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術前心力衰竭惡化而非心肌梗死與非心臟手術後死亡率和非心臟併發症有關：一項回顧性佇列研究

Worsening Preoperative Heart Failure Is Associated with Mortality and Noncardiac Complications, But Not Myocardial Infarction After Noncardiac Surgery: A Retrospective Cohort Study

Maile, Michael D. MD, MS; Engoren, Milo C. MD; Tremper, Kevin K. MD, PhD; Jewell, Elizabeth MS; Kheterpal, Sachin MD, MBA

Anesthesia & Analgesia 2014 119 522–532

背景：心力衰竭（HF）是圍手術期併發症發病率和死亡率的一個重要危險因素。雖然這些患者的心臟不良事件的風險高，很少有資料描述這一人群中的非心臟併發症發生情況。

方法：作者對接受 2005 年到 2010 年間美國醫學學會全國外科品質改進計畫的非心臟手術的患者進行了一項多中心佇列研究。將 HF（術後 30 天內新發或惡化的 HF）佇列與其他外科手術的危險因素相關的對照組進行比較。

結果：5094 例術前惡化的 HF 患者與術前沒有 HF 惡化的相似的患者佇列相比較，術前 HF 惡化與 30 天全因死亡率增加（相對危險[RR] 2.08；95%置信區間[CI]，1.75－2.46；P＜0.001）以及發病風險增加有關（任何有記錄的術後併發症）（RR 1.54; 95 % CI, 1.40-1.69; P<0.001）。HF 患者發生腎衰竭(RR 1.85; 95% CI, 1.37－2.49; P < 0.001)，機械通氣的需要>48 小時(RR 1.81; 95% CI, 1.52－2.15; P < 0.001)， 肺炎 (RR 1.73; 95% CI, 1.44－2.08; P < 0.001), 心跳驟停 (RR 1.69; 95% CI, 1.29－2.21; P < 0.001), 計畫外插管(RR 1.68; 95% CI, 1.41－1.99; P < 0.001), 腎功能不全(RR 1.64; 95% CI, 1.10－2.44; P = 0.014), 膿毒症(RR 1.43, 95% CI, 1.24－1.64; P < 0.001), 以及尿路感染 (RR 1.29; 95% CI, 1.06－1.58; P = 0.011)的風險增加。

結論：在控制其他併發症的條件下，術前 HF 惡化與術後併發症發病率和死亡率顯著增加有關。雖然這似乎有多種病因，患者相對心臟併發症更有可能發生呼吸系統、腎臟和感染性併發症。

（柳韶華 譯 陳傑 校）

BACKGROUND: Heart failure (HF) is an important risk factor for perioperative morbidity and mortality. While these patients are at high risk for cardiac adverse events, there are few current data describing the types of noncardiac complications that occur in this population.

METHODS: We performed a multicenter cohort study of patients undergoing noncardiac surgery from 2005 to 2010 as part of the American College of Surgeons National Surgical Quality Improvement Program. A HF cohort (HF that is new or worsening within 30 days of surgery) was compared with a control cohort that was matched regarding other surgical risk factors.

RESULTS: Five thousand ninety-four patients with worsening preoperative HF were compared with an otherwise similar cohort of patients without worsening preoperative HF. Worsening preoperative HF was associated with increased risk of 30-day all-cause mortality (relative risk [RR] 2.08; 95% confidence interval [CI], 1.75–2.46; P < 0.001) and increased risk of morbidity (any recorded postoperative complication) (RR 1.54; 95% CI, 1.40–1.69; P < 0.001). HF patients had increased risk of developing renal failure (RR 1.85; 95% CI, 1.37–2.49; P < 0.001), need for mechanical ventilation longer than 48 hours (RR 1.81; 95% CI, 1.52–2.15; P < 0.001), pneumonia (RR 1.73; 95% CI, 1.44–2.08; P < 0.001), cardiac arrest (RR 1.69; 95% CI,

1.29–2.21; P < 0.001), unplanned intubation (RR 1.68; 95% CI, 1.41–1.99; P < 0.001), renal insufficiency (RR 1.64; 95% CI, 1.10–2.44; P = 0.014), sepsis (RR 1.43, 95% CI, 1.24–1.64; P < 0.001), and urinary tract infection (RR 1.29; 95% CI, 1.06–1.58; P = 0.011). The incidence of myocardial infarction in the sample was similar between the 2 groups (RR 1.07; 95% CI, 0.75–1.52; P = 0.719).

CONCLUSIONS: Worsening preoperative HF is associated with a significant increase in postoperative morbidity and mortality when controlling for other comorbidities. Although these likely have a multifactorial etiology, patients are much more likely to suffer from respiratory, renal, and infectious complications than cardiac complications.

局部腦血流量在冠狀動脈旁路手術後記憶處理過程中減少

Attenuation of Regional Cerebral Blood Flow During Memory Processing After Coronary Artery Bypass Surgery

Badgaiyan, Rajendra D. MD*; Weise, Steven BS†; Wack, David S. PhD‡; Vidal Melo, Marcos F. MD, PhD

Anesthesia & Analgesia 2014 119 550–553

心臟外科術後記憶障礙的報告是有爭議的。爲了解決這個爭議，作者利用正電子發射斷層掃描區域腦血流（rCBF）在擇期 CABG 術前、術後記憶處理過程中的變化。在術後的掃描中，作者觀察到腦血流量在兩個最重要的記憶加工區域明顯減少：內側顳葉（P = 0.023）和前額葉皮層（P = 0.002）。結果表明，CABG 術後參與記憶加工的腦區 rCBF 減少。rCBF 的減少可以用於高危患者 CABG 術後記憶障礙嚴重程度的評價。

（池曉穎 譯 陳傑 校）

Reports of memory impairment after cardiac surgery are controversial. To address this controversy, we used positron emission tomography to examine changes in regional cerebral blood flow (rCBF) during memory processing before and after elective coronary artery bypass grafting surgery. In postoperative scans, we observed significantly reduced rCBF in 2 of the most important memory processing areas: the medial temporal lobe (P = 0.023) and the prefrontal cortex (P = 0.002). The results suggest postoperative attenuation of rCBF in brain areas involved in memory processing. These reductions could be used to evaluate severity of memory impairment after coronary artery bypass grafting surgery in patients at risk.

腹部大手術患者應用無創心輸出量監測確定目標定向控制圍術期血流動力學穩定：一項前瞻性、隨機、多中心的實用性實驗：POEMAS（腹部大手術圍術期目標導向治療）研究

Perioperative Goal-Directed Hemodynamic Optimization Using Noninvasive Cardiac Output Monitoring in Major Abdominal Surgery: A Prospective, Randomized, Multicenter, Pragmatic Trial: POEMAS Study (PeriOperative goal-directed thErapy in Major Abdominal Surgery)

Pestaña, David PhD*; Espinosa, Elena PhD†; Eden, Arieh MD‡; Nájera, Diana MD*; Collar, Luis MD§; Aldecoa, César MD ‖; Higuera, Eva MD¶; Escribano, Soledad MD†; Bystritski, Dmitri MD‡; Pascual, Javier PhD§; Fernández-Garijo, Pilar MD ‖; de Prada, Blanca MD¶; Muriel, Alfonso#; Pizov, Reuven MD‡

Anesthesia & Analgesia 2014 119 579–587

背景：在本研究中，作者主要目的是研究基於無創心輸出量監測引導控制血流動力學能否減少需要特殊監護的腹部大手術病人術後併發症的發生率以及住院時

間；其次研究其對腸蠕動的恢復時間及切口感染、吻合口瘺的發生率和死亡率的影響。

方法：實驗組爲在 6 個三級醫院隨機選擇的 142 例計畫進行開放結直腸手術、胃切除術或小腸切除術的病人。控制血流動力學穩定的方案包括：液體管理，根據動脈壓、心指數和射血分數給予血管活性藥物。隨訪病人至出院（出院時間由對該研究不知情的外科醫生決定）或死亡。對照實驗爲臨床實用性研究（與闡述性實驗不同）通過模擬實際案例並爲該研究獲得最大外在有效性。

結果：實驗組與對照組的液體管理沒有顯著差異，但輸膠體量較多：實驗組 2.4 ± 1.8、對照組：1.3 ± 1.4；P < 0.001。輸紅細胞單位數爲：實驗組 0.6 ± 1.3、對照組 0.2 ± 0.6；P = 0.019。實驗組 25%患者術中應用多巴酚丁胺，術後 19.4%患者應用多巴酚丁胺；對照組分別爲 1.4%和 0%（P < 0.001）。實驗組需要再次手術的病例減少（5.6% vs 15.7%; P = 0.049）。而併發症發生率（40% vs 41%; 相對危險度 0.99 [0.67–1.44]; P = 0.397）、住院天數(11.5 [8–15] vs 10.5 [8–16]; P = 0.874)，第一次排氣時間(62 小時 [40–76] vs 72 小時 [48–96]; P = 0.180)、切口感染例數（7 vs 14; P = 0.085）、吻合口瘺例數（2 vs 5; P = 0.23）以及死亡率（4.2% vs 5.7%; P = 0.67）均無顯著差異。

結論：研究表明腹部大手術圍術期應用無創心輸出量監測引導控制血流動力學並不能降低併發症的發生率及住院時間。

（隋永恆 譯 陳傑 校）

BACKGROUND: In this study, our objective was to determine whether a perioperative hemodynamic protocol based on noninvasive cardiac output monitoring decreases the incidence of postoperative complications and hospital length of stay in major abdominal surgery patients requiring intensive care unit admission. Secondary objectives were the time to peristalsis recovery and the incidence of wound infection, anastomotic leaks, and mortality.

METHODS: A randomized clinical trial was conducted in 6 tertiary hospitals. One hundred forty-two adult patients scheduled for open colorectal surgery, gastrectomy, or small bowel resection were enrolled. A hemodynamic protocol including fluid administration and vasoactive drugs based on arterial blood pressure, cardiac index, and stroke volume response was compared with standard practice. Patients were followed until hospital discharge (determined by a surgeon blinded to the study) or death. In contrast to previous studies, we designed a pragmatic trial (as opposed to explanatory trials) to mimic real practice and obtain maximal external validity for the study.

