (June–December 2016), plasma issued to the operating room was reduced from 434.9 ± 81 to 327.3 ± 65 units, a change of 107.6 units per month (95% confidence interval [CI], 22–193); plasma discarded by the blood bank was reduced from 109.7 ± 48 units to 69.1 ± 9 units, a change of 40.6 units per month (95% CI, 0.2–81); and plasma transfused went from 188.4 ± 42 units to 160.7 ± 52 units, a nonsignificant change of 27.7 units per month (95% CI, −27 to 83).

低收入国家新生儿呼吸窘迫综合征诊断模式与临床结果:一项来自孟加拉国的报告

Treatment Patterns and Clinical Outcomes in Neonates Diagnosed With Respiratory Distress Syndrome in a Low-Income Country: A Report From Bangladesh

Hubbard, Richard, M., MD*; Choudhury, Kamal, M., MBBS, MS†; Lim, Grace, MD, MS*

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呼吸窘迫综合征仍然是全球新生儿死亡的主要原因。这项回顾性研究描述了在资源有限的环境中呼吸窘迫综合征的实践模式,并试图找出死亡率和有益治疗方式的风险因素。收集健康状况,人口和治疗的数据。使用单变量和多变量逻辑回归分析潜在关联。纳入分析的104名儿童中,有38人死亡。尽管大多数儿童最初接受无创呼吸支持治疗,但59例进展为有创通气。有创通气的要求与死亡有关。在使用表面活性剂的情况下,机械通气患者的生存率明显提高。

(俞苏洋 译 陈杰 校)

Respiratory distress syndrome remains a leading cause of neonatal mortality worldwide. This retrospective study describes practice patterns for respiratory distress syndrome in a resource-limited setting and seeks to identify both risk factors for mortality and beneficial treatment modalities. Health, demographic, and treatment data were collected. Potential associations were analyzed using univariable and

multivariable logistic regression. Of 104 children included for analysis, 38 died. Although most children were initially treated with noninvasive respiratory support, 59 progressed to invasive ventilation. Requirement for invasive ventilation was associated with death. A clear trend toward improved survival in mechanically ventilated patients was seen with surfactant administration.

术前应用大剂量甲强龙对腹腔镜阑尾切除术后静息疼痛的随机临床研究

Randomized Clinical Trial of Preoperative High-Dose Methylprednisolone on Postoperative Pain at Rest After Laparoscopic Appendectomy

Kleif, Jakob, MD*; Hauge, Camilla, I., MD†; Vilandt, Jesper, MD*; Gögenur, Ismail, MD, DMSc‡

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背景：术前静脉给予甲强龙可以减轻病人择期手术后的疼痛，恶心和乏力。本研究旨在探讨在腹腔镜下行阑尾炎手术前 30 分钟静脉给予 125mg 甲强龙是否能减轻患者术后 3 天的静息疼痛。

方法：作者开展了一项多中心，平行，双盲，安慰剂对照研究，纳入 ASA 评分 I-III 级，通过腹腔镜手术治疗疑似阑尾炎的 18 岁及以上患者。主要结果是在 11 点数字量表上评估 5 次术后 3 天的静息疼痛。采用以时间和干预作为主要效应的混合效应模型，评估 125 mg 甲基强的松龙对术后 3 天静息疼痛的影响。

结果：2016 年 4 月至 2016 年 8 月，共纳入 78 例患者。125 mg 甲强龙治疗后，患者术后 3 天静息疼痛的 11 分数字评分量表提高 0.2，无统计学意义（95%置信区间，-0.5 至 0.9; P = 0.571）。术后第一天，两组对阿片类激动剂的需求没有差异（P = 0.381）。

结论：在腹腔镜阑尾炎手术前 30 分钟静脉给予 125mg 甲强龙，与安慰剂组相比，并不能减轻术后疼痛。

（翟小竹 译 陈杰 校）

BACKGROUND: Methylprednisolone administered intravenously preoperatively has been shown to reduce pain, nausea, and fatigue after elective surgery. We aimed to show that 125 mg of methylprednisolone given intravenously 30 minutes before laparoscopic surgery for suspected

appendicitis would reduce pain at rest during the first 3 postoperative days.

METHODS: A multicenter, parallel-group, double-blind, placebo-controlled study was conducted including patients 18 years of age and older with an American Society of Anesthesiologist class of I-III undergoing laparoscopic surgery for suspected appendicitis. The primary outcome was pain at rest measured on the 11-point numerical rating scale 5 times during the first 3 days after surgery. The effect of 125 mg of methylprednisolone on postoperative pain at rest during the first 3 days was assessed using a mixed-effects model with time and intervention as main effects.

RESULTS: From April 2016 to August 2016, 78 patients were included, and all were eligible for analysis of the primary outcome. The estimated effect of 125 mg of methylprednisolone on pain at rest during the first 3 days after surgery was a nonsignificant increase of 0.2 (95% confidence interval, -0.5 to 0.9; P = .571) on the 11-point numerical rating scale. There was no difference between the 2 groups regarding the need for opioid agonists during hospital stay on the first postoperative day (P = 0.381).

CONCLUSIONS: A 125-mg dose of methylprednisolone given intravenously 30 minutes before laparoscopic surgery for appendicitis seemed no better than placebo at providing a clinical meaningful reduction in postoperative pain at rest.

多巴胺加入可增强并延长丙美卡因或奥布卡因溶液在大鼠中皮肤抗伤害作用

Adding Dopamine to Proxymetacaine or Oxybuprocaine Solutions Potentiates and Prolongs the Cutaneous Antinociception in Rats

Chen, Yu-Wen, PhD[*,†]; Chiu, Chong-Chi, MD[‡,§]; Lin, Heng-Teng, MS, MD[‖,¶]; Wang, Jhi-Joung, MD, PhD[#]; Hung, Ching-Hsia, PhD[**,††]

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背景：作者使用等效线图评估了多巴胺-丙美卡因和多巴胺-奥布卡因抗伤害感受的相互作用。

方法：本实验在大鼠背部皮下注射药物（丙美卡因，奥布卡因和多巴胺），从而模拟渗透阻滞。建立单独和联合多巴胺的代谢卡他定和奥布卡因的剂量相关抗伤

害感受曲线,然后使用等效线图分析局部麻醉剂和多巴胺之间的抗伤害感受相互作用。

结果：皮下丙美卡因，奥布卡因和多巴胺以剂量依赖性方式对局部皮肤针刺产生感觉阻滞。效能的等级顺序为丙美卡因（0.57 [0.52-0.63] μmol/ kg）>奥布卡因（1.05 [0.96-1.15] μmol/ kg）>多巴胺（165 [154-177] μmol/ kg; P <0.01比较），结果基于50％有效剂量值。在等量麻醉的基础上（25％有效剂量，50％有效剂量和75％有效剂量），应用丙美卡因或奥布卡因的伤害性阻滞持续时间短于多巴胺（P <0.01）。与多巴胺共同注射的丙美卡因或奥布卡因引起协同镇痛作用并延长作用持续时间。

结论：与多巴胺相比，丙美卡因或奥布卡因注射液具有更高的效力并引起感觉阻滞持续时间更短。多巴胺的使用增加了奥布卡因和丙美卡因引起的皮肤抗伤害感受的质量和持续时间。

（张松 译 陈杰 校）

BACKGROUND: We evaluated the interaction of dopamine-proxymetacaine and dopamine- oxybuprocaineantinociception using isobolograms.

