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THE LANCET JAMA The Journal of the American Medical Association

Journal Report

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厚德 精业 求实 创新

Contents

- Literature Browse/文献浏览
- Extensive Reading/文献荟萃
- Intensive Reading/文献精读

Part 1
Literature Browse

JAMA The Journal of the American Medical Association

Prevalence of Cerebral Amyloid Pathology in Persons Without Dementia: A Meta-analysis

Willemijn J. Jansen, MSc, et al. JAMA. 2015;313(19):1924-1938.

结论

对于没有患老年痴呆症的人，通过正电子成像术和脑脊液检查来筛查脑淀粉样病变，研究发现其发病率与年龄、APOE基因型和认知功能障碍相关。研究发现首次出现脑淀粉样变与老年痴呆症的发病间隔20-30年。

Traumatic spinal cord injury in the United States, 1993-2012.

Jain NB, Ayers GD, et al. JAMA. 2015 Jun 9;313(22):2236-43

结论

1993年到2012年，美国急性外伤性脊髓损伤的发病率保持相对稳定。在老年患者中的发病率明显增加最多，与老年人跌倒增加相关，且其住院死亡率仍然很高，尤其是老年人。

JAMA The Journal of the American Medical Association

Subclinical thyroid dysfunction and fracture risk: a meta-analysis

Blum MR, Bauer DC, et al. JAMA. 2015 may 26;313(20):2055-65

结论

亚临床甲状腺功能亢进症和髋关节及其他部位骨折的风险增加相关，尤其是在那些TSH水平低于0.10 mIU/L与内源性亚临床甲亢。需要进一步的研究来确定是否治疗亚临床甲状腺功能亢进症可以预防骨折。

Stroke prevention in atrial fibrillation: a systematic review

Lip GY, Lane DA, et al. JAMA. 2015 may 19;313(19):1950-62

结论

预防中风主要是控制房颤，无论是通过控制心率还是节律的策略。预防的重点是识别低危患者，有1个或多个卒中风险的患者均应予以口服抗凝药。

JAMA The Journal of the American Medical Association

Oral steroids for acute radiculopathy due to a herniated lumbar disk: a randomized clinical trial

Goldberg H, Firtch W, et al. JAMA. 2015 May 19;313(19):1915-23

结论

对于腰椎间盘突出引起急性神经根型颈椎病的患者，短期使用口服类固醇激素，与安慰剂相比，可适度的改善神经功能，但不能缓解疼痛。

THE LANCET

Risk of serious infection in biological treatment of patients with rheumatoid arthritis: a systematic review and meta-analysis

Singh JA, et al. Lancet. 2015 May 11. pii: S0140-6736(14)61704-9.

结论

标准剂量或高剂量的生物治疗药物（+/-传统改善症状药物）与传统改善症状症状药物比较，可增加风湿性关节炎患者的感染风险，低剂量的生物治疗药物不会导致上诉情况。临床医生在使用生物药物治疗风湿性关节炎之前，应该充分权衡其利与弊。

Comparative efficacy and safety of blood pressure-lowering agents in adults with diabetes and kidney disease: a network meta-analysis

Palmer SC, Mavridis D, et al. Lancet. 2015 may 23;385(9982):2047-56.

结论

ACEI或ARB，单独或联用，是对终末期肾病的最有效地治疗策略。当联合使用ACEI和ARB时，应权衡引起高钾血症与急性肾功能衰竭的风险。

THE LANCET

Long-term effects of lithium on renal, thyroid, and parathyroid function: a retrospective analysis of laboratory data

Shine B, McKnight RF, et al. Lancet. 2015 may 20. pii: S0140-6736(14)61842-0

结论

锂治疗与肾功能下降，甲状腺功能减退症和高钙血症相关。年龄低于60岁的女性是高风险人群，由于锂是躁狂症的首选治疗方法，患者在使用该药物时应该检查肾、甲状腺与钾状旁腺功能，并规范的长期检测。

50 year trends in atrial fibrillation prevalence, incidence, risk factors, and mortality in the Framingham Heart Study: a cohort study

Schnabel RB, Yin X, et al. Lancet. 2015 May 7. pii: S0140-6736(14)61774-8.

结论

房颤发病率的升高与其在社区的流行趋势可能与监测加强相关。应该提高对该疾病的认识，特异性的预防其危险因素，并采用针对性的筛选方法，以便控制房颤的发病率。

THE LANCET

Whole-genome sequencing for identification of Mendelian disorders in critically ill infants: a retrospective analysis of diagnostic and clinical findings

Willig LK, et al. Lancet Respir Med. 2015 May;3(5):377-87.