RESULTS: Fluid administration was similar except for the number of colloid boluses (2.4 ± 1.8 [treated] vs 1.3 ± 1.4 [control]; P < 0.001) and packed red blood cell units (0.6 ± 1.3 [treated] vs 0.2 ± 0.6 [control]; P = 0.019). Dobutamine was used in 25% (intraoperatively) and 19.4% (postoperatively) of the treated patients versus 1.4% and 0% in the control group (P < 0.001). We have observed a reduction in reoperations in the treated group (5.6% vs 15.7%; P = 0.049). However, no significant differences were observed in overall complications (40% vs 41%; relative risk 0.99 [0.67–1.44]; P = 0.397), length of stay (11.5 [8–15] vs 10.5 [8–16]; P = 0.874), time to first flatus (62 hours [40–76] vs 72 hours [48–96]; P = 0.180), wound infection (7 vs 14; P = 0.085), anastomotic leaks (2 vs 5; P = 0.23), or mortality (4.2% vs 5.7%; P = 0.67).

CONCLUSIONS: The results of our pragmatic study indicate that a perioperative hemodynamic protocol guided by a noninvasive cardiac output monitor was not associated with a decrease in the incidence of overall complications or length of stay in major abdominal surgery.

血清維生素 D 濃度與非心臟手術後的嚴重併發症關係

The Association of Serum Vitamin D Concentration with Serious Complications After Noncardiac Surgery

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背景：維生素 D 缺乏是一個全球性的健康問題。流行病學研究表明，維生素 D 可以保護心臟和神經。維生素 D 也起著天然免疫和獲得性免疫中發揮實質性作用。本研究目的是評估血清中維生素 D 濃度與非心臟手術病人的嚴重術後併發症和死亡的關係。

方法：回顧性分析在克利夫蘭診所主校區的 3509 例行非心臟手術，並有血清維生素 D 的測量資料的病人。血清中維生素 D 濃度與全因住院死亡率，及在醫院的心血管發病率和嚴重的院內感染之間的關係通過廣義估計方程模型並調整多元人口統計，病史變數，類型和手術時間後被評定出一個共同的效果比值比（OR）

結果：較高的維生素 D 濃度與降低住院死亡率/發病率的幾率有關（P = 0.003）。相應的住院重症患者的公共效應比值比與維生素 D 的濃度呈 5ng/ml 單位遞增在 4～44 ng/ml 範圍中呈線性減少（OR0.93，95％可信區間，0.88-0.97）。此外，作者還發現，該比值在患者的維生素 D<13 ng/ml（即，第 1 分位）與患者的維生素 D 在 13-20，20-27，27-36 和>36 ng / mL（即第 2—5 分位）之間有顯著性差異，相應的估計 OR 值分別爲 0.65（99％可信區間，0.43-0.98），0.53（0.35-0.80），0.44（0.28-0.70）和 0.49（0.31-0.78）。然而，>13 ng/mL.的幾個分位之間的該比值無統計學差異。

結論：維生素 D 濃度與行非心臟手術的病人在恢復過程中發生院內死亡，嚴重感染及嚴重心血管事件存在聯繫。雖然不能從本研究的回顧性分析中得出因果關係，但該協會提出有必要做關於術前補充維生素 D 和術後效果的大型隨機試驗。

（秦懿 譯 陳傑 校）

BACKGROUND: Vitamin D deficiency is a global health problem. Epidemiological studies demonstrate that vitamin D is both cardioprotective and neuroprotective. Vitamin D also plays a substantial role in innate and acquired immunity. Our goal was to evaluate the association of serum vitamin D concentration on serious postoperative complications and death in noncardiac surgical patients.

METHODS: We retrospectively analyzed the data of 3509 patients who had noncardiac surgery at the Cleveland Clinic Main Campus and had a serum vitamin D measurement. The relationship between serum vitamin D concentration and all-cause in-hospital mortality, in-hospital cardiovascular morbidity, and serious in-hospital infections was assessed as a common effect odds ratio (OR) by using a multivariate generalized estimating equation model with adjustment for demographic, medical history variables, and type and duration of surgery.

RESULTS: Higher vitamin D concentrations were associated with decreased odds of in-hospital mortality/morbidity (P = 0.003). There was a linear reduction of the corresponding common effect odds ratio (OR 0.93, 95% confidence interval, 0.88–0.97) for severe in-hospital outcomes for each 5 ng/mL increase in vitamin D concentration over the range from 4 to 44 ng/mL. In addition, we found that the odds versus patients with vitamin D <13 ng/mL (i.e., 1st quintile) were significantly lower in patients with vitamin D 13–20, 20–27, 27–36, and > 36 ng/mL (i.e., 2nd–5th quintiles); the corresponding estimated ORs were 0.65 (99% confidence interval, 0.43–0.98), 0.53 (0.35–0.80), 0.44 (0.28–0.70), and 0.49 (0.31–0.78), respectively. However, there was no statistically significant difference among individual quintiles >13 ng/mL.

CONCLUSIONS: Vitamin D concentrations were associated with a composite of in-hospital death, serious infections, and serious cardiovascular events in patients recovering from noncardiac surgery. While causality cannot be determined from our retrospective analysis, the association suggests that a large randomized trial of preoperative vitamin D supplementation and postoperative outcomes is warranted.

大手術後的 C 反應蛋白動力學

C-Reactive Protein Kinetics After Major Surgery

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背景：術後膿毒症的診斷是個挑戰。炎症標誌物的檢測，例如 C 反應蛋白（CRP），已經在內科患者中進行，但是這些值在外科患者中的解釋更爲困難。作者評估了術後感染及未感染患者的血 CRP 水準及白細胞計數變化。

方法：入住 ICU （34 個床位）的所有患者包括了重要的（擇期或急診）心臟、神經、血管、胸或腹部手術後四個月內的患者，爲前瞻性研究。CRP 水準和白細胞計數在所有患者手術治療後每天記錄直到第 7 天。

結果：151 名患者中，115 例進行了擇期手術，36 名爲急診手術；心臟手術 49 例，神經外科手術 65 例，普外科手術 25 例，血管外科手術 7 例，胸外科手術 5 例。未感染患者的 CRP 平均值從基線開始上升至術後第三天（P<0.0001,估計平均差[EMD]=99.7mg/L，[95%可信區間，85.6-113.8]），然後開始下降直至術後第 7 天，但保持在比基線高的水準（P<0.0001,估計平均差[EMD]=49.2mg/L，[95%可信區間，27.1-71.2]）。發生術後感染的患者爲 20 例（13.2%），在這些病人中，術後第 1 天的 CRP 水準已經高於非感染病人（P=0.0054）。

結論：大手術後 CRP 水準在第一周內上升，但比起非感染患者，感染患者上升程度更明顯。術後第 4 天 CRP 水準居高不下，尤其當大於 100mg/L 時，提示有術後感染存在。

(王筱婧 譯 陳傑 校)

BACKGROUND: Diagnosis of sepsis in the postoperative period is a challenge. Measurements of inflammatory markers, such as C-reactive protein (CRP), have been proposed in medical patients, but the interpretation of these values in surgical patients is more difficult. We evaluated the changes in blood CRP levels and white blood cell count in postoperative patients with and without infection.

METHODS: All patients admitted to our 34-bed Department of Intensive Care after major (elective or emergency) cardiac, neuro-, vascular, thoracic, or abdominal surgery during a 4-month period were prospectively included. Patients were screened daily and characterized as infected or noninfected. CRP levels and white blood cell counts were recorded daily in all patients for up to 7 days after the surgical intervention.

RESULTS: Of the 151 patients enrolled, 115 underwent elective surgery and 36 emergency surgery; cardiac surgery was performed in 49 patients, neurosurgery in 65, abdominal surgery in 25, vascular surgery in 7, and thoracic surgery in 5. In noninfected patients (n = 117), mean CRP values increased from baseline to postoperative day (POD) 3 (P < 0.0001, estimated mean difference [EMD] = 99.7 mg/L [95% confidence interval, 85.6–113.8]) and then decreased until POD 7 but remained higher than the level at baseline (P < 0.0001, EMD = 49.2 mg/L [95% confidence interval, 27.1–71.2]). Postoperative infection occurred in 20 patients (13.2%). In these patients, CRP values were already higher on POD 1 than in noninfected patients (P = 0.0054).

CONCLUSIONS: CRP levels increase in the first week after major surgery but to a much larger extent in infected than in noninfected patients. Persistently high CRP levels after POD 4, especially when >100 mg/L, suggest the presence of a postoperative infection.

嬰兒期接受脊麻和手術的認知結果

Cognitive Outcome After Spinal Anesthesia and Surgery During Infancy

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背景：小兒麻醉的神經毒性的觀察性研究無法區分手術相關因素中全麻（GA）的長期影響和。最近的一項在一群上小學的，在他們生命的第一年接受過一次全身麻醉的孩子們身上的研究，證實了小兒麻醉的持續時間和測試成績減少之間的關係，也揭示了其中有一小部分群體有著“非常少的學術成就的孩子”（VPAA），即在標準化測試的得分都低於百分之五。在對一個類似的兒童的全身麻醉替代組術後認知功能進行的分析，可能有助於區分麻醉的影響與其他混雜因素。

方法：使用了一種新的方法來構建一個聯合醫療和教育資料庫，用來搜索這些在一個類似的接受脊麻的進行同樣手術的兒童群體中的影響。作者將之前的一些病人和一個控制人數的有著相匹配的年級，性別，測試的年齡和社會經濟地位的學生群體進行了比較。

結果：對佛蒙特州的教育部的記錄進行分析，其中 265 個學生在其嬰兒時期均在單次脊髓麻醉下進行過包皮環切術，幽門環肌切開術，或者腹股溝疝修補術。接受脊髓麻醉和手術治療對有 VPAA 的兒童的比值無顯著影響。（數學：P = 0.18；比值比爲 1.50，置信區間（CI），0.83 – 2.68；閱讀：P = 0.55；比值比= 1.19，置信區間 CI，0.67 – 2.1）。脊髓麻醉和手術的持續時間與在數學標準化測試（P=0.73）或者閱讀的標準化測試中（P=0.57）的表現沒有相關性。在實驗組裡有一個小的但是在統計學上有顯著數學和閱讀分數減少的差異。（P = 0.03；數學：閱讀：P = 0.02）。

結論：作者並沒有發現在嬰兒期進行脊髓麻醉的手術持續時間與小學裡學校考試分數之間的有任何關係。也沒有發現嬰兒期間的脊髓麻醉和手術治療與小學測試的 VPAA 之間有任何關聯，儘管置信區間很廣。

（李慧 譯 陳傑 校）

BACKGROUND: Observational studies on pediatric anesthesia neurotoxicity have been unable to distinguish long-term effects of general anesthesia (GA) from factors associated with the need for surgery. A recent study on elementary school children who had received a single GA during the first year of life demonstrated an association in otherwise healthy children between the duration of anesthesia and diminished test scores and also revealed a subgroup of children with “very poor academic achievement” (VPAA), scoring below the fifth percentile on standardized testing. Analysis of postoperative cognitive function in a similar cohort of children anesthetized with an alternative to GA may help to begin to separate the effects of anesthesia from other confounders.