METHODS: This experiment uses subcutaneous drug (proxymetacaine, oxybuprocaine, and dopamine) injections under the skin of the rat's back, thus simulating infiltration blocks. The dose-related antinociceptive curves of proxymetacaine and oxybuprocaine alone and in combination with dopamine were constructed, and then the antinociceptive interactions between the local anesthetic and dopamine were analyzed using isobolograms.

RESULTS: Subcutaneous proxymetacaine, oxybuprocaine, and dopamine produced a sensory block to local skin pinpricks in a dose-dependent fashion. The rank order of potency was proxymetacaine (0.57 [0.52-0.63] μmol/kg) >oxybuprocaine (1.05 [0.96-1.15] μmol/kg) > dopamine (165 [154-177] μmol/kg; P < .01 for each comparison) based on the 50% effective dose values. On the equianesthetic basis (25% effective dose, 50% effective dose, and 75% effective dose), the nociceptive block duration of proxymetacaine or oxybuprocaine was shorter than that of dopamine (P < .01). Oxybuprocaine or proxymetacainecoinjected with dopamine elicited a synergistic antinociceptive effect and extended the duration of action.

CONCLUSIONS: Oxybuprocaine and proxymetacaine had a higher potency and provoked a shorter duration of sensory block compared with dopamine. The use of dopamine increased the quality and duration of skin antinociception caused by oxybuprocaine and proxymetacaine.

胶体液和微循环

Colloids and the Microcirculation

He, Huaiwu, PhD*; Liu, Dawei, PhD*; Ince, Can, PhD†,‡

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胶体溶液在治疗低血容量时被提倡使用,因为它们相对于晶体溶液能更好地维持血容量。由于液体复苏的最终效果是提高微循环灌注和组织氧合,对于胶体和晶体在治疗休克和液体复苏时改善微循环的疗效的研究,以及探讨在治疗低血容量时使用胶体液对微循环的潜在保护作用的研究都是热点。本文回顾了各种类型的胶体溶液的理化性质(如明胶、右旋糖、羟乙基淀粉和白蛋白)以及它们在实验室研究和临床研究中对各种低血容量状况的疗效。

（张金源 译 陈杰 校）

Colloid solutions have been advocated for use in treating hypovolemia due to their expected effect on improving intravascular retention compared with crystalloid solutions.Because the ultimate desired effect of fluid resuscitation is the improvement of microcirculatory perfusion and tissue oxygenation, it is of interest to study the effects of colloids and crystalloids at the level of microcirculation under conditions of shock and fluid resuscitation, and to explore the potential benefits of using colloids in terms of recruiting the microcirculation under conditions of hypovolemia. This article reviews the physiochemical properties of the various types of colloid solutions (eg, gelatin, dextrans, hydroxyethylstarches, and albumin) and the effects that they have under various conditions of hypovolemia in experimental and clinical scenarios.

对做过心脏手术的患者，我们经过 7 年的跟踪随访发现，输注少量去除白细胞的红细胞悬液和患者死亡率不存在明显关系：倾向匹配划分分析显示

No Significant Association Between the Transfusion of Small Volumes of Leukocyte-Depleted Red Blood Cells and Mortality Over 7 Years of Follow-up in Patients Undergoing Cardiac Surgery: A Propensity Score Matched Analysis

Koster, Andreas, MD, PhD*; Zittermann, Armin, PhD†; Börgermann, Jochen, MD, PhD†; Gummert, Jan, F., MD, PhD†

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背景：输入红细胞悬液对远期临床转归的影响存在争议

方法：我们对 6124 个心脏手术的患者进行了前瞻性研究的跟踪随访，记录数据，将其分为非红细胞输入组和红细胞输入组（1-2 单位去除白细胞的红细胞悬液）。本研究首要目的是统计经历心脏手术后 7 年内患者的总体死亡率；其次是观察随访期间患者的冠脉血管再生情况。倾向匹配划分方法的应用是为了纠正非随机化分配的误差。亚组分析也用于术前贫血的病人。

结果：4118 个病人应用了倾向匹配划分方法，在平均跟踪随访的时间为 4.05(0-7.3)年间，非红细胞悬液输入组 140（14.6%）人死亡，而红细胞悬液输入组 173（17.2%）人死亡.输入组与非输入组的风险比为 1（95%可信区间，0.79-1.25，*P*=0.969）；且二者的血管再建数量分别是 96（9.9%）和 125（10.6%），其风险比为 1.21（95%可信区间，0.92-1.58，*P*=0.166）。术前贫血并非术后死亡的危险因素，即使患者曾经输过血。

总结：倾向匹配划分分析并未说明心脏手术的患者输入去除白细胞红细胞悬液与术后死亡率的发生有明显联系。而且，术前贫血并不被认为是增加术后死亡率的危险因素。

（蒋湘云译 李士通校）

BACKGROUND: The impact of red blood cell (RBC) transfusion on long-term clinical outcome is controversial.

METHODS: We prospectively recorded follow-up data of 6124 cardiac surgical patients who received no transfusion (RBC− group) or 1–2 units of leukocyte-depleted RBC (RBC+ group) at our institution. The primary end point was overall mortality up to 7 years after cardiac surgery; secondary end point was coronary artery revascularization during follow-up. To correct for nonrandomized group assignment, propensity score (PS) matching was performed. A subgroup analysis was also performed in patients with preoperative anemia.

RESULTS: PS matching was possible in 4118 patients. During a mean follow-up of 4.05 years (range, 0.0–7.3 years), 140 patients (14.6%) died in the RBC− group and 173 (17.2%) died in the RBC+ group. The hazard ratio for the RBC+ group versus the RBC− group was 1.00 (95% confidence interval, 0.79–1.25; *P* = .969). The number of revascularizations was 96 (9.9%) and 125 (10.6%), respectively, with a hazard ratio of 1.21 (95% confidence interval, 0.92–1.58; *P* = .166) for the RBC+ group. Preoperative anemia was not a risk factor for postoperative mortality, even when patients were transfused.

CONCLUSIONS: This PS-matched analysis does not provide evidence for an association of the transfusion of small volumes of leukocyte-depleted RBCs with an increased postoperative mortality in cardiac surgical patients. Moreover, preoperative anemia could not be identified as a risk factor for increased postoperative mortality.

舒更葡糖引发过敏反应的发生率研究

Incidence of Anaphylaxis Associated With Sugammadex

Miyazaki, Yusuke, MD[*]; Sunaga, Hiroshi, MD[*]; Kida, Kotaro, MD[*]; Hobo, Shotaro, MD[†]; Inoue, Nobuyoshi, MD[*]; Muto, Masayuki, MD[*]; Uezono, Shoichi, MD[*]

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我们对日本一家独立中心三年多所发生的舒更葡糖诱发过敏反应的现象进行了回顾性的研究。术中高敏性的总体发生率为 0.22%（95%可信区间，0.17%-0.29%），过敏反应的发生率为 0.059%（95%可信区间，0.032%-0.10%）。研究期间，使用舒更葡糖的病人数为 15479，过敏反应的发生与使用舒更葡糖的发生率为 0.039（n=6;95%可信区间，0.014%-0.084%）。结果暗示与舒更葡糖有关的过敏反应可能与琥珀胆碱或罗库溴铵所致的过敏反应发生率相差无几。前瞻性研究，包括对诱因的检测，对于确定舒更葡糖导致过敏反应的发生率是必要的；然而，目前的研究只是引起人们对该潜在过敏反应的注意。

（蒋湘云译 李士通校）

We retrospectively investigated the incidence of potential sugammadex-induced anaphylaxis at a single center in Japan over a period of 3 years. The overall incidence of intraoperative hypersensitivity reaction was 0.22% (95% confidence interval [CI], 0.17%–0.29%), and the incidence of anaphylaxis was 0.059% (95% CI, 0.032%–0.10%). The total number of patients who received sugammadex during the study period was 15,479, and the incidence of anaphylaxis associated with sugammadex was 0.039% (n = 6; 95% CI, 0.014%–0.084%). This result implies that the incidence of sugammadex-associated anaphylaxis could be as high as that for succinylcholine or rocuronium. A prospective study, including testing for identification of cause, is necessary to confirm the exact incidence of sugammadex-induced anaphylaxis; however, the present finding calls attention to this potential.