结论

Mendelian disorders(孟德尔遗传病)

在选定的重症婴儿中，STATSEQ（一种基因筛查方法）在遗传性疾病中有较高的诊断率。遗传性疾病的诊断改变了新生儿在NICU或PICU的管理策略。遗传性疾病非常高的死亡率表明需要快速的基因诊断方法及精确的药物治疗方案，以便改善患儿预后结果。

Mobile-phone dispatch of laypersons for CPR in out-of-hospital cardiac arrest

Ringh M, Rosengvist M, et al. N Engl J Med. 2015 Jun 11;372(24):2316-25.

结论

移动电话定位系统调遣接受过CPR训练的自愿者可以 提高路人对院外心脏骤停患者的施救率。

Early cardiopulmonary resuscitation in out-of-hospital cardiac arrest

Hasselgvist-Ax I, Riva G, et al. N Engl J Med. 2015 Jun 11; 372(24):2307-15.

结论

对比EMS到来之前与EMS来之后对院外心脏骤停患者进行心肺复苏，前者的30天存活率是后者的两倍。

Effect of Sitagliptin on Cardiovascular Outcomes in Type 2 Diabetes.

Green JB, Bethel MA, et al. N Engl J Med.2015 Jun 8

结论

2型糖尿病合并心血管疾病的患者，使用西他列汀治疗没有增加心血管不良反应、住院治疗期间的心功能衰竭、及其他不良事件的风险。

Follow-up of glycemic control and cardiovascular outcomes in type 2 diabetes

Hayward RA, Reaven PD, et al. N Engl J Med. 2015 Jun 4;372(23):2197-206.

结论

经过10年的随访，2型糖尿病患者接受强化血糖治疗组较常规治疗组有更低的心血管事件发生率，但两组的总体生存率没有差异。

Ezetimibe Added to Statin Therapy after Acute Coronary Syndromes

Cannon CP, Blazing MA, et al. N Engl J Med. 2015 Jun 3. [Epub ahead of print]

结论

Ezetimibe(依泽替米贝，降血脂药)

当依泽替米贝联合他汀类药物治疗时，可以降低低密度脂蛋白胆固醇水平，提高心血管疾病的预后。

Trends in mental health care among children and adolescents

Olfson M, et al. N Engl J Med. 2015 May 21;372(21):2029-38.

结论

1996年至2012年，美国青少年的心理卫生疾病治疗及精神药物的使用增加。其中，轻度心理卫生疾病及中度心理卫生疾病占主要成分，但重度心理卫生疾病的增长率最高。

Randomized trial of TAS-102 for refractory metastatic colorectal cancer

Mayer RJ, et al. N Engl J Med. 2015 May 14;372(20):1909-19.

结论

TAS-102(一款结合三氟胸苷和盐酸替吡嘧啶的口服剂)

在难治性结直肠癌中，TAS-102对比安慰剂，可以显著改善患者的整体存活率。

Part 2
Extensive Reading

JAMA The Journal of the American Medical Association

Administration of Spores of Nontoxigenic *Clostridium difficile* Strain M3 for Prevention of Recurrent *C difficile* Infection: A Randomized Clinical Trial

Dale N. Gerding, MD, et al. JAMA. 2015;313(17):1719-1727.

Background

Clostridium difficile(艰难梭状芽孢杆菌) is the most common cause of health care-associated infection in US hospitals. Recurrence occurs in 25% to 30% of patients.

Objective

To determine the safety, fecal colonization, recurrence rate, and optimal dosing schedule of nontoxigenic C. difficile strain M3(VP20621; NTCD-M3) for prevention of recurrent C. difficile infection (CDI).

Design

Randomized, double-blind, placebo-controlled, dose-ranging study conducted from June 2011 to June 2013.

Setting

At 44 study centers in the United States, Canada, and Europe.

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Dale N. Gerding, MD, et al. JAMA. 2015;313(17):1719-1727.

Participant

173 patients aged 18 years or older who were diagnosed as having CDI (first episode or first recurrence) and had successfully completed treatment with metronidazole(甲硝唑), oral vancomycin, or both.

Intervention

Group A: oral liquid formulation of NTCD-M3, 4/10 spores/d for 7 days (n = 43)
Group B: oral liquid formulation of NTCD-M3, 7/10 spores/d for 7 days (n = 44)
Group C: oral liquid formulation of NTCD-M3, 7/10 spores/d for 14 days (n = 42)
Group D: placebo for 14 days (n = 44).

Outcome

The primary outcome was safety and tolerability of NTCD-M3 within 7 days of treatment.
The secondary outcomes included fecal colonization with NTCD-M3 from end of study drug through week 6 and CDI recurrence from day 1 through week 6.

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Results

Adverse events (diarrhea and abdominal pain) were reported in 46% and 17% of patients receiving NTCD-M3 and 60% and 33% of placebo patients, respectively.