METHODS: We used a novel methodology to construct a combined medical and educational database to search for these effects in a similar cohort of children receiving spinal anesthesia (SA) for the same procedures. We compared former patients with a control population of students matched by grade, gender, year of testing, and socioeconomic status.

RESULTS: Vermont Department of Education records were analyzed for 265 students who had a single exposure to SA during infancy for circumcision, pyloromyotomy, or inguinal hernia repair. Exposure to SA and surgery had no significant effect on the odds of children having VPAA. (mathematics: P = 0.18; odds ratio 1.50, confidence interval (CI), 0.83–2.68; reading: P = 0.55; odds ratio = 1.19,

CI, 0.67–2.1). There was no relationship between duration of exposure to SA and surgery and performance on mathematics (P = 0.73) or reading (P = 0.57) standardized testing. There was a small but statistically significant decrease in reading and math scores in the exposed group (mathematics: P = 0.03; reading: P = 0.02).

CONCLUSIONS: We found no link between duration of surgery with infant SA and scores on academic achievement testing in elementary school. We also found no relationship between infant SA and surgery with VPAA on elementary school testing, although the CIs were wide.

由單純皰疹病毒載體介導的白細胞介素 10 在大鼠模型中能阻止由人免疫缺陷病毒 gp120 導致的神經性疼痛

Interleukin 10 Mediated by Herpes Simplex Virus Vectors Suppresses Neuropathic Pain Induced by Human Immunodeficiency Virus gp120 in Rats

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背景：人免疫缺陷病毒（HIV）相關的感覺神經病變是一種 HIV 感染後常見的神經併發症，它影響到多達 30%HIV 陽性的患者。然而，其確切的神經病理機制仍然不清楚，這妨礙了發現有效的治療 HIV 相關神經性疼痛（NP）的方法。在這個研究中，作者在大鼠模型中檢驗了通過白細胞介素 10（IL-10）的過表達來抑制促炎症反應因數以減少 HIV 相關 NP。

方法：NP 是通過將重組 HIV-1 衣殼蛋白 gp120 應用至坐骨神經而產生。大鼠的後爪接種了表達抗炎細胞因數 IL-10 的單純皰疹病毒（HSV）載體或對照載體。在接種載體前後分別使用 von Frey 纖維絲測試機械痛閾。通過時間相關的曲線下面積來評估機械痛閾。在接種載體後的第 14 天和第 28 天，分別使用 Western blots 方法檢測脊髓腰段和 L4/5 背根神經節（DRG）中 p38 絲裂原活化蛋白磷酸激酶、腫瘤壞死因數-α，基質細胞衍生因數-1α 和 C-X-C 型趨化因數受體 4 的表達。

結果：作者發現在 gp120 誘導的 NP 模型中，由 HSV 載體介導的 IL-10 過表達組在接種載體 3 天后與對照組相比明顯降低了機械痛閾（P < 0.001）。表達 IL-10 的 HSV 單獨接種後，其止痛效果持續大於 28 天。表達 IL-10 的 HSV 載體組的曲線下面積與對照組相比有所增加（P < 0.0001）。表達 IL-10 的 HSV 載體在接種後第 14 天和/或第 28 天能夠逆轉在 DRG 和或脊髓後角中 p38 絲裂原活化蛋白磷酸激酶、腫瘤壞死因數-α，基質細胞衍生因數-1α 和 C-X-C 型趨化因數受體 4 的上調。

結論：研究證明使用表達 IL-10 的 HSV 載體阻斷在 DRG 和/或脊髓後角中的促炎分子信號能夠減少 HIV 相關 NP。這些結果提示了關於 HIV 相關 NP 發病機制的新觀點，並且證明了使用此類基因療法治療 HIV 感覺神經病變的可能性。

（張帆 譯 陳傑 校）

BACKGROUND: Human immunodeficiency virus (HIV)–associated sensory neuropathy is a common neurological complication of HIV infection affecting up to 30% of HIV-positive individuals. However, the exact neuropathological mechanisms remain unknown, which hinders our ability to develop effective treatments for HIV-related neuropathic pain (NP). In this study, we tested the hypothesis that inhibition of proinflammatory factors with overexpression of interleukin (IL)-10 reduces HIV-related NP in a rat model.

METHODS: NP was induced by the application of recombinant HIV-1 envelope protein gp120 into the sciatic nerve. The hindpaws of rats were inoculated with nonreplicating herpes simplex virus (HSV) vectors expressing anti-inflammatory cytokine IL-10 or control vector. Mechanical threshold was tested using von Frey

filaments before and after treatments with the vectors. The mechanical threshold response was assessed over time using the area under curves. The expression of phosphorylated p38 mitogen-activated kinase, tumor necrosis factor-α, stromal cell–derived factor-1α, and C-X-C chemokine receptor type 4 in both the lumbar spinal cord and the L4/5 dorsal root ganglia (DRG), was examined at 14 and 28 days after vector inoculation using Western blots.

RESULTS: We found that in the gp120-induced NP model, IL-10 overexpression mediated by the HSV vector resulted in a significant elevation of the mechanical threshold that was apparent on day 3 after vector inoculation compared with the control vector ($P < 0.001$). The antiallodynic effect of the single HSV vector inoculation expressing IL-10 lasted >28 days. The area under curve in the HSV vector expressing IL-10 was increased compared with that in the control vector ($P < 0.0001$). HSV vectors expressing IL-10 reversed the upregulation of phosphorylated p38 mitogen-activated kinase, tumor necrosis factor-α, stromal cell–derived factor-1α, and C-X-C chemokine receptor type 4 expression at 14 and/or 28 days in the DRG and/or the spinal dorsal horn.

CONCLUSIONS: Our studies demonstrate that blocking the signaling of these proinflammatory molecules in the DRG and/or the spinal cord using the HSV vector expressing IL-10 is able to reduce HIV-related NP. These results provide new insights on the potential mechanisms of HIV-associated NP and a proof of concept for treating painful HIV sensory neuropathy with this type of gene therapy.

超聲引導下齶大神經阻滯:一系列病例的解剖描述和臨床評價

Ultrasound-Guided Greater Palatine Nerve Block: A Case Series of Anatomical Descriptions and Clinical Evaluations

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背景：齶大神經（GPN）阻滯通過骨性標誌常用於上頜和上齶麻醉。超聲（US）常用於當骨齶顯示不易時連續鑒別齶大孔（GPF）以便超聲引導下大孔周圍注射。

方法：作者檢查並注射 16 例在排除顯著解剖畸形的防腐良好未分割半切除屍體的頭。高頻曲線探頭（7–13 MHz）定位硬齶長軸平面直視 GPN。超聲引導下注射 0.1ml 印度墨。標本注射後立即解剖並染色。記錄 GPN 定位成功率、嘗試次數及成功注射數。臨床上 7 例患者牙科操作應用此技術。5 例超聲引導下注射，2 例接受超聲輔助齶大腔阻滯。

結果：GPN 成功用於 16 例部分切除的頭。16 例中 7 例屍體標本，超聲下能看到穿刺針進路並在齶大孔和翼齶窩見到印度墨。另 9 例染色能在硬齶前到 GPN 粘膜組織或軟齶見到。臨床上 7 例中 6 例 GPN 能成功定位，超聲引導下 8 例嘗試阻滯中 6 例成功，嘗試中位數爲 2（1-4）。2 例超聲輔助注射均成功。

結論：在正常人及無齒齶骨超聲均能成功定位 GPN。超聲引導 GPN 阻滯技術上能挑戰。超聲引導或輔助 GPN 阻滯需大樣本進一步評估。

BACKGROUND: Greater palatine nerve (GPN) block is commonly performed for maxillary and palatal anesthesia by using bony landmarks. Ultrasound (US) can be used to consistently identify greater palatine foramen (GPF) as a defect in the bony palate enabling US-guided injections near the foramen.

METHODS: We scanned and injected 16 undissected well-embalmed hemisectioned cadaveric heads after excluding major anatomical malformations. A linear high-frequency hockey stick probe (7–13 MHz) positioned in long axis to the hard

palate visualized GPF as a discontinuity in the hard palate. US-guided injections of 0.1 mL India ink were made in an oblique plane. Specimens were dissected immediately after inj ection, and dye distribution was noted. The success rate of identification of GPF, number of attempts, and number of successful injections were recorded. The technique was evaluated clinically in 7 patients undergoing dental procedures. Five patients had US-guided injections, and 2 patients received US-assisted greater palatine canal blocks.

RESULTS: GPF was successfully identified in 16 hemisectioned heads (n = 16). In 7 of 16 hemisectioned cadaveric specimens (n = 7/16), needle pass was seen on the US and traces of India ink were found within the greater palatine canal and pterygopalatine fossa. In the remaining heads (n = 9/16), the dye was observed in the mucosal tissue of the hard palate anterior to the GPF or in the soft palate. Clinical evaluation reconfirmed successful identification of GPF by US in 6 of 7 patients (n = 6/7). US-guided injections were successful in 6 of the 8 attempted blocks (n = 6/8) with median number (range) of attempts being 2 (1–4). US-assisted injections were successful in 2 patients (n = 2/2).

CONCLUSIONS: US has the potential to successfully locate and characterize GPF in normal and edentulous maxilla. US-guided GPN blocks can be technically challenging. The clinical applicability of US guidance or assistance for GPN block needs further evaluation in a larger sample of patients.

在纖維蛋白溶解快速檢測的外在活性實驗中，有無抑肽酶對早期的血栓彈性測定評估有差異

Assessment of early thromboelastometric variables from extrinsically activated a ssays with and without aprotinin for rapid detection of fibrinolysis.