预防白内障手术中的不良事件：来自马萨诸塞州的专家共识

Preventing Adverse Events in Cataract Surgery: Recommendations From a Massachusetts Expert Panel

Nanji, Karen, C., MD, MPH[*]; Roberto, Sarah, A., MPP[†]; Morley, Michael, G., MD, ScM[‡]; Bayes, Joseph, MD[§]

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马萨诸塞州的卫生机构报道了近年来一系列白内障手术相关的不良事件，包括一天内由一名麻醉医生至 5 例眼球破裂的事件。贝琪雷曼中心，马萨诸塞州的一个自由组织，通过召集了一些相关专家制定了一些共识，以此来减轻白内障手术中的患者伤害。本文的目的是认清白内障手术中不良事件的危害因素，这些在马塞诸塞州的专家共识中有说明，且有相应的方法来预防。来自州委托事件报告的数据通过马塞诸塞州白内障手术患者的网上调研和对相关人员的调查研究来补充。专家组列出了致白内障手术术中不良事件的的 2 个主要因素：系统错误和麻醉技术的选择。系统错误包括不科学的安全协定（总因素的 48.7%）、交流不足（总因素的 18.4%）、人员训练不足（总因素的 17.1%）和非标准化（总因素的 15.8%）。麻醉技术的选择包括日益增加的眼部神经阻滞相关风险。马萨诸塞州白内障手术的调查表明麻醉操作广泛的不同。而据 45.5%的外科医生传达和69.6%的设备显示相较于过去的十年局部麻醉应用的日益增加，白内障手术有47%由外科医生施行的神经阻滞，40.9%在仪器下引导完成。应用改进的德尔菲方法，专家组提供了几条建议来减少白内障手术术中不良事件的发生。包括在阻滞之前，至少两组人员的校对、程序的标准化、设备的安全有效，包括统计的标准，以及加强任何对病人进行操作的人员的培训，开始独立操作前，至少 10 次在监督下进行，减少有创的麻醉操作，最后调整麻醉方法，包括最优的技术。接下来的研究将会着手评估这些专家建议的有效性。

（蒋湘云译 李士通校）

Massachusetts health care facilities reported a series of cataract surgery–related adverse events (AEs) to the state in recent years, including 5 globe perforations during eye blocks performed by 1 anesthesiologist in a single day. The Betsy Lehman Center for Patient Safety, a nonregulatory Massachusetts state agency, responded by convening an expert panel of frontline providers, patient safety experts, and patients to recommend strategies for mitigating patient harm during cataract surgery. The purpose of this article is to identify contributing factors to the cataract surgery AEs reported in Massachusetts and present the panel's recommended strategies to prevent them. Data from state-mandated serious reportable event reports were supplemented by online surveys of Massachusetts cataract surgery providers and semistructured interviews with key stakeholders and frontline staff. The panel identified 2 principal categories of contributing factors to the state's cataract surgery–related AEs: systems failures and choice of anesthesia technique. Systems failures included inadequate safety protocols (48.7% of contributing factors), communication challenges (18.4%), insufficient provider training (17.1%), and lack of standardization (15.8%). Choice of anesthesia technique involved the increased relative risk of needle-based eye blocks. The panel's surveys of Massachusetts cataract surgery providers show wide variation in anesthesia practices. While 45.5% of surgeons and 69.6% of facilities reported increased use of topical anesthesia compared to 10 years earlier, needle-based blocks were still used in 47.0% of cataract surgeries performed by surgeon respondents and 40.9% of those performed at respondent facilities. Using a modified Delphi approach, the panel recommended several strategies to prevent AEs during cataract surgery, including performing a distinct time-out with at least 2 care-team members before block administration; implementing standardized, facility-wide safety protocols, including a uniform site-marking policy; strengthening the credentialing and orientation of new, contracted and locum tenens anesthesia staff; ensuring adequate and documented training in block administration for any provider who is new to a facility, including at least 10 supervised blocks before practicing independently; using the least invasive form of anesthesia appropriate to the patient; and finally, adjusting anesthesia practices, including preferred techniques, as evidence-based best practices

evolve. Future research should focus on evaluating the impact of these recommendations on patient outcomes.

基于医生的院前急救气管内插管使用 A.P Advance，C-MAC 系统，KingVision：对不同的叶片类型进行一项前瞻性、随机、多中心研究

Videolaryngoscopy for Physician-Based, Prehospital Emergency Intubation: A Prospective, Randomized, Multicenter Comparison of Different Blade Types Using A.P. Advance, C-MAC System, and KingVision

Cavus, Erol, MD[*,†]; Janssen, Sebastian, MD[*]; Reifferscheid, Florian, MD[‡]; Caliebe, Amke, PhD[§]; Callies, Andreas, MD[〃]; von der Heyden, Martin, MD[¶]; Knacke, Peer, G., MD[#]; Doerges, Volker, MD[‡]

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背景：可视喉镜是气管插管的一种有价值的技术，当在围术期使用时，不同的可视喉镜在技术使用和插管成功率方面都有所不同。然而，在院前环境中，不同的可视喉镜的相对表现尚未得到充分的研究。

方法：我们在德国 4 所院前急救医学中心进行了这项前瞻性随机多中心研究。 168 名需要院前急诊插管的成年患者由急诊医师进行治疗，随机分配到 3 种具有不同镜片类型的便携式可视喉镜（A.P. Advance，C-MAC PM 和有管槽叶片的 KingVision）中的一种。主要结局变量是整体插管成功率，次要结果包括首次插管成功率，声门可视化以及操作设备的难度。 成对比较的 *P* 值通过 Bonferroni 方法对 3 次测试（*P* [BF]）进行校正。 所有呈现的 *P* 值均调整为中心。

结果：声门暴露可视化方面 3 种设备相当。总体而言 AP Advance，C-MAC 和 KingVision 的整体插管成功率分别为 96％，97％和 61％（*P* <0.001，AP Advance 与 C-MAC 的比值比[OR]为 0.97,95％置信区间[CI]为 0.13-7.42，*P* [BF]> 0.99; AP Advance 与 KingVision 比较：OR，0.043,95％CI，0.0088-0.21，*P*[BF] <0.001; C-MAC 与 KingVision 比较：OR，0.043 ，95％CI，0.0088-0.21，*P*[BF] <0.001）。在 AP Advance，C-MAC 和 KingVision 的第一次尝试中插管成功率分别为 86％，85％和 48％（总体：*P* <0.001，AP Advance 与 C-MAC：OR，0.89,95％CI ，0.31，*P* [BF]> 0.99，AP Advance 与 KingVision 比较 OR, 0.24, 95% CI, 0.055–0.38,*P* [BF] = 0.0054; C-MAC 与 KingVision 比较: OR, 0.21, 95% CI, 0.043–.34, *P* [BF] < 0.003）。直接喉镜检查对于使用视频喉镜设备进行成功插管是必要的，其中 5 例患者使用 A.P. Advance，4 例使用 C-MAC。在 KingVision 组中，在 KingVision 组中有 21 例患者使用替代装置插管。