Fecal colonization occurred in 69% of NTCD-M3 patients: 71% with 10(7) spores/d (group B+C)and 63% with 10(4) spores/d(Group A).

Recurrence of CDI occurred in 13 (30%) of 43 placebo patients(Group D) and 14 (11%) of 125 NTCD-M3 patients(Group A+B+C) (odds ratio [OR], 0.28; 95% CI, 0.11-0.69; P=0.006).

Recurrence occurred in 2 (2%) of 86 patients who were colonized vs 12 (31%) of 39 patients who received NTCD-M3 and were not colonized (OR, 0.01; 95% CI, 0.00-0.05; P<.001).

Table 4. CDI Recurrence Within 6 Weeks as Defined by Diarrhea Criteria and by Investigator Decision to Re-treat for Recurrent CDI

Events in Intention-to-Treat Safety Population	Placebo (n = 43)	NTCD-M3 Dosage 10^4 Spores/d for 7 d (n = 41)	10^7 Spores/d for 7 d (n = 43)	10^7 Spores/d for 14 d (n = 41)	All (n = 125)
CDI recurrence, No. (%)	13 (30)	6 (15)	2 (5)	6 (15)	14 (11)
Unadjusted comparison with placebo, *P* value[a]		.09	.002	.09	.003
Adjusted comparison with placebo[b]					
Odds ratio (95% CI)		0.4 (0.1-1.2)	0.1 (0.0-0.6)	0.4 (0.1-1.2)	0.28 (0.11-0.69)
P value		.11	.01	.10	.006
Use of antibacterial treatment for CDI, No. (%)	14 (33)	6 (15)	4 (9)	7 (17)	17 (14)
Unadjusted comparison with placebo, *P* value[a]		.05	.008	.10	.006
Adjusted comparison with placebo[b]					
Odds ratio (95% CI)		0.3 (0.1-1.1)	0.2 (0.1-0.8)	0.4 (0.1-1.3)	0.32 (0.14-0.75)
P value		.07	.02	.14	.009
CDI recurrence based on NTCD colonization, No./total (%)[c]					
Colonized with NTCD	0/4 (0)	1/26 (4)	1/31 (3)	0/29 (0)	2/86 (2)[d]
Not colonized with NTCD	13/39 (33)	5/15 (33)	1/12 (8)	6/12 (50)	12/39 (31)[d]
CDI recurrence based on presence of toxin-positive *C difficile* on day 1, No./total (%)					
Day 1 toxin-positive *C difficile*	1/6 (17)	3/12 (25)	2/9 (22)	3/9 (33)	8/30 (27)
No day 1 toxin-positive *C difficile*	12/37 (32)	3/29 (10)	0/34 (0)	3/32 (9)	6/95 (6)

Placebo(13/43) vs. NTCD-M3(14/125)
P=0.006

NTCD-M3 colonized (2/86) vs.
NTCD-M3 not colonized (12/39)
P<0.001

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Dale N. Gerding, MD, et al. JAMA. 2015;313(17):1719-1727.

Conclusion

Among patients with CDI who clinically recovered following treatment with metronidazole or vancomycin, oral administration of spores of NTCD-M3 was well tolerated and appeared to be safe.

Nontoxigenic C. difficile strain M3 colonized the gastrointestinal tract and significantly reduced CDI recurrence.

JAMA The Journal of the American Medical Association

Effect of a Soy Isoflavone Supplement on Lung Function and Clinical Outcomes in Patients With Poorly Controlled Asthma: A Randomized Clinical Trial

Lewis J. Smith, MD, et al. JAMA. 2015;313(20):2033-2043.

Background

Soy isoflavone supplements(大豆异黄酮) are used to treat several chronic diseases, some data suggest that supplementation with soy isoflavone may be an effective treatment for patients with poor asthma control.

Objective

To determine whether a soy isoflavone supplement improves asthma control in adolescent and adult patients with poorly controlled disease.

Design

Randomized, double-blind, placebo-controlled trial between May 2010 and August 2012.

Setting

19 adult and pediatric pulmonary and allergy centers in the American Lung Association Asthma Clinical Research Centers network.

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Lewis J. Smith, MD, et al. JAMA. 2015;313(20):2033-2043.

Participant

386 adults and children aged 12 years or older with symptomatic asthma enrolled ,and 345 (89%) completed spirometry at week 24.

Intervention

Experimental group: soy isoflavone supplement containing 100 mg of total isoflavones (n=193)
Control group: placebo (n=193)

Outcome

The primary outcome measure was change in forced expiratory volume in the first second (一秒钟用力呼气量) at 24 weeks.
The secondary outcome measures were symptoms, episodes of poor asthma control, Asthma Control Test score (range, 5-25; higher scores indicate better control), and systemic and airway biomarkers of inflammation.