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背景：儘管血栓彈力圖可以用在纖維蛋白溶解的床旁診斷上，但是所需要的時間很長。未治療的纖維蛋白溶解能引起凝血因數的消耗和出血，因此有必要做早期的診斷和決策。因此，我們在外在活性實驗中對血栓彈力圖進行評估，用抑肽酶可以快速識別出纖維蛋白溶解。我們假設，凝血時間延長、血栓塊形成時間、血栓塊強度低（分別在 5、10、15、20 分鐘，標記爲 A5、A10、A15、A20）、最大血栓塊強度 MCF 降低等在有無抑肽酶試驗中的不同可以預測纖維蛋白溶解。

方法：我們採用受試者工作特徵來評估與分析 352 個病人的 411 份出現纖維蛋白溶解的血栓彈性測定結果和 1605 個病人的 2537 份沒有纖維蛋白溶解的結果。以一種混合佇列來分析這些資料，同時進一步分析與血栓溶解時間相關的纖維蛋白溶解的資料，即分別在 30 分鐘、45 分鐘和 60 分鐘內血栓塊強度降低到小於最大血栓塊強度的 15%。受試者工作特徵曲線的曲線下面積的 95%可信區間降低大體上說明不能改善逐漸增加的纖維蛋白溶解的檢測。曲線下面積的可變性可以很好的預測纖維蛋白溶解。作爲一個次要結局終點，用對應於最大約登指數的最優截點估計值來估算出各自的敏感性和特異性。

結果：在混合佇列中，血栓塊形成時間(AUC: 0.652 [0.016])、α 角(AUC: 0.675 [0.015])、A5 (AUC: 0.718 [0.013])、A10 (AUC: 0.734 [0.0.13])、A15 (AUC: 0.752 [0.013])、A20 (AUC: 0.771 [0.013])和最大血栓塊強度(AUC: 0.799 [0.012])預示到纖維蛋白溶解。ΔA15 (AUC: 0.675 [0.016]), ΔA20 (AUC: 0.719 [0.015]), and ΔMCF (AUC: 0.812 [0.013])也提示纖維蛋白溶解。曲線下面積隨時間而增加。在試驗早期，血栓彈力圖預測隨後發生的纖維蛋白溶解的能力比試驗晚期更強。儘管如此，在纖維蛋白溶解晚期，僅僅最大血栓塊強度顯示可能有臨床價值。

結論：在外在活性血栓彈性測定試驗中，血栓塊強度在纖維蛋白溶解診斷中有較

低的早期診斷價值，而且可以更早的發現。與沒有抑肽酶相比，使用抑肽酶的試驗不能改善纖維蛋白溶解的早期診斷。

（呂越昌譯 薛張綱校）

BACKGROUND: Although thromboelastometry (ROTEM®) and thrombelastography can be used for bedside diagnosis of fibrinolysis, the time needed for detection is often prolonged. Since untreated fibrinolysis can result in consumption of coagulation factors and bleeding, early diagnosis and decision making are desirable. Accordingly, we assessed ROTEM variables from extrinsically activated assays with (APTEM) and without (EXTEM) addition of aprotinin for their ability to rapidly identify fibrinolysis. Specifically, we tested the hypotheses that prolonged clotting time, clot formation time, low clot firmness (at 5, 10, 15, and 20 minutes, designated A5, A10, A15, and A20, respectively), low maximum clot firmness (MCF) in EXTEMassays, and differences in these variables from parallel APTEM and EXTEM assays (designated as Δvariables) predict fibrinolysis.

METHODS: Data from 411 thromboelastometric measurements (obtained from 352 patients) with fibrinolysis and from 2537 measurements withoutfibrinolysis (obtained from 1605 patients) were assessed and analyzed using receiver operating characteristics. Data were analyzed as a pooled fibrinolysis cohort, and subanalyses were performed from sets assigned to categories of fibrinolysis related to the timing of thrombus lysis (i.e., a decrease of clot firmness to <15% of MCF within 30, 45, and 60 minutes, respectively). A lower 95% confidence limit of the area under the receiver operating characteristic curve (AUC [SE] <0.6) was considered a failure to substantially improve detection of increased fibrinolysis. AUCs were compared to identify the variable providing the best predictive association with fibrinolysis. As a secondary end point, optimum cutoff values at the point estimate corresponding to the greatest Youden index were calculated along with the respective sensitivities and specificities.

RESULTS: In the pooled cohort, clot formation time (AUC: 0.652 [0.016]), α-angle (AUC: 0.675 [0.015]), A5 (AUC: 0.718 [0.013]), A10 (AUC: 0.734 [0.0.13]), A15 (AUC: 0.752 [0.013]), A20 (AUC: 0.771 [0.013]), and MCF (AUC: 0.799 [0.012]) predicted fibrinolysis. Fibrinolysis was also predicted by ΔA15 (AUC: 0.675 [0.016]), ΔA20 (AUC: 0.719 [0.015]), and ΔMCF (AUC: 0.812 [0.013]). AUCs increased in a time-related fashion. The ability to predict subsequent fibrinolysis based on thromboelastometry was higher when it occurred early rather than later during testing. However, for prediction of late fibrinolysis, only MCF (AUC: 0.655 [0.025]) appears to be potentially clinically useful.

CONCLUSIONS: Low early values of clot firmness in extrinsically activated thromboelastometric assays are associated with fibrinolysis and improve its early detection. Additional assays with aprotinin fail to improve the early diagnosis of fibrinolysis compared with assays without aprotinin.

麻醉劑特有的突觸抑制作用

Anesthetic Agent-Specific Effects on Synaptic Inhibition

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背景：麻醉劑可以加強 γ-氨基丁酸（GABA）介導的中樞神經系統抑制作用。不同的麻醉劑已被證明可不同程度地影響突觸及突觸外的 GABA 受體，但是否通過不同的機制介導不同形式的突觸抑制尚未可知。基於此觀點，我們檢驗不同類型的突觸 GABA 受體對麻醉劑表現出不同的敏感性的假說。現有研究對比了異

氟醚、氟烷、戊巴比妥、硫噴妥鈉以及異丙酚對於雙脈衝 GABAA 受體接到的突觸抑制作用。對於谷氨酸介導的異化作用的影響也進行了研究。

方法：在大鼠的海馬腦片中測定突觸應答。順行雙脈衝刺激被用來評價麻醉藥物對 CA1 神經元的谷氨酸介導的興奮性信號傳入以及 GABA 介導的抑制性信號傳入的影響。逆向的刺激用於評價麻醉劑對於 CA1 神經元背景興奮性的影響。研究中不同的麻醉劑使用產生峰電位抑制的等效劑量，以對比他們對於突觸抑制影響的相對程度。

結果：麻醉劑對於興奮性谷氨酸突觸雙脈衝異化不同程度的影響是明顯的，戊巴比妥表現出以前未發現的阻滯 GABA 抑制的活性。儘管 5 種麻醉藥都可以抑制 CA1 神經元的突出活化作用，但不同麻醉劑參與增強 GABA 介導的抑制作用是顯著不同的。異丙酚、硫噴妥鈉以及戊巴比妥增強單脈衝抑制，而氟烷及異氟醚的這種作用則是微弱的。與此相反，異氟烷及硫噴妥鈉增強雙脈衝抑制的作用是顯著的，而異丙酚、戊巴比妥及氟烷則幾乎沒有作用。

結論：這些觀察結果支持不同的 GABA 突觸受體含不同的亞基，不同的麻醉劑對這些受體表現出不同的選擇性。現有研究中發現的谷氨酸受體及 GABA 突觸受體不同的麻醉劑的敏感性，可以解釋不同種類的麻醉劑獨特的臨床作用和表現，並且爲新藥開發提示了選擇性的靶點。

(杜芳譯 薛張綱校)

BACKGROUND: Anesthetics enhance γ-aminobutyric acid (GABA)-mediated inhibition in the central nervous system. Different agents have been shown to act on tonic versus synaptic GABA receptors to different degrees, but it remains unknown whether different forms of synaptic inhibition are also differentially engaged. With this in mind, we tested the hypothesis that different types of GABA-mediated synapses exhibit different anesthetic sensitivities. The present study compared effects produced by isoflurane, halothane, pentobarbital, thiopental, and propofol on paired-pulse GABAA receptor-mediated synaptic inhibition. Effects on glutamate-mediated facilitation were also studied.

METHODS: Synaptic responses were measured in rat hippocampal brain slices. Orthodromic paired-pulse stimulation was used to assess anesthetic effects on either glutamate-mediated excitatory inputs or GABA-mediated inhibitory inputs to CA1 neurons. Antidromic stimulation was used to assess anesthetic effects on CA1 background excitability. Agents were studied at equieffective concentrations for population spike depression to compare their relative degree of effect on synaptic inhibition.

RESULTS: Differing degrees of anesthetic effect on paired-pulse facilitation at excitatory glutamate synapses were evident, and blocking GABA inhibition revealed a previously unseen presynaptic action for pentobarbital. Although all 5 anesthetics depressed synaptically evoked excitation of CA1 neurons, the involvement of enhanced GABA-mediated inhibition differed considerably among agents. Single-pulse inhibition was enhanced by propofol, thiopental, and pentobarbital, but only marginally by halothane and isoflurane. In contrast, isoflurane enhanced paired-pulse inhibition strongly, as did thiopental, but propofol, pentobarbital, and halothane were less effective.

CONCLUSIONS: These observations support the idea that different GABA synapses use receptors with differing subunit compositions and that anesthetics exhibit differing degrees of selectivity for these receptors. The differing anesthetic sensitivities seen in the present study, at glutamate and GABA synapses, help explain the unique behavioral/clinical profiles produced by different classes of anesthetics and indicate that there are selective targets for new agent development.