结论：在急诊医生进行院前紧急气管插管期间，3 种商用视频喉镜 A.P. Advance，C-MAC PM 和 KingVision 的成功率显着不同。 我们还发现，虽然任何视频喉镜都能提供足够的视野，但通过有管叶片的 KingVision 进行实际插管更为困难。（陶强译 李士通校）

BACKGROUND: Videolaryngoscopy is a valuable technique for endotracheal intubation. When used in the perioperative period, different videolaryngoscopes vary both in terms of technical use and intubation success rates. However, in the prehospital environment, the relative performance of different videolaryngoscopic systems is less well studied

METHODS: We conducted this prospective, randomized, multicenter study at 4 German prehospital emergency medicine centers. One hundred sixty-eight adult patients requiring prehospital emergency intubation were treated by an emergency physician and randomized to 1 of 3 portable videolaryngoscopes (A.P. Advance, C-MAC PM, and channeled blade KingVision) with different blade types. The primary outcome variable was overall intubation success and secondary outcomes included first-attempt intubation success, glottis visualization, and difficulty with handling the devices. *P* values for pairwise comparisons are corrected by the Bonferroni method for 3 tests (*P* [BF]). All presented *P* values are adjusted for center

RESULTS: Glottis visualization was comparable with all 3 devices. Overall intubation success for A.P. Advance, C-MAC, and KingVision was 96%, 97%, and 61%, respectively (overall: *P* < .001, A.P. Advance versus C-MAC: odds ratio [OR], 0.97, 95% confidence interval [CI], 0.13–7.42, *P* [BF] > 0.99; A.P. Advance versus KingVision: OR, 0.043, 95% CI, 0.0088–0.21, *P* [BF] < 0.001; C-MAC versus KingVision: OR, 0.043, 95% CI, 0.0088–0.21, *P*[BF] < 0.001). Intubation success on the first attempt with A.P. Advance, C-MAC, and KingVision was 86%, 85%, and 48%, respectively (overall: *P* < .001, A.P. Advance versus C-MAC: OR, 0.89, 95% CI, 0.31–2.53, *P*[BF] > 0.99; A.P. Advance versus KingVision: OR, 0.24, 95% CI, 0.055–0.38, *P* [BF] = 0.0054; C-MAC versus KingVision: OR, 0.21, 95% CI, 0.043–.34, *P* [BF] < 0.003). Direct laryngoscopy for successful intubation with the videolaryngoscopic device was necessary with the A.P. Advance in 5 patients, and with the C-MAC in 4 patients. In the KingVision group, 21 patients were intubated with an alternative device

CONCLUSIONS: During prehospital emergency endotracheal intubation performed by emergency physicians, success rates of 3 commercially available videolaryngoscopes A.P. Advance, C-MAC PM, and KingVision varied markedly. We also found that although any of the videolaryngoscopes provided an adequate view, actual intubation was more difficult with the channeled blade KingVision

女性要求硬膜外分娩镇痛的意向、分娩后硬膜外镇痛和产后 6 周抑郁的关系：前瞻性观察研究

The Relationship Between Women's Intention to Request a Labor Epidural Analgesia, Actually Delivering With Labor Epidural Analgesia, and Postpartum Depression at 6 Weeks: A Prospective Observational Study

Orbach-Zinger, Sharon, MD[*,†]; Landau, Ruth, MD[‡]; Harousch, Avi, Ben, MD[§]; Ovad, Oren, MD[*,†]; Caspi, Liron, MD[*,†]; Kornilov, Evgeniya, MD[*,†]; Ioscovich, Alexander, MD[〃]; Bracco, Danielle, BA[*,†]; Davis, Atara, BA[*,†]; Fireman, Shlomo, MD[*,†]; Hoshen, Moshe, PhD[¶]; Eidelman, Leonid, A., MD[*]

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背景：产后抑郁症（PPD）与分娩期间和分娩后的疼痛有关，研究显示硬膜外镇痛（LEA）分娩的妇女发生率降低。 我们推测，由于未经治疗的分娩疼痛和分娩期间无法比拟的期望的联合经验，并评估了与 LEA 有关方法之间的相互关系，分娩时使用 LEA 实际疼痛控制的满意度，以及在分娩后 6 周的 PPD，打算接受 LEA 但未接受治疗的妇女在 6 周时发生 PPD 的风险较高。

方法：共有 1497 名阴道分娩妇女参加了这项前瞻性队列研究。 在产后第 1 天记录了女性最初打算使用或不用 LEA 进行分娩，随后分娩方式以及对疼痛缓解的满意度。主要目标是在起初打算进行分娩镇痛但随后在没有 LEA 的情况下进行分娩的女性中选出 6 周内 PPD 的女性与其余队列进行比较。 主要终点是产后 6 周使用爱丁堡产后抑郁量表评价 PPD; PPD 定义为分数≥10（从 0 到 30 分）。 记录人口和产科数据。 Fisher 确切概率法用于组间比较。 对 LEA 和 PPD 方面的意向和实际使用之间的相互作用进行了测试。

结果：总体而言，在 6 周内完成研究的 1326 名女性中有 87 人发生 PPD（6.6％）。对于主要目标，439（29.3％）在没有 LEA 的情况下分娩，其中 193（12.9％）计划使用 LEA;这些女性的 PPD 发生率为 8.1％,与其余队列组的差异无统计学意义(6.3％;[OR]，1.30,95％[CI]，0.72-2.38; *P* = 0.41） 。使用 LEA 的共有 1058 名女性（70.7％）和 439 名（29.3％）未使用;因此，1169（78.1％）按预期使用，328（21.9％）没有（未匹配的预期）。评估效应之间的相互作用，意图在没有 LEA 的情况下分娩和实际使用 LEA 分娩（风险差异= -8.6％，95％CI，16.2％-1.6％; *P* =0 .014）之间存在强烈的负相加作用，表明不匹配意向效应与消极结果显着相关。在多元回归分析中，在打算使用 LEA（OR 1.06; 95％CI 1.01-1.11; *P* = 0.029），并实际使用 LEA（OR，1.07; 95％CI，1.01-1.13; *P* =0.018）都增加了 PPD 的可能性，在调整辅因子之后，乘法相互作用是保护性的（OR，0.92; 95％CI，0.86-0.99; *P* =0 .022）。

结论：我们的研究结果并未表明打算用 LEA 分娩但随后未用的妇女 6 周内 PPD 几率明显增加。 然而，我们确定了预期使用 LEA 与实际使用 LEA，PPD 发生率之间的保护性相互作用。 我们的数据表明，妇女如果不按预期分娩，特别是当最初不打算使用 LEA 的，PPD 的风险会增加。 计划外 LEA 和 PPD 之间的关系除了与未满足期望或个人失败感有关的消极情绪外还可能与身体原因的困难分娩有关， 因此，在分娩后向妇女提供咨询以解决任何消极看法可能是有益的。

（陶强译 李士通校）

BACKGROUND: Postpartum depression (PPD) is associated with pain during and after delivery, with studies showing reduced rates among women delivering with labor epidural analgesia (LEA). We hypothesized that women who intend to deliver with LEA but do not receive it are at higher risk for PPD at 6 weeks due to the combined experience of untreated labor pain and unmatched expectations during labor, and evaluated the interaction between labor plans related to LEA, satisfaction with pain control when actually delivering with LEA, and PPD at 6 weeks after delivery.