一種新型術中血紅蛋白損失量監測系統的臨床評價

Clinical Evaluation of a Novel System for Monitoring Surgical Hemoglobin Loss

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背景：術中失血量的精確測量對於補液管理及避免血液製品不必要的輸注具有重要價值。在這項研究中利用外科開腹手術中使用的紗布來計算血液丟失，使用了面部識別技術建模程式設計的平板電腦進行了一個獨特的演算法來測量。在本研究中，我們評估了該系統在外科手術的精確度和性能。

方法：在這項前瞻性、多中心的研究中，入選了 46 例接受剖腹手術並預期有顯著失血的研究物件，使用 Triton 系統的特徵提取技術來測量止血紗布中的血紅蛋白(Hb)損耗量。本研究將新系統所測量的 Hb 損耗量與手工漂洗紗布測定法進行了比較。採用線性回歸和 Bland-Altman 分析進行準確性評價。此外，本研究還比較了新系統與止血紗布稱重法估計血液丟失量的準確性。

結果：新系統測量的 Hb 值與沖洗所得的 Hb 品質之間呈現顯著線性正相關（r=0.93，P <0.0001）。Bland-Altman 分析顯示，結果偏移爲 9.0g，新方法與沖洗血紅蛋白品質之間的差異區間爲（-7.5g—25.5g）。這種差異是在臨床差異允許範圍內（±30 克），這大約是一半單位的同種異基因的全血的血紅蛋白含量。Bland-Altman 分析表明，止血紗布稱重法估計失血量具有 466ml 的偏移（高估），差異區間爲（-171ml—1103ml），可能原因是剖腹手術止血紗布中除了血液還有污染物的存在。

結論：與手工漂洗測量法相比，這種新穎的移動監視系統可以更準確測量手術止血紗布中 Hb 的品質，並且顯著比止血紗布稱重法精確。當然，還需要進一步的研究來評估臨床使用的價值。

（江凌慧譯 薛張綱校）

BACKGROUND: Accurate measurement of intraoperative blood loss is an important clinical variable in managing fluid resuscitation and avoiding unnecessary transfusion of blood products. In this study, blood lost onto laparotomy sponges during surgical cases was measured using a tablet computer programmed with a unique algorithm modeled after facial recognition technology. In this study, we assessed the accuracy and performance of the system in surgical cases.

METHODS: In this prospective, multicenter study, 46 patients undergoing surgery with anticipated significant blood loss contributed laparotomy sponges for hemoglobin (Hb) loss measurement using the Triton System with Feature Extraction Technology (Gauss Surgical, Inc., Los Altos, CA). The Hb loss measured by the new system was compared with that measured by manual rinsing of the sponges. Accuracy was evaluated using linear regression and Bland-Altman analysis. In addition, the new system's calculation of blood volume loss was compared with the gravimetric method of estimating blood loss from intraoperative sponge weights.

RESULTS:A significant positive linear correlation was noted between the new system's measurements and the rinsed Hb mass (r = 0.93, P < 0.0001). Bland-Altman analysis revealed a bias of 9.0 g and narrow limits of agreement (-7.5 to 25.5 g) between the new system's measures and the rinsed Hb mass. These limits were within the clinically relevant difference of ±30 g, which is approximately half of the Hb content of a unit of allogeneic whole blood. Bland-Altman analysis of the estimated blood loss on sponges using the gravimetric method demonstrated a bias of 466 mL (overestimation) with limits of agreement of -171 and 1103 mL, due to the presence of contaminants other than blood on the laparotomy sponges.

CONCLUSIONS: The novel mobile monitoring system provides an accurate measurement of Hb mass on surgical sponges as compared with that of manual rinsing measurements and is significantly more accurate than the gravimetric method. Further study is warranted to assess the clinical use of the technology.

住院患者中的維生素 D 缺乏症：是身體虛弱或者患有疾病需要治療的一個標誌嗎？

Hypovitaminosis D in Hospitalized Patients: A Marker of Frailty or a Disease Requiring Treatment?

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在這篇發表在 AA 的文章中，Turan 等人報導了非心臟手術成人患者的維生素 D 水準並將維生素 D 水準與術後併發症和死亡相關聯。雖然使用了回顧性佇列分析的方法，但這篇文章使人們重視住院病人維生素 D 缺乏的高發生率及其與非骨骼併發症和死亡率的關係。這些發現引出了許多問題：是不是維生素 D 缺乏這一不被重視症狀與手術患者不良預後有關？住院病人維生素 D 缺乏是不良手術預後的原因還是僅僅只是一個結果？維生素 D 水準的監測對手術患者是否有用，同時那些缺乏的病人是否應該術前補充維生素 D？不幸的是，這些問題沒有明確的答案，但是近 15 年的科研文章對圍手術期維生素 D 缺乏的概念提供了些許建議。我們在 PubMed 上檢索了 1999 至 2014 年的英文文章，回顧整理了維生素 D 對外科預後的影響。

（蓋曉冬譯 薛張綱校)

In this issue of *Anesthesia &Analgesia*,Turan et al. report on vitamin D levels in adult patients undergoing noncardiac surgery and relate these levels to postoperative complications and death. Despite the methodological issues with retrospective cohort analysis, this study draws attentions to the high prevalence of hypovitaminosis D in hospitalized patients and the association of hypocitaminosis D with nonskeletal complications and mortality. These findings raise a number of questions: Is vitamin D deficiency an underappreciated condition responsible for poor outcomes in surgical patients? Is vitamin D deficiency in surgical patients a cause or just a consequence of poor outcomes? Is surveillance for vitamin D deficiency useful in patients undergoingsurgery,and should these patients receive vitamin D supplementation? Unfortunately, there are no simple answers to these questions, but the scientific literature of the last 15 years offers some suggestions about how to conceptualize peri operative vitamin D deficiency. We conducted a narrative review of English-language papers indexed in PubMed from 1999 to 2014 to explore the role of vitamin D in surgical outcomes.

一項評估產前心理學測驗對產後疼痛、硬膜外鎮痛藥的消耗量以及母體滿意度的預測能力的前瞻性觀察性研究

A prospective observational study evaluating the ability of prelabor psychological tests to predict labor pain, epidural analgesic consumption, and maternal satisfaction.

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背景：心理學狀態可能影響疼痛的闡釋和表達。本研究中，我們試圖探討有效的心理學測驗對產後疼痛經歷是否具有預測作用。

方法：本前瞻性、觀察性研究的研究物件爲 39 名行引產術或成功經陰道分娩的辛格爾頓足月產婦或過月產婦。在產前進行四種有效的心理學問卷（焦慮敏感指數量表[ASI]、懼痛量表[FPQIII]、疼痛災難性感覺量表[PCS]以及簡式艾森克人格問卷）和對焦慮、自信和鎮痛期望的分級調查。主要觀察指標有開始需要進行硬膜外鎮痛的時間長短、需要進行硬膜外鎮痛時的疼痛程度、疼痛-時間曲線下面積、每小時硬膜外局麻藥用量以及對產後鎮痛的滿意程度。心理學預測與臨床反應之間的關係用雙變數相關與回歸模型描述。

結果：臨床上產後疼痛的曲線下面積（R = 0.45, P = 0.006）、硬膜外局麻藥的應用(R = 0.45, P = 0.019)以及開始需要進行硬膜外鎮痛的時間長短(R = 0.36, P = 0.015)與心理學預測結果相一致。ASI、PCS、人格特徵（撒謊、外向、精神質）以及對焦慮、自信和鎮痛期望的分級均對結果預計有幫助。在應用多變數線性回歸模型進行篩選以後，懼痛量表[FPQIII]和疼痛災難性感覺量表[PCS]均不適合應用於疼痛曲線下面積的預測，而疼痛災難性感覺量表[PCS]則可以（P=0.022）。ASI 和自我報告的焦慮無明顯相關性（r = 0.03, P = 0.91）。

總結：人格特徵（撒謊、外向、精神質）以及對焦慮、自信和鎮痛期望的分級對產痛、硬膜外局麻藥的應用以及開始需要進行硬膜外鎮痛的時間長短的預計有幫助。儘管 ASI 包含在預計產後疼痛的曲線下面積的最終模型中（懼痛量表[FPQIII]和疼痛災難性感覺量表[PCS]沒有），ASI 在對疼痛的預計方面是否優於懼痛量表[FPQIII]和疼痛災難性感覺量表[PCS]尚需要進一步研究證實。

（郝光偉譯 薛張綱校）

BACKGROUND: Psychological characteristics may affect interpretation and expression of pain. In this study, we sought to determine whether validated psychological tests predict the labor pain experience.

METHODS: Thirty-nine women with singleton term or post-term pregnancies undergoing induction of labor and successful vaginal delivery comprised the study population for this prospective observational study. Four validated psychological questionnaires (Anxiety Sensitivity Index [ASI], Fear of Pain [FPQIII], Pain Catastrophizing Scale [PCS]), and Eysenck Personality Questionnaire-Short Scale) and 3-scaled ratings of anxiety, confidence, and analgesic expectations were completed before onset of labor. Outcome measures included time to epidural analgesia request, pain at request for epidural analgesia, area under the pain × time curve (AUC), epidural local anesthetic use per hour, and maternal satisfaction with analgesia. The relationship between psychological predictors and clinical responses was assessed using bivariate correlations and regression modeling.

RESULTS: Labor pain AUC (R = 0.45, P = 0.006), epidural local anesthetic use (R = 0.45, P = 0.019), and time to epidural analgesia request (R = 0.36, P = 0.015) were predicted with models incorporating some of the prelabor predictors. ASI, PCS, personality traits (lying, extroversion, psychoticism), and scaled ratings of anxiety, confidence, and analgesic expectations all contributed to the regression models of the outcomes. After proper model selection, neither FPQIII nor PCS was in the final multivariate linear regression model for labor pain AUC, although ASI was still included (P = 0.022). There was no significant correlation between ASI and self-reported anxiety (r = 0.03, P = 0.91).

CONCLUSIONS: Personality traits (psychoticism, extroversion, and lying), as well as scaled ratings of anxiety, confidence, and analgesia expectations, show some potential to predict labor pain, epidural local anesthetic use, and time to epidural analgesia request. Although ASI was included in the final model for labor pain AUC, and FPQ and PCS were not, further study is required to determine whether ASI is a better predictor than FPQ or PCS.

關於兒童期麻醉對神經系統發育影響的評估——文獻回顧及推薦意見

Neurodevelopmental Assessment After Anesthesia in Childhood: Review of the Literature and Recommendations

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前臨床研究已經表明麻醉對新生動物的大腦是有毒性作用的，但是卻鮮有實驗研究麻醉暴露對神經系統發育的影響。本文主要對一些特定時期的兒童（出生到四歲左右）麻醉暴露後的預後評估方面進行了討論。爲了更好的瞭解現存文獻關於神經發育影響的貢獻及局限性，我們對最近的研究進行了回顧分析。我們採用了以研究爲基礎的系統回顧，這是一種在佇列研究中經常用來評估認知水準的方法。對這些文獻的價值及局限性我們進行了回顧，並且對未來這方面的實驗研究是否應該更多地針對於中樞神經系統狀況進行了討論。對神經心理學評估我們進行了描述，並且可以爲今後的評估兒童期麻醉暴露的早期及遠期影響方面研究提供一種新的視角，從而可以提高研究的可信度及敏感度。

（王飛譯 薛張綱校）

Preclinical studies have established that anesthesia is toxic to the brain in neonatal animals, but scant research investigates the neurodevelopmental effects of exposure to anesthesia. In this article, we discuss the issue of outcome measurement of children after anesthesia administered between infancy and approximately 4 years of age. Recent studies are reviewed with the goal of understanding the contributions and limitations of the extant literature with respect to neurodevelopmental outcome. A review of school-based information (academic achievement and learning disability characterization), which are most frequently applied to measure cognitive outcome in cohort studies, is provided. The strengths and limitations of this literature is reviewed, followed by a discussion of how future trials investigating neurodevelopmental outcome after anesthesia might be improved by procedures designed specifically to assess the status of the central nervous system. Neuropsychological assessment is described and proposed as a way to increase the validity and sensitivity of forthcoming studies that intend to evaluate the short- and long-term effects of exposure to anesthesia during infancy and early childhood.

劇烈的阻抗練習通過啓動大鼠內源性大麻素系統產生鎮痛作用

Acute Resistance Exercise Induces Antinociception by Activation of the Endocannabinoid System in Rats

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背景：阻抗練習（RE）也被稱爲力量訓練，可以用來提高肌肉的力量和品質，骨骼強度以及代謝。RE 也越來越多的用於減輕疼痛。然而，其鎮痛作用機制尚待研究。本試驗旨在探究內源性大麻素系統在 RE 鎮痛機制中的作用。

方法：雄性 Wistar 大鼠通過舉重模型來類比劇烈的阻抗練習。訓練前後的疼痛

閾值則通過一項機械傷害性測試（爪壓力）測得。爲探究大麻素受體和內源性大麻素在 RE 鎮痛中的作用，在進行 RE 前分別注射大麻素受體反興奮劑，內源性大麻素代謝酶抑制劑以及大麻素再攝取抑制劑。RE 過後，通過 WB 和免疫螢光法檢測大鼠腦組織 CB1 受體的表達，同位素 dilution-liquid 色譜質譜分析檢測血漿大麻素受體的表達水準。

結果：RE 的鎮痛作用被預先注射的 CB1 和 CB2 大麻素受體反興奮劑抑制。相反，預先注射大麻素受體代謝酶抑制劑和大麻素受體再攝取抑制劑則增強此鎮痛作用。同時，RE 可提高大鼠腦組織以及中腦背側和腹外側導水管周圍的 CB1 大麻素受體的表達及活性，增加血漿內源性大麻素的表達。

結論：本研究表明 RE 可通過啓動內源性大麻素系統來產生鎮痛作用。

（潘豔譯 薛張綱校）

BACKGROUND: Resistance exercise (RE) is also known as strength training, and it is performed to increase the strength and mass of muscles, bone strength, and metabolism. RE has been increasingly prescribed for pain relief. However, the endogenous mechanisms underlying this antinociceptive effect are still largely unexplored. Thus, we investigated the involvement of the endocannabinoid system in RE-induced antinociception.

METHODS: Male Wistar rats were submitted to acute RE in a weight-lifting model. The nociceptive threshold was measured by a mechanical nociceptive test (paw pressure) before and after exercise. To investigate the involvement of cannabinoid receptors and endocannabinoids in RE-induced antinociception, cannabinoid receptor inverse agonists, endocannabinoid metabolizing enzyme inhibitors, and an anandamide reuptake inhibitor were injected before RE. After RE, CB1 cannabinoid receptors were quantified in rat brain tissue by Western blot and immunofluorescence. In addition, endocannabinoid plasma levels were measured by isotope dilution-liquid chromatography mass spectrometry.

RESULTS: RE-induced antinociception was prevented by preinjection with CB1 and CB2 cannabinoid receptor inverse agonists. By contrast, preadministration of metabolizing enzyme inhibitors and the anandamide reuptake inhibitor prolonged and enhanced this effect. RE also produced an increase in the expression and activation of CB1 cannabinoid receptors in rat brain tissue and in the dorsolateral and ventrolateral periaqueductal regions and an increase in endocannabinoid plasma levels.

CONCLUSIONS: The present study suggests that a single session of RE activates the endocannabinoid system to induce antinociception.

一項關於心臟外科手術患者的零熱通量皮膚溫度計的研究

An Evaluation of a Zero-Heat-Flux Cutaneous Thermometer in Cardiac Surgical Patients

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背景：儘管人體的中心溫度可以被測量，但是目前沒有廣泛、可靠、用於體表的溫度計可用，因此我們在測量肺動脈導管的溫度時把標準的零熱通量的溫度計和即時測溫的溫度計進行了比較。特別的，我們假設零熱通量的溫度計可足夠準確的用於常規臨床患者。

方法：在 105 個非急診的心臟手術患者身上，我們用標準的零熱通量深部組織溫度計和熱敏電阻分別測肺動脈導管的溫度。零熱通量的溫度探頭放置於前額的兩

側和頸部的兩側，放置於前額的表皮溫度探頭和零熱通量的溫度探頭緊臨。溫度間隔 1 分鐘測量一次，但是不包括心肺旁路的時間和術後 4 小時以內的時間。然後將零熱通量溫度計的測量值和肺動脈的溫度進行偏差分析，若偏差超過 0.5℃則認爲有潛在的臨床意義。

結果：在手術室的平均持續時間在 279 ± 75 分鐘，平均橫跨鉗閉時間在 118 ± 50 分鐘。所有病人都在重症監護病房觀察了另外 4 小時。總的來說，放置於前額的零熱通量溫度計測的溫度和肺動脈導管溫度的平均偏差（即：前額溫度減去肺動脈導管溫度）在−0.23℃（95%的可信區間在±0.82）；78%的偏差≤0.5°C。平均的術中溫度偏差爲−0.08℃（95%的可信區間在 ±0.88）；84% 的偏差≤0.5°C。平均的術後溫度偏差爲−0.32℃ (95%的可信區間在 ±0.75); 84% 的偏差 ≤0.5°C。頸部的測量偏差和精確值與前額的數值相似。未校正的前額皮膚溫度體現了隨著中心溫度的降低而不斷增加的消極偏差。

結論：中心溫度可以通過零熱通量溫度計的方法測量，偏差很小，但是準確度和肺動脈導管的溫度相比，稍微低了特定的 0.5℃ 的可信度。

（李蔚文 譯，李士通 審校）

BACKGROUND: Although core temperature can be measured invasively, there are currently no widely available, reliable, noninvasive thermometers for its measurement. We thus compared a prototype zero-heat-flux thermometer with simultaneous measurements from a pulmonary artery catheter. Specifically, we tested the hypothesis that zero-heat-flux temperatures are sufficiently accurate for routine clinical use.

METHODS: Core temperature was measured from the thermistor of a standard pulmonary artery catheter and with a prototype zero-heat-flux deep-tissue thermometer in 105 patients having nonemergent cardiac surgery. Zero-heat-flux probes were positioned on the lateral forehead and lateral neck. Skin surface temperature probes were attached to the forehead just adjacent to the zero-heat-flux probe. Temperatures were recorded at 1-minute intervals, excluding the period of cardiopulmonary bypass, and for the first 4 postoperative hours. Zero-heat-flux and pulmonary artery temperatures were compared with bias analysis; differences exceeding 0.5°C were considered to be potentially clinically important.

RESULTS: The mean duration in the operating room was 279 ± 75 minutes, and the mean cross-clamp time was 118 ± 50 minutes. All subjects were monitored for an additional 4 hours in the intensive care unit. The average overall difference between forehead zero-heat-flux and pulmonary artery temperatures (i.e., forehead minus pulmonary artery) was −0.23°C (95% limits of agreement of ±0.82); 78% of the differences were ≤0.5°C. The average intraoperative temperature difference was −0.08°C (95% limits of agreement of ±0.88); 84% of the differences were ≤0.5°C. The average postoperative difference was −0.32°C (95% limits of agreement of ±0.75); 84% of the differences were ≤0.5°C. Bias and precision values for neck site were similar to the forehead values. Uncorrected forehead skin temperature showed an increasing negative bias as core temperature decreased.

CONCLUSIONS: Core temperature can be noninvasively measured using the zero-heat-flux method. Bias was small, but precision was slightly worse than our designated 0.5°C limits compared with measurements from a pulmonary artery catheter.

羥乙基澱粉分子的大小和起源不會影響其對體外的近端小管細胞的有害副作用

Molecular Size and Origin Do Not Influence the Harmful Side Effects of Hydroxyethyl Starch on Human Proximal Tubule Cells (HK-2) In Vitro

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背景：最近，臨床試驗表明羥乙基澱粉(HES)用於膿毒性患者會引起腎臟的損傷。在先前的研究中，我們證明了羥乙基澱粉會在腎臟的近端小管細胞中沉積。但是相關的病理機制卻沒有被發現。爲了驗證羥乙基澱粉的分子本身是有害的，而不在於他的分子量大小和起源這一假設，我們進行了一項綜合的研究來說明不同的羥乙基澱粉實驗組對體外的腎近端小管細胞生存能力的影響。

方法：人類的腎近端小管細胞的生存能力通過細胞毒性試驗來測量，將四唑鹽到甲月替染色的減少進行了量化。試驗通過評估羥乙基澱粉的不同的載體（平衡液，非平衡液和培養基），不同的平均分子量（70,130,200kDa），不同的來源（分別來源於土豆和玉米），以及不同時間的培養（2-21 小時）的影響。而且，130/0.4 的羥乙基澱粉可以通過超濾作用被分解，我們發現他對於平均單一尺寸細胞的生存能力的影響分別爲<3.3- 10, 10 - 30, 30- 50, 50-100, 和 >100 kDa。另外我們對於腫瘤壞死因數 α 引起炎症這一協同作用進行了研究。

結果：羥乙基澱粉的所有試驗方法，通過等量和劑量依賴性的方式，都降低了細胞的生存能力，不管來源和載體基質是否相同。腫瘤壞死因數 α 不會減少羥乙基澱粉引起的細胞生存能力的降低。70,130,200kDa 實驗組相比較也只有很小的差異。通過對不同分級的羥乙基澱粉進行研究，我們發現每一部分都會降低細胞的生存能力。即使羥乙基澱粉的分子量很小（10-30kDa）都會造成嚴重的損害。

結論：我們第一次能夠證明僅僅是提供的全部羥乙基澱粉的分子都會對體外的腎近端小管細胞造成嚴重的損害，這一損害和羥乙基澱粉的分子量以及來源都沒有關係。

（李蔚文 譯，李士通 審校）

BACKGROUND: Recently, clinical trials revealed renal impairment induced by hydroxyethyl starch (HES) in septic patients. In prior studies, we managed to demonstrate that HES accumulated in renal proximal tubule cells (PTCs). The related pathomechanism has not yet been discovered. To validate our hypothesis that the HES molecule itself is harmful, regardless of its molecule size or origin, we conducted a comprehensive study to elucidate the influences of different HES preparations on PTC viability in vitro.