METHODS: A total of 1497 women with a vaginal delivery were enrolled into this prospective longitudinal study. Women's initial intention to deliver with or without LEA, how they subsequently delivered, and satisfaction with pain relief were recorded on postpartum day 1. Primary aim was selected as PPD at 6 weeks among women intending to deliver with but subsequently delivering without LEA compared with the rest of the cohort. Primary outcome was PPD at 6 weeks using the Edinburgh Postnatal Depression Scale; PPD was defined with a score ≥10 (scale from 0 to 30). Demographic and obstetric data were recorded. Fisher exact test was used for comparisons between groups. The interaction between intention and actual delivery with regard to LEA and PPD was tested.

RESULTS: Overall, 87 of 1326 women completing the study at 6 weeks had PPD (6.6%). For the primary aim, 439 (29.3%) delivered without LEA, of which 193 (12.9%) had intended to deliver with LEA; the PPD rate among these women was 8.1%, which was not statistically different from the rest of the cohort (6.3%; odds ratio [OR], 1.30; 95% confidence interval [CI], 0.72–2.38; *P* = .41). A total of 1058 women (70.7%)

delivered with LEA and 439 (29.3%) delivered without; therefore, 1169 (78.1%) delivered as intended and 328 (21.9%) did not (unmatched expectations). Evaluating the interaction between effects, there was a strong negative additive interaction between intending to deliver without LEA and actually delivering with LEA (risk difference = −8.6%, 95% CI, 16.2%–1.6%; *P* = .014) suggesting that unmatched intention effect is significantly associated with negative outcome. In multiple regression analysis, while intending to deliver with LEA (OR, 1.06; 95% CI, 1.01–1.11; *P* = .029) and actually delivering with LEA (OR, 1.07; 95% CI, 1.01–1.13; *P* = .018) both increased the odds for PPD, the multiplicative interaction was protective (OR, 0.92; 95% CI, 0.86–0.99; *P* = .022), after adjusting for cofactors.

CONCLUSIONS: Our study results did not demonstrate a significant increase in the odds for PPD at 6 weeks among women who intended to deliver with LEA but subsequently delivered without. However, we identified a protective interaction between intended LEA use and actual use on the incidence of PPD. Our data suggest an increased risk when women do not deliver as intended, particularly when not initially intending to deliver with LEA. The relationship between unplanned LEA and PPD may be mediated by a physically difficult delivery rather than or in addition to negative emotions related to unmet expectations or a sense of personal failure; therefore, counseling women after delivery to address any negative perceptions may be useful.

预测体外循环之前儿童的肝素反应:回顾性队列研究

Predicting Heparin Responsiveness in Children Before Cardiopulmonary Bypass: A Retrospective Cohort Study

Nakamura, Sayaka, MD[*]; Honjo, Osami, MD, PhD[†]; Crawford-Lean, Lynn, BSc, CPC, CCP[‡]; Foreman, Celeste, BA, CPC, CCP[‡]; Sano, Minako, MD[§,‖]; O'Leary, James, D., MBBCh, MM, MD[§,‖]

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背景：在体外循环(CPB)中过多或者过少的使用普通肝素都会造成严重的损害。与年龄相关肝素的药效学和药物动力学的差异导致儿童肝素反应多变性的增加。本研究的目的[1]在于研究在使用止血管理系统(HMS)Plus（Medtronic, Minneapolis, MN）[2]之前的体外循环中预期的与观察到的肝素反应之间的相关性；描述儿童中肝素敏感性指数（HSI）的年龄特异性参考区间以及使用临床术前和实验室数据测试 HSI 指数的预测模型[3]。

方法：在本次回顾性队列研究中，选取在 2010 年 9 月至 2010 年 12 月这四个月中进行体外循环时需要肝素化处理的年龄≤17 岁的儿童作为研究对象。排除体重≥45 公斤或高度≥142 厘米的儿童。HSI 定义为每公斤体重肝素化后活化凝血时间与基础活化凝血时间之差除以肝素负荷量（IU）。使用林氏一致性相关系数初步分析预测与实际观测的 HSI 之间的相关性。HSI 的参考区间计算按照临床和实验室标准建立的指导方针使用中位数以及 2.5%和 97.5%百分位数。采用非参数回归分析模拟 HSI(因变量)和术前协变量(自变量)之间的关系。

结果：在最后分析中总共有 1281 个符合条件的儿童。总的来说，在使用 HMS Plus 系统测量的预测和观察到的 HSI 之间存在一定的相关性（rho_c = 0.46;95%置信区

间,0.41-0.50;P <.001）。百分之六十五（1281 中的 829 例）的预测 HSI 小于观测值。从调整后的回归模型中看，术前的国际标准化比率、血小板计数和体重能最好的预测 HSI,但这个模型仅占 25%HSI 的方差。

结论：在一个大样本儿童中，使用 HMS Plus 系统或者常见的术前临床和实验室数据两者都不能够可靠的预测在 CPB 之前的肝素反应。我们描述了在儿童中年龄相关性的参考区间，预计这些数据可以帮助识别肝素抵抗的人口。

（方怡娇译 李士通校）

BACKGROUND: Inadequate or excess administration of unfractionated heparin for cardiopulmonary bypass (CPB) can cause significant harm. Age-dependent differences in the pharmacodynamics and pharmacokinetics of heparin contribute to increased variability of heparin responsiveness in children. The aims of the current study were to (1) examine the correlation between predicted and observed heparin responsiveness in children before CPB measured using the Hemostasis Management System (HMS) Plus (Medtronic, Minneapolis, MN), (2) describe age-specific reference intervals for heparin sensitivity index (HSI) observed in children, and (3) test predictive models of HSI using preoperative clinical and laboratory data.

METHODS: In this retrospective cohort study, children (ages ≤17 years) who required therapeutic heparinization for CPB in a 40-month period between September 2010 and December 2013 were investigated. Children weighing ≥45 kg or with a height ≥142 cm were excluded. HSI was defined as the difference between activated clotting time after heparin administration and the baseline activated clotting time divided by the heparin-loading dose (IU) per kilogram. Lin's concordance correlation coefficient was used for the primary analysis of the relationship between predicted and observed HSI. Reference intervals were calculated for HSI using medians and 2.5% and 97.5% percentiles according to established guidelines for clinical and laboratory standards. Nonparametric regression analyses were used to model the relationship between HSI (dependent variable) and preoperative covariates (independent variables).

RESULTS: A total of 1281 eligible children were included in the final analysis. Overall, there was a moderate correlation between predicted and observed HSI measured using HMS Plus System (rho_c = 0.46; 95% confidence interval, 0.41–0.50; $P < .001$). Sixty-five percent (829 of 1281) of predicted HSI values were less than observed. From adjusted regression models, HSI was best predicted by preoperative international normalized ratio, platelet count, and weight, but this model accounted for only 25% of the variance in HIS.

CONCLUSIONS: In a large cohort of children, heparin responsiveness before CPB was not reliably predicted by either in vitro measurement using the HMS Plus System or commonly available preoperative clinical and laboratory data. We describe age-specific reference intervals for HSI in children, and we anticipate that these data will aid the identification of heparin resistance in this population.