METHODS: Cell viability of human PTC was measured with a cytotoxicity assay, quantifying the reduction of tetrazolium salt to colored formazan. Experiments were performed by assessing the influence of different carrier solutions of HES (balanced, nonbalanced, culture medium), different average molecular weights (70, 130, 200 kDa), different origins (potato or corn derived), and various durations of incubation (2–21 hours). Furthermore, HES 130/0.4 was fractionated by ultrafiltration, and the impact on cell viability of average single-size fractions with <3, 3 to 10, 10 to 30, 30 to 50, 50 to 100, and >100 kDa was investigated. We also tested the possible synergistic effects of inflammation induced by tumor necrosis factor-α.

RESULTS: All tested HES solutions, regardless of origin or carrier matrix, decreased cell viability in an equivalent, dose-dependent manner. Coincubation with tumor necrosis factor-α did not reduce HES-induced reduction of cell viability. Minor differences were detected comparing 70, 130, and 200 kDa preparations. Analysis of fractionated HES revealed that each fraction decreased cell viability. Even small HES molecules (10–30 kDa) were significantly deleterious.

CONCLUSIONS: For the first time, we were able to show that only the total mass of HES molecules applied is responsible for the harmful impact on renal PTC in vitro. Neither molecular size nor their origin showed any relevance.

對用於檢測術中血紅蛋白流失的新系統的體外評估

In Vitro Evaluation of a Novel System for Monitoring Surgical Hemoglobin Loss

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背景：精確測量術中出血量是麻醉後液體復蘇的一個重要的臨床變數，同時可以減少臨床中不必要的血製品輸入。在這項研究中，我們運用了一種特殊的仿造臉部識別系統的計算技術，通過平板電腦來統計患者術中的失血量。該研究目的在於評估該系統在統計體外手術巾留存血量方面的性能及準確性。

方法：預先測定好血紅蛋白含量及體積的全血樣本被重組成人類紅細胞懸液及血漿，同時傾倒於手術鋪巾上。加入常規生理鹽水以在不同程度稀釋血液，同時進行沖洗。在手術室內，通過使用 Triton 系統結合特徵提取技術，在 3 種不同背景光的環境下，對來自四大製造廠商的手術鋪巾進行掃描測定。血紅蛋白損失量的統計測量結果的準確性，與線性回歸分析技術及 Bland-Altman 系統分析技術密切相關。通過非參數檢驗對於已知變數與測量偏倚有無相關性進行判定。
結果：在測量血紅蛋白損失量的過程中產生的平均百分誤差爲 12.3%（信任區間爲 95%）。在大範圍的不同程度的術中照明條件下，預測量好的血紅蛋白含量與實際血紅蛋白聚集量呈明顯的線性相關。不同程度的術中照明條件包括術中環境光線充足、光線中等、光線較弱等三種。Bland-Altman 分析結果表明：在上述 2 種測定方式中存在 0.01g 的偏差。經測定，每塊手術鋪巾上的血紅蛋白含量高低的一致性界線爲 1.16g 到 1.19g。使用新系統來檢測估計的失血量及血紅蛋白聚集量中的測量偏倚與使用的用於稀釋血液的生理鹽水的體積不相關。同時表明對於在較大範圍內有不同飽和係數的手術鋪巾，該系統的使用依然可靠。
結論：通過使用 Triton 系統來進行動態失血量監控，在評估血紅蛋白體外（手術鋪巾）聚集量方面得到的結果是很精確的，同時適用於不同程度的外界光線條件、不同飽和度的手術鋪巾、鹽分稀釋、以及最初失血量的多少。該項技術的使用可以極大程度的提高估算術中失血量的準確性。

（田園 譯，李士通 審校）

BACKGROUND: Accurate measurement of intraoperative blood loss is an important clinical variable in managing fluid resuscitation and avoiding unnecessary transfusion of blood products. In this study, we measured surgical blood loss using a tablet computer programmed with a unique algorithm modeled after facial recognition technology. The aim of the study was to assess the accuracy and performance of the system on surgical laparotomy sponges in vitro.

METHODS: Whole blood samples of premeasured hemoglobin (Hb) and volume were reconstituted from units of human packed red blood cells and plasma and distributed across surgical laparotomy sponges. Normal saline was added to simulate the presence of varying levels of hemodilution and/or irrigation use. Soaked sponges from 4 different manufacturers were scanned using the Triton System with Feature Extraction Technology (Gauss Surgical, Inc., Palo Alto, CA) under 3 different ambient light conditions in an operating room. Accuracy of Hb loss measurement was evaluated relative to the premeasured values using linear regression and Bland-Altman analysis. Correlations between studied variables and measurement bias were analyzed using nonparametric tests.

RESULTS: The overall mean percent error for measure of Hb loss for the Triton System was 12.3% (95% confidence interval [CI], 8.2%-16.4%). A strong positive linear correlation between the premeasured and actual Hb masses was noted across the full range of intraoperative lighting conditions, including (A) high (r = 0.95 [95% CI, 0.93-0.96]), (B) medium (r = 0.94 [95% CI, 0.93-0.96]), and (C) low (r = 0.90 [95% CI, 0.87-0.93]) mean ambient light intensity. Bland-Altman analysis revealed a bias of 0.01 g [95% CI, -0.03 to 0.06 g] of Hb per sponge between the 2 measures. The corresponding lower and upper limits of agreement were -1.16 g (95% CI, -1.21 to -1.12 g) per sponge and 1.19 g (95% CI, 1.15-1.24 g) per sponge, respectively. Measurement bias of estimated blood loss and Hb mass using the new system were not associated with the volume of saline used to reconstitute the samples (P = 0.506

and P = 0.469, respectively), suggesting that the system is robust under a wide range of sponge saturation conditions.

CONCLUSIONS: Mobile blood loss monitoring using the Triton system is accurate in assessing Hb mass on surgical sponges across a range of ambient light conditions, sponge saturation, saline contamination, and initial blood Hb. Utilization of this tool could significantly improve the accuracy of blood loss estimates.

肥胖患者對麻醉中呼氣末正壓通氣引起的頸內靜脈擴張耐受性差

Positive End-Expiratory Pressure to Increase Internal Jugular Vein Size Is Poorly Tolerated in Obese Anesthetized Adults

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背景：對肥胖患者的中心靜脈插管已經發生了技術上的改變。我們假設：肥胖患者麻醉過程中的呼氣末正壓通氣會顯著擴張頸內靜脈。

方法：以肥胖患者爲研究物件，在全麻過程中，分別測量患者在 PEEP 值爲 0、5、10cm 水柱的條件下頸內靜脈圓周及橫截面積。記錄結果進行統計學分析。
結果：年齡在 18-24 歲的肥胖患者，對於 PEEP 值在 10 釐米水柱下引起的頸靜脈擴張具有一定的耐受性。PEEP 值每增加 5 釐米水柱，頸內靜脈橫截面積增加 0.16±0.02cm^2(P<0.0001)，同時頸內靜脈的圓周長度增加 0.23±0.03cm(P<0.0001)。
結論：對於肥胖患者，呼氣末正壓通氣可以小幅引起患者頸內靜脈擴張，但由於由此引發的低血壓致使患者難以耐受。

（田園 譯，李士通 審校）

BACKGROUND: Central venous cannulation is technically challenging in obese patients. We hypothesized that positive end-expiratory pressure (PEEP) increases the size of the internal jugular vein (IJV) in obese adults.

METHODS: The circumference and cross-sectional area of the IJV were measured in obese patients under general anesthesia at PEEP 0, 5, and 10 cm H_2O. Results are reported as means ± SE.

RESULTS: PEEP at 10 cm H_2O was tolerated by 18 of 24 obese patients. Each 5 cm H_2O of PEEP increased the cross-sectional area by 0.16 ± 0.02 cm (P < 0.0001) and the circumference by 0.23 ± 0.03 cm (P < 0.0001).

CONCLUSIONS: PEEP modestly increases the size of the IJV in obese adults but was poorly tolerated because of hypotension.

耶魯術前焦慮量表修改版的簡化改進

Development of a Short Version of the Modified Yale Preoperative Anxiety Scale

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背景：修改後的耶魯術前焦慮量表(mYPAS)是當前評估兒童麻醉誘導期間的產生焦慮的“評准標準”，且(mYPAS)至少被應用大於 100 研究中。這個觀測手段涵蓋 5 項內容,通常應用在 4 個圍手術期時間點。然而，這種複雜手段在繁忙的手術室設置管理的應用帶來了挑戰。在這項調查中,我們檢查這種手段是否可以修改並且簡化在手術室設置管理的應用。

方法：本研究採用定性方法、主成分分析、克倫巴赫係數,和效量大小創建

mYPAS-ShortForm(mYPAS-SF)和減少評估的時間點。獲得的資料來自多個患者(總數 = 3798;男= 5.63%)，他們是 15 年前在之前的調查中被招募使用 mYPAS。

結果：定性分析後,由於與其他內容重疊"父母使用"的這項內容被消除。在孩子產生焦慮差異方面，這項減少內容占 82%或更多，並且克倫巴赫係數至少在 0.92。爲減少評估的時間點數量, mYPAS 在時間點方面的評分，產生 Cohen D 效應量標準 0.48 的改變被應用。這導致手術室通道和手術室入口兩項時間點的消除。

結論：減少 mYPAS 到 4 項內容, 創建 mYPAS-SF 可以應用在 2 個時間點,這保留了測量的準確性,同時使臨床研究設置管理的手段更容易應用。

（李婷婷 譯，李士通 審校）

BACKGROUND: The modified Yale Preoperative Anxiety Scale (mYPAS) is the current "criterion standard" for assessing child anxiety during induction of anesthesia and has been used in >100 studies. This observational instrument covers 5 items and is typically administered at 4 perioperative time points. Application of this complex instrument in busy operating room (OR) settings, however, presents a challenge. In this investigation, we examined whether the instrument could be modified and made easier to use in OR settings.

METHODS: This study used qualitative methods, principal component analyses, Cronbach αs, and effect sizes to create the mYPAS-Short Form (mYPAS-SF) and reduce time points of assessment. Data were obtained from multiple patients (N = 3798; Mage = 5.63) who were recruited in previous investigations using the mYPAS over the past 15 years.

RESULTS: After qualitative analysis, the "use of parent" item was eliminated due to content overlap with other items. The reduced item set accounted for 82% or more of the variance in child anxiety and produced the Cronbach α of at least 0.92. To reduce the number of time points of assessment, a minimum Cohen d effect size criterion of 0.48 change in mYPAS score across time points was used. This led to eliminating the walk to the OR and entrance to the OR time points.

CONCLUSIONS: Reducing the mYPAS to 4 items, creating the mYPAS-SF that can be administered at 2 time points, retained the accuracy of the measure while allowing the instrument to be more easily used in clinical research settings.

超聲引導下脈衝射頻刺激肩胛上神經治療粘連性關節囊炎：一項前瞻性、隨機、對照試驗

Ultrasound-Guided Pulsed Radiofrequency Stimulation of the Suprascapular Nerve for Adhesive Capsulitis: A Prospective, Randomized, Controlled Trial

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背景: 粘連性關節囊炎（AC）的治療是一個眾所周知的、複雜和漫長的過程。最近的研究表明，在螢光透視或 CT 引導下使用脈衝射頻（PRF）損毀肩胛上神經（SSN），可以減輕肩痛。然後目前並沒有關於在超聲引導（UG）下使用 PRF 損毀 SSN 的研究，僅只有兩例病例報導。在本研究中，我們比較了單純物理治療與在 UG 引導用 PRF 損毀 SSN 與理療聯合治療的效果。

方法：研究共納入六十例 AC 患者。隨機分爲以下 2 組：干預組患者在一療程的 PRF 損毀 SSN 治療後接受了 12 周的理療，對照組患者只接受 12 周理療。所有的結果測量包括爲治療後 1，4，8，12 周的視覺類比評分（VAS）、肩部疼痛和殘疾指數、以及被動運動範圍（PROM）。

結果：42 例患者（每組 21 例）完成了研究。干預組明顯縮短了疼痛顯著緩解的

發作時間（6.1±3.4 vs 28.1±9.2 天；P＜0.001），並且 VAS 評分在第 1 周也比對照組明顯減少（40% vs 4.7%）（P＜0.001）。所測量的干預組中所有變數和對照組大部分變數都顯示相對基線的顯著改善（P＜0.05）。組間比較表明，干預組存在更大的改善，在所有時間點的 VAS 評分、肩部疼痛和殘疾指數評分（P＜0.05），與大多數的 PROM（P＜0.05）都存在增益。兩組都沒有嚴重的不良反應或併發症。

結論：本研究表明，超聲引導在採用 PRF 毀損 SSN 與理療結合應用治療 AC 較之單純理療能夠更好更快的緩解疼痛、減少殘疾，效果至少持續 12 周。

（許紅嬌 譯，李士通 審校）

BACKGROUND: The treatment of adhesive capsulitis (AC) is a well-known,complicated, and long process. Recent studies have shown that pulsed radiofrequency (PRF) lesioning of the suprascapular nerve (SSN) using a fluoroscopy- or computed tomography-guided technique can alleviate shoulder pain.However, there are no studies of PRF lesioning of the SSN in patients with AC using ultrasound-guided (UG) techniques, except for 2 case reports. In this study, we compared the effect of physical therapy alone with physical therapy and PRF lesioning of the SSN using a UG technique.

METHODS: Sixty patients with AC were included in the study. Patients were randomized into the following 2 groups: the intervention group containing patients who received 12 weeks of physical therapy after 1 treatment of PRF lesioning of the SSN, and the control group containing patients who received 12 weeks of physical therapy alone. All outcome measurements including visual analog scale (VAS), shoulder pain and disability index, and passive range of motion (PROM) were performed at 1, 4, 8, and 12 weeks after treatment.

RESULTS: Forty-two patients (21 patients in each group) completed the study. The intervention group had a notably shorter time to onset of significant pain relief (6.1 ± 3.4 vs 28.1 ± 9.2 days; P < 0.001) and noticeable reduction of VAS score at week 1 (40% vs 4.7%) than the control group (P < 0.001). All measured variables in the intervention group and most variables in the control group showed significant improvement from the baseline (P < 0.05). A comparison of the 2 groups indicated significantly greater improvement in the intervention group at all times in VAS and shoulder pain and disability index scores (all P < 0.05), and for most gain of PROM (P < 0.05). There were no serious adverse effects or complications in either group.

CONCLUSIONS: This study indicates that the application of PRF lesioning of the SSN using a UG technique combined with physical therapy provided better and faster relief from pain, reduced disability, and improved PROM when compared with physical therapy alone in patients with AC, n effect that persisted for at least 12 weeks.

椎管內麻醉用於預防術後死亡率和主要發病率的發生：一項採用 Cochrane 系統評價的概述

Neuraxial Anesthesia for the Prevention of Postoperative Mortality and Major Morbidity: An Overview of Cochrane Systematic Reviews

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背景：本文分析總結 CSR 評價椎管內麻醉對圍術期死亡、胸部感染和心肌梗死的發生率的影響。

方法：於 2012 年 7 月 13 日對 Cochrane 系統評價資料庫進行檢索。。我們納入 CSR 資料庫中任何年齡進行任何類型（開放手術或內鏡下）外科手術。將椎管

內麻醉與單獨全身麻醉進行對比；將椎管內聯合全身麻醉與單獨全身麻醉進行對比，總結死亡、胸部感染、心肌梗死、和/或嚴重不良事件的結果。本總數採用相同納入標準納入所選研究。

結果： Cochrane 系統評價資料庫中，9 份概述被納入。其概述品質評估問卷從 4 變化到 6 的，最大評分爲 7 分。從 20 份研究中的 3006 名患者來看，相比全身麻醉，椎管內麻醉減少了 0 到 30 天的死亡率（風險比（RR）0.71，95%置信區間[CI],0.53-0.94；I = 0 %）。椎管內麻醉也降低了肺炎的風險（RR 0.45；95% CI，0.26-0.79；I= 0%）(基於 5 項研究 400 人)。而兩者心肌梗死分勝率無顯著性差異（RR 1.17；95% CI，0.57-2.37；我= 0%）（基於 6 項研究 849 名患者）。與單純全身麻醉相比，椎管內聯合麻醉對其 0 至 30 天死亡率並沒有影響（RR 1.07；95% CI，0.76-1.51；I= 0%）（18 項研究 3228 人）。椎管內聯合全麻與單純全麻的心肌梗死風險無明顯差異（RR 0.69；95% CI，0.44-1.09；我= 0%）（8 項研究 1580 人）。在矯正了發表偏倚後的結果表明，椎管內聯合全麻減少肺炎的發生率（RR 0.69；95% CI，0.49-0.98；I= 9%）（9 項研究 2433 人）。所有 6 個併發症都被評價爲中度的，與椎管內阻滯的相關評分爲 9 分（4 至 12 [中值範圍]），最高得分爲 14。

結論：對於存在中-高度心臟風險的患者，椎管內麻醉相對全麻可能降低 0 至 30 天的死亡率。在此，對比全麻與椎管內麻醉的死亡與其他主要後果，需要大型隨機對照試驗進一步證明。

（許紅嬌 譯，李士通 審校）

BACKGROUND: This analysis summarized Cochrane reviews that assess the effects of neuraxial anesthesia on perioperative rates of death, chest infections, and myocardial infarction.

METHODS: A search was performed in the Cochrane Database of Systematic Reviews on July 13, 2012. We have included all Cochrane systematic reviews that examined subjects of any age undergoing any type of surgical (open or endoscopic) procedure, compared neuraxial anesthesia to general anesthesia alone for the surgical anesthesia, or neuraxial anesthesia plus general anesthesia to general anesthesia alone for the surgical anesthesia, and included death, chest infections, myocardial infarction, and/or serious adverse events as outcomes. Studies included in these reviews were selected on the same criteria.

RESULTS: Nine Cochrane reviews were selected for this overview. Their scores on the Overview Quality Assessment Questionnaire varied from 4 to 6 of a maximal possible score of 7. Compared with general anesthesia, neuraxial anesthesia reduced the 0- to-30-day mortality (risk ratio [RR] 0.71; 95% confidence interval [CI], 0.53-0.94; I = 0%) based on 20 studies that included 3006 participants. Neuraxial anesthesia also decreased the risk of pneumonia (RR 0.45; 95% CI, 0.26-0.79; I = 0%) based on 5 studies that included 400 participants. No difference was detected in the risk of myocardial infarction between the 2 techniques (RR 1.17; 95% CI, 0.57-2.37; I = 0%) based on 6 studies with 849 participants. Compared with general anesthesia alone, adding neuraxial anesthesia to general anesthesia did not affect the 0- to-30-day mortality (RR 1.07; 95% CI, 0.76-1.51; I = 0%) based on 18 studies with 3228 participants. No difference was detected in the risk of myocardial infarction between combined neuraxial anesthesia-general anesthesia and general anesthesia alone (RR 0.69; 95% CI, 0.44-1.09; I = 0%) based on 8 studies that included 1580 participants. Adding a neuraxial anesthesia to general anesthesia reduced the risk of pneumonia (RR 0.69; 95% CI, 0.49-0.98; I = 9%) after adjustment for publication bias and based on 9 studies that included 2433 participants. The quality of the evidence was judged as moderate for all 6 comparisons. The quality of the reporting score of complications related to neuraxial blocks was 9 (4 to 12 [median {range}]) for a possible maximum score of 14.

CONCLUSIONS: Compared with general anesthesia, neuraxial anesthesia may reduce the 0-to-30-day mortality for patients undergoing a surgery with an intermediate-to-high cardiac risk (level of evidence moderate). Large randomized

controlled trials on the difference in death and major outcomes between regional and general anesthesia are required.