使用在线学习对术前戒烟患者的干预性研究

Utilizing Patient E-learning in an Intervention Study on Preoperative Smoking Cessation

Wong, Jean, MD, FRCPC[*,†]; Raveendran, Raviraj, MBBS[*]; Chuang, Junior, MSc[‡]; Friedman, Zeev, MD, FRCPC[§]; Singh, Mandeep, MBBS, FRCPC[*,//]; Patras, Jayadeep, PhD[*,¶]; Wong, David, T., MD, FRCPC[*]; Chung, Frances, MBBS, FRCPC[*]

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背景：吸烟的患者出现严重手术并发症的风险增加，但是由于吸烟而导致并发症风险增加并不是目前患者教育的常规操作流程。基于电脑的戒烟计划在普通人群中的应用不断增加，也许可以克服缺少时间、知识和培训提供的干预措施这些障碍。我们的目标是为手术患者开发和实施一个病人电子学习项目作为旨在帮助他们戒烟的多方面项目中的一部分和确定戒烟相关的横向和纵向的因素。

方法：在这个前瞻性多中心研究中，选择行择期非心脏手术的吸烟患者参与由电子学习项目、简短的建议、教育小册子、烟草戒烟热线咨询、写信给主治医师和药物治疗组成的病人术前戒烟计划。病人电子学习项目中描述（1）手术前戒烟的好处；（2）如何戒烟和（3）如何应对戒烟。戒烟后 7 天的患病率(PP)在当天手术以及术后 1，3，6 个月分别进行评估，用多变量逻辑回归分析确定与戒烟最相关的影响因素。用广义估计方程的方法估计与戒烟纵向相关的影响因素。项目的范围通过参与该项目的吸烟者的数量相对于倾向于该项目的患者数量来进行评估。

结果：共有 459 名患者(68.9%的符合条件的患者)参加。戒烟后的 7 天患病率在手术当天，术后 1 个月，3 个月和 6 个月分别为 22%,29%,25%,和 22%。预测戒烟 6 月内使用药物治疗（优势比[OR]:7.32；95%可信区间(CI):3.71-14.44；P <.0001)和拨打烟草戒烟热线的数量(OR:1.60；95%置信区间:1.35-1.90;P <.0001)。存在其他吸烟者的家庭(OR：0.39；95%置信区间：0.21-0.72；P = .0030)和每周花在香烟的最低限额(每增加 10 美元)(OR：0.73；95%置信区间：0.61-0.87；P = .0004)都是戒烟的障碍。

结论:术前戒烟项目导致了在 6 个月内戒烟的 7 天患病率为 22%。多方面的干预包括病人电子学习项目可能是一个帮助外科病人克服一些戒烟障碍的有价值的工具。

（方怡娇译 李士通校）

BACKGROUND: Patients who smoke put themselves at increased risk for serious surgical complications, yet it is not currently routine practice to educate patients about the risk of complications due to smoking. Computer-based smoking cessation programs are increasingly being utilized in the general population and may overcome some of the barriers such as lack of time, knowledge, and training to provide interventions. Our objective was to develop and implement a patient e-learning program designed for surgical patients as part of a multifaceted program aimed at assisting them to quit smoking and to determine the factors cross-sectionally and longitudinally associated with abstinence.

METHODS: In this prospective multicenter study, smokers undergoing elective noncardiac surgery participated in a preoperative smoking cessation program consisting of a patient e-learning program, brief advice, educational pamphlet, tobacco quitline referral, letter to the primary care physician, and pharmacotherapy. The patient e-learning program described (1) the benefits of quitting smoking before surgery; (2) how to quit smoking; and (3) how to cope while quitting. The 7-day point prevalence (PP) abstinence on the day of surgery and at 1, 3 and 6 six months after surgery was separately assessed, and factors most associated with abstinence were identified using multivariable logistic regression analysis. Generalized estimating

equation methods were used to estimate effect of the factors associated with abstinence longitudinally. The reach of the program was assessed with the number of smokers who participated in the program versus the number of patients who were referred to the program.

RESULTS: A total of 459 patients (68.9% of eligible patients) participated. The 7-day PP abstinence at day of surgery, 1 month, 3 months, and 6 months was 22%, 29%, 25%, and 22%, respectively. The variables predicting abstinence at 6 months were use of pharmacotherapy (odds ratio [OR], 7.32; 95% confidence interval [CI], 3.71–14.44; *P* < .0001) and number of contacts with a tobacco quitline (OR, 1.60; 95% CI, 1.35–1.90; *P* < .0001). Presence of other smokers in the household (OR, 0.39; 95% CI, 0.21–0.72; *P* = .0030) and amount spent on cigarettes weekly at baseline (per $10 increase) (OR, 0.73; 95% CI, 0.61–0.87; *P* = .0004) were barriers to abstinence.

CONCLUSIONS: Our preoperative smoking cessation program resulted in a 7-day PP abstinence of 22% at 6 months. A multifaceted intervention including a patient e-learning program may be a valuable tool to overcome some of the barriers to help surgical patients quit smoking.

围术期管理能够改善肺癌手术后患者的长期生存:回顾性队列研究

Perioperative Management May Improve Long-term Survival in Patients After Lung Cancer Surgery: A Retrospective Cohort Study

Huang, Wen-Wen, MD[*]; Zhu, Wen-Zhi, MD[*,†]; Mu, Dong-Liang, MD[*]; Ji, Xin-Qiang, MD[‡]; Nie, Xiao-Lu, MSc[§]; Li, Xue-Ying, MSc[〃]; Wang, Dong-Xin, MD, PhD[*]; Ma, Daqing, MD, PhD, FRCA[¶]

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背景：手术是非小细胞肺癌的主要治疗方法，但是患者的长期生存仍然是一项挑战。本研究的目的是确定肺癌手术后患者长期生存的预测因子

方法：从 2006 年 1 月 1 日到 2009 年 12 月 31 日经历非小细胞肺癌手术的患者被纳入这项回顾性队列研究。主要的结果是患者术后的生存时间。长期生存的预测因子采用多变量 Cox 比例风险模型进行筛选。

结果：术后随访 588 例，中位随访期 5.2 年（四分位数范围，2—6.8 年）。291 位患者（49.5%）随访结束后存活，中位生存期为 64.3 个月（四分位数范围 28.5–81.6 月）。术后第 1、第三、第五年总生存率分别为 90.8%、70%、57.1%。有限切除术（危害比，1.46；95%置信区间，1.08 - 1.98；p＝013）和更大的肿瘤尺寸（危害比，1.29；95%置信区间，1.17–1.42; P < .001）与短的生存时间有关。反之高体重指数等级(危害比，0.59; 95%置信区间，0.37–0.93; P = .024)，高分化肿瘤(危害比，0.59; 95%置信区间，0.37–0.93; P = .024)，外科纵隔淋巴结清扫术(危害比，0.45; 95%置信区间， 0.30–0.67; P < .001)和围术期使用地塞米松(危害比， 0.70；95%置信区间, 0.54–0.90; P = .006) 与长期生存相关。氟比洛芬酯的围手术期使用与长期生存无相关性(危害比， 0.80; 95%置信区间, 0.62–1.03; P = .086)。然而，地塞米松和氟比洛芬酯联合给药可延长生存期（和两个都不运用相比：调整危害比 0.57;95%置信区间， 0.38–0.84; P = .005）。

结论：某些特别的因素：围手术期使用地塞米松和氟比洛芬酯治疗可提高非小细胞肺癌术后患者的长期生存率。鉴于较小的样本量，这些发现应该谨慎解读，需要进一步的随机临床试验来进一步阐明。

(韩穆佳译 李士通校)

BACKGROUND: Surgical resection is the main treatment for patients with non–small-cell lung cancer (NSCLC), but patients' long-term outcome is still challenging. The purpose of this study was to identify predictors of long-term survival in patients after lung cancer surgery.

METHODS: Patients who underwent surgery for NSCLC from January 1, 2006, to December 31, 2009, were enrolled into this retrospective cohort study. The primary outcome was the survival length after surgery. Predictors of long-term survival were screened with the multivariable Cox proportional hazard model.

RESULTS: Postoperative follow-up was completed in 588 patients with a median follow-up duration of 5.2 years (interquartile range, 2.0–6.8). Two hundred ninety-one patients (49.5%) survived at the end of follow-up with median survival duration of 64.3 months (interquartile range, 28.5–81.6). The overall survival rates were 90.8%, 70.0%, and 57.1% at the end of the first, third, and fifth year after surgery, respectively. Limited resection (hazard ratio [HR], 1.46; 95% confidence interval [CI], 1.08–1.98; $P = .013$) and large tumor size (HR, 1.29; 95% CI, 1.17–1.42; $P < .001$) were associated with short survival; whereas high body mass index grade (HR, 0.82; 95% CI, 0.69–0.97; $P = .021$), highly differentiated tumor (HR, 0.59; 95% CI, 0.37–0.93; $P = .024$), dissection of mediastinal lymph node during surgery (HR, 0.45; 95% CI, 0.30–0.67; $P < .001$), and perioperative use of dexamethasone (HR, 0.70; 95% CI, 0.54–0.90; $P = .006$) were associated with long survival. No association was found between perioperative use of flurbiprofen axetil and long survival (HR, 0.80; 95% CI, 0.62–1.03; $P = .086$). However, combined administration of dexamethasone and flurbiprofen axetil was associated with longer survival (compared to no use of both: adjusted HR, 0.57; 95% CI, 0.38–0.84; $P = .005$).

CONCLUSIONS: Certain factors in particular perioperative dexamethasone and flurbiprofen axetil therapy may improve patients' long-term survival after surgery for NSCLC. Given the small sample size, these findings should be interpreted with caution, and randomized clinical trials are needed for further clarification.

外周神经阻滞用于髋部骨折：一项循证综述

Peripheral Nerve Blocks for Hip Fractures: A Cochrane Review

Guay, Joanne, MD[*,†]; Parker, Martyn, J., MD[‡]; Griffiths, Richard, MD[§]; Kopp, Sandra, L., MD[//]

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背景：本次综述聚焦于使用外周神经阻滞作为术前镇痛，作为术后镇痛，或作为全髋关节手术的全身麻醉的补充，并试图确定它们是否能在阻滞后 30 分钟内运动的疼痛，术

后谵妄、心肌梗死/缺血、肺炎、死亡率、首次活动时间和止痛药消耗方面提供任何益处。

方法：试验通过计算机检索循证中心对照试验记录（2016 重要问题 8）MEDLINE（1966 年到 2016 年 8 月的第一周）Embase（1988 年到 2016 年 8 月的第一周）护理和联合卫生文献累积索引（EBCSCO 1982 年到 2016 年 8 月的第一周）试验注册和相关文章的参考清单。随机对照试验包括在 16 岁及以上的患者使用神经阻滞作为治疗的一部分。根据 Cochrane 工具对研究的质量进行评价。两位作者独立提取数据。证据质量由建议、评估、发展和评价工作组规模的等级来判断。

结果：根据 373 名参与者的 8 项试验，周围神经阻滞减轻了阻滞区域内 30 分钟内的运动疼痛：标准平均差−1.41（95%置信区间[CI]，2.14～0.67，相当于从 0 到 10 的刻度为 3.4，统计= 90%；高质量证据）效应大小与局部使用的麻醉药浓度成正比（ P < .00001)。根据 676 名受试者的 7 项试验，术后谵妄的风险没有差异。危害比, 0.69 (95%置信区间, 0.38–1.27; I 统计 = 48%;非常低质量的证据)。根据 131 名参与者的 3 项试验，肺炎的风险降低了：危害比 0.41（95%置信区间, 0.19–0.89，统计值=3%,需要治疗的数量以获得额外的有益结果,7[95%j 可信区间, 5–72]；中等质量的证据）。在 6 个月内没有发现心肌缺血或死亡的危险性，但参与者的数量远低于这 2 个结果的最佳信息大小。根据 2 个试验，155 个参与者，外周神经阻滞缩短了手术后第一次活动的时间：中位时间 11.25 小时(95%可信区间,8.15 到 14.34 小时， 统计值 = 52%;中等质量的证据). 从一项实验的 75 名受试者中得出术需要更少的单次追加注射镇痛药，标准平均差，3.48 (95% 可信区间, 4.23 to 2.74;中等质量的证据)。

结论：高质量的证据表明，区域阻滞减可减轻阻滞区域的 30 分钟内的运动疼痛。有证据表明，单次神经阻滞可以减轻术后出现肺炎的风险，缩短第一次活动的时间，较少止痛药的消耗。

(韩穆佳译 李士通校)

BACKGROUND: This review focuses on the use of peripheral nerve blocks as preoperative analgesia, as postoperative analgesia, or as a supplement to general anesthesia for hip fracture surgery and tries to determine if they offer any benefit in terms of pain on movement at 30 minutes after block placement, acute confusional state, myocardial infarction/ischemia, pneumonia, mortality, time to first mobilization, and cost of analgesic.

METHODS: Trials were identified by computerized searches of Cochrane Central Register of Controlled Trials (2016, Issue 8), MEDLINE (Ovid SP, 1966 to 2016 August week 1), Embase (Ovid SP, 1988 to 2016 August week 1), and the Cumulative Index to Nursing and Allied Health Literature (EBSCO, 1982 to 2016 August week 1), trials registers, and reference lists of relevant articles. Randomized controlled trials involving the use of nerve blocks as part of the care for hip fractures in adults aged 16 years and older were included. The quality of the studies was rated according to the Cochrane tool. Two authors independently extracted the data. The quality of evidence was judged according to the Grading of Recommendations, Assessment, Development, and Evaluations Working Group scale.

RESULTS: Based on 8 trials with 373 participants, peripheral nerve blocks reduced pain on movement within 30 minutes of block placement: standardized mean difference, −1.41 (95% confidence interval [CI], −2.14 to −0.67; equivalent to −3.4 on a scale from 0 to 10; I^2 statistic = 90%; high quality of evidence). The effect size was proportional to the concentration of local anesthetic used ($P < .00001$). Based on

7 trials with 676 participants, no difference was found in the risk of acute confusional state: risk ratio, 0.69 (95% CI, 0.38–1.27; I^2 statistic = 48%; very low quality of evidence). Based on 3 trials with 131 participants, the risk for pneumonia was decreased: risk ratio, 0.41 (95% CI, 0.19–0.89; I^2 statistic = 3%; number needed-to-treat for additional beneficial outcome, 7 [95% CI, 5–72]; moderate quality of evidence). No difference was found for the risk of myocardial ischemia or death within 6 months but the number of participants included was well below the optimum information size for these 2 outcomes. Based on 2 trials with 155 participants, peripheral nerve blocks also reduced the time to first mobilization after surgery: mean difference, −11.25 hours (95% CI, −14.34 to −8.15 hours; I^2 statistic = 52%; moderate quality of evidence). From 1 trial with 75 participants, the cost of analgesic drugs when used as a single-shot block was lower: standardized mean difference, −3.48 (95% CI, −4.23 to −2.74; moderate quality of evidence).

CONCLUSIONS: There is high-quality evidence that regional blockade reduces pain on movement within 30 minutes after block placement. There is moderate quality of evidence for a decreased risk of pneumonia, reduced time to first mobilization, and reduced cost of analgesic regimen (single-shot blocks).

胰腺癌的神经侵袭通过神经根传播巨噬细胞相关的异常性疼痛

Neural Invasion Spreads Macrophage-Related Allodynia via Neural Root in Pancreatic Cancer

Miura, Tomofumi, MD, PhD[*,†]; Mitsunaga, Shuichi, MD, PhD[*,‡]; Ikeda, Masafumi, MD[‡]; Ohno, Izumi, MD, PhD[‡]; Takahashi, Hideaki, MD[‡]; Kuwata, Takeshi, MD, PhD[§]; Ochiai, Atsushi, MD, PhD[*]

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背景：胰腺癌（PCa）对神经的侵袭（N-inv）导致神经损伤和疼痛。 在 PCa 中，良性神经损伤通过诱导神经根的炎症引起异常性疼痛。 在神经损伤后，巨噬细胞可能通过释放兴奋性细胞因子，在慢性神经性疼痛的形成中发挥作用。 本研究的目的是描绘 PCa 患者 N-inv 诱导的异常性疼痛并在 N-inv 动物模型（N-inv 模型）中以背根神经节（DRG）的巨噬细胞积聚描述异常性疼痛相关的神经炎症。

方法：临床研究纳入晚期 PCa 未使用阿片类药物治疗的初治患者。为了评估异常疼痛，我们测量了上腹部皮肤的感知阈值和来自问卷的疼痛评分；并且，评估了 N-inv 放射学程度与异常性疼痛之间的关联。 在动物实验中，我们通过将人类 PCa 细胞系接种到小鼠的左侧坐骨神经中，模拟人类 PCa 的侵袭行为而建立了 N-inv 模型。在 N-inv 模型和假手术模型中，每周测量小鼠右后爪的感觉改变，并在 6 周时对 DRG 进行 mRNA 和蛋白质表达的研究。 在 N-inv 模型中，对使用脂质体包裹氯膦酸盐（Lp-CLD）诱导的巨噬细胞消耗效果进行评估， 并对肿瘤大小和 DRG 及其周围的巨噬细胞积聚程度进行研究。

结果：临床研究纳入 43 例患者。与没有严重 N-inv 的患者相比，重度 N-inv 患者上腹部皮肤的 2000Hz 触觉和压力感觉阈值降低。严重 N-inv 患者表现出较高的疼痛评分。在动物实验中，N-inv 模型小鼠在 5 周和 6 周时右后爪感觉阈值降低。巨噬细胞相关基因表达和 F4 / 80 阳性巨噬细胞在左 DRG 中增加。 Lp-CLD 诱导的巨噬细胞耗竭导致右后

爪阈值的增加。在左侧 DRG 中，CD206 阳性巨噬细胞积聚减少。 Lp-CLD 对肿瘤大小没有影响。

结论：本研究首次显示了在 PCa 患者和 N-inv 模型中 N-inv 诱导的异常性疼痛的传播。在 N-inv 模型中，异常性疼痛与 DRG 的巨噬细胞数量有关。神经炎症可能是研究 N-inv 诱导的疼痛机制和开发新型镇痛药的目标。

（毛玉林译 李士通校）

BACKGROUND: Neural invasion (N-inv) induces the neural damage and pain in pancreatic cancer (PCa). Benign nerve injury evokes allodynia through neuroinflammation in the neural root, which might be seen in PCa. Macrophages have the potential to release excitatory cytokines after nerve injury and so may play a role in the generation of chronic neuropathic pain. The aim of this study is to represent N-inv–induced allodynia in patients with PCa and to characterize allodynia-related neuroinflammation as macrophage accumulation on dorsal root ganglion (DRG) in the N-inv animal model (N-inv model).

METHODS: Treatment-naïve patients with advanced PCa with no opioid use were enrolled in the clinical study. To evaluate allodynia, the current perception threshold on epigastric skin and pain score from questionnaire were measured. The association between the degrees of radiological N-inv and allodynia was evaluated. In the animal experiments, we used the N-inv model, which is established by the inoculation of the human PCa cell line into the left sciatic nerve of mice and mimics the invasion behavior of human PCa. The change of sensation was weekly measured at right hind paw, and the expressions of mRNA and protein were investigated on DRG at 6 weeks in the N-inv and sham models. The effect of macrophage depletion using liposome-encapsulated clodronate (Lp-CLD) was evaluated in the N-inv model. Tumor size and the degree of macrophage accumulation on DRG or around the tumor were investigated.

RESULTS: In the clinical study, 43 patients were analyzed. The threshold of epigastric skin at 2000 Hz touch and pressure sensation was decreased in patients with severe N-inv, compared to patients without severe N-inv. Patients with severe N-inv showed a high pain score. In the animal experiments, the N-inv model decreased the threshold of right hind paw at 5 and 6 weeks. The macrophage-related gene expression and F4/80-positive macrophages were increased in the left DRG. Lp-CLD–induced macrophage depletion induced an increase of the threshold in the right hind paw and a decrease of CD206-positive macrophages accumulation in the left DRG. Lp-CLD had no effect for tumor size.

CONCLUSIONS: The present study first showed that the N-inv–induced allodynia was spread in patients with PCa and in the N-inv model. Allodynia was related to the amount of macrophages at DRG in the N-inv model. The neuroinflammation may be a target for researching the N-inv-induced pain mechanism and developing novel analgesics.

针对麻醉医师的叙述性概述：研究前后的偏倚

Bias in Before–After Studies: Narrative Overview for Anesthesiologists

Ho, Anthony M., H., MD, FRCPC, FCCP[*]; Phelan, Rachel, MSc[*]; Mizubuti, Glenio, B., MD, MSc[*]; Murdoch, John A., C., MBChB, FRCA, FRCPC[*]; Wickett, Sarah, BSc, MLIS[†]; Ho, Adrienne, K., MBBS[‡]; Shyam, Vidur, MBBS, FRCPC[*]; Gilron, Ian, MD, FRCPC[*]

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研究前后的设计是有效的研究工具，在某些情况下，改变了实践。但是，这些设计不可避免容易受到偏差（如系统误差）的影响，这些误差有时很微妙，但可能会使结论失效。本概述提供了与麻醉医师相关的研究前后的例子，以说明潜在的偏倚来源，包括选择/分配，历史，平均回归，重测，成熟度，观察者，回顾性，霍桑，仪器仪表，磨损和报告/发表偏倚。缓解策略包括使用对照组，盲法，在队列前后分别进行匹配，最小化队列之间的时滞，使用一致的测量/报告标准收集前瞻性数据，时间序列数据收集，和/或可能的替代研究设计。通过执行提高健康研究质量和透明度（EQUATOR）清单的改进报告将有助于提高透明度并有助于说明。通过强调潜在偏见的类型和应对策略以提高透明度和减少缺陷，本概述旨在更好地帮助麻醉医师设计研究，和/或批判性评估研究设计。

（毛玉林译 李士通校）

Before–after study designs are effective research tools and in some cases, have changed practice. These designs, however, are inherently susceptible to bias (ie, systematic errors) that are sometimes subtle but can invalidate their conclusions. This overview provides examples of before–after studies relevant to anesthesiologists to illustrate potential sources of bias, including selection/assignment, history, regression to the mean, test–retest, maturation, observer, retrospective, Hawthorne, instrumentation, attrition, and reporting/publication bias. Mitigating strategies include using a control group, blinding, matching before and after cohorts, minimizing the time lag between cohorts, using prospective data collection with consistent measuring/reporting criteria, time series data collection, and/or alternative study designs, when possible. Improved reporting with enforcement of the Enhancing Quality and Transparency of Health Research (EQUATOR) checklists will serve to increase transparency and aid in interpretation. By highlighting the potential types of bias and strategies to improve transparency and mitigate flaws, this overview aims to better equip anesthesiologists in designing and/or critically appraising before–after studies.