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Lewis J. Smith, MD, et al. JAMA. 2015;313(20):2033-2043.

Result

Mean changes in prebronchodilator FEV1 over 24 weeks were 0.03 L (95% CI, -0.01 to 0.08 L) in the placebo group and 0.01 L (95% CI, -0.07 to 0.07 L) in the soy isoflavone group, which were not significantly different (P=0.36).

Mean changes in symptom scores on the Asthma Control Test (placebo, 1.98 [95% CI, 1.42-2.54] vs soy isoflavones, 2.20 [95% CI, 1.53-2.87]; positive values indicate a reduction in symptoms), did not significantly improve more with thesoy isoflavone supplement than with placebo.

Number of episodes of poor asthma control (placebo, 3.3 [95% CI, 2.7-4.1] vs soy isoflavones, 3.0 [95% CI, 2.4-3.7]), which were not significant different in both group.

Table 2. Model-Based Estimates of Mean Change From Baseline to 24 Weeks for Lung Function, Asthma Scores, and Laboratory Markers

Outcomes	Mean Difference, 24 Weeks – Baseline (95% CI)		P Value
	Placebo (n = 193)	Soy Isoflavone (n = 193)	
FEV_1, L	0.03 (−0.01 to 0.08)	−0.001 (−0.07 to 0.07)	.36
FEV_1 bronchodilator response, %[a]	−1.24 (−3.35 to 0.88)	−0.05 (−1.71 to 1.61)	.49
Forced vital capacity, L	0.03 (−0.01 to 0.08)	−0.03 (−0.08 to 0.02)	.04
Peak flow, L/min	15.8 (4.4 to 27.2)	9.6 (−0.4 to 19.6)	.34
Asthma Control Test score (range, 5-25)[b]	1.98 (1.42 to 2.54)	2.20 (1.53 to 2.87)	.53
Asthma Symptoms Utility Index score (range, 0-1)[b]	0.06 (0.03 to 0.09)	0.06 (0.04 to 0.09)	.79
Marks Asthma Quality of Life Questionnaire score (range, 0-80)[c,d]	−4.30 (−6.07 to −2.54)	−2.99 (−4.73 to −1.24)	.25
Children's Health Survey for Asthma score (range, 0-100)[b,e]			
Physical health[f]	4.77 (−0.29 to 9.82)	7.52 (1.92 to 13.13)	.49
Activity, child	4.65 (1.59 to 7.72)	5.53 (0.78 to 10.28)	.69
Activity, family	2.49 (0.62 to 4.36)	−0.37 (−1.54 to 0.79)	.03
Emotion, child	4.34 (−1.78 to 10.47)	7.13 (3.17 to 11.09)	.44
Emotion, family	3.50 (0.95 to 6.06)	1.23 (−1.68 to 4.14)	.29
Exhaled nitric oxide, ppb	−3.48 (−5.99 to −0.97)	1.39 (−1.73 to 4.51)	.007
Eosinophil count, /μL[g]	1.09 (0.71 to 1.66)	1.06 (0.72 to 1.56)	.91
Interleukin 6, pg/mL[g]	0.98 (0.90 to 1.09)	0.98 (0.90 to 1.06)	.98
Serum C-reactive protein, mg/L[g]	1.03 (0.91 to 1.15)	0.98 (0.86 to 1.12)	.61
Urinary leukotriene E_4/creatinine, nmol/mol[g]	1.01 (0.86 to 1.18)	1.04 (0.89 to 1.22)	.81

Table 3. Secondary Outcomes Based on Participant Diary Cards

Outcomes	Treatment Group		Relative Risk (95% CI)	*P* Value
	Placebo (n=185)	Soy Isoflavone (n=182)		
No. of person-years of follow-up	80.3	78.6		
Episodes of poor asthma control[a]				
No. of events	269	235		
No. of individuals with ≥1 event	102	93		
No. of events/ person-year (95% CI)	3.3 (2.7-4.1)	3.0 (2.4-3.7)	0.89 (0.66-1.21)	.46

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Lewis J. Smith, MD, et al. JAMA. 2015;313(20):2033-2043.

Conclusion

Among adults and children aged 12 years or older with poorly controlled asthma while taking a controller medication, use of a soy isoflavone supplement, compared with placebo, did not result in improved lung function or clinical outcomes.

These findings suggest that this supplement should not be used for patients with poor controlled asthma.

JAMA The Journal of the American Medical Association

Effect of Remote Ischemic Preconditioning on Kidney Injury Among High-Risk Patients Undergoing Cardiac Surgery: A Randomized Clinical Trial

Alexander Zarbock, MD, et al. JAMA. 2015;313(21):2133-2141

Background

No interventions have yet been identified to reduce the risk of acute kidney injury in the setting of cardiac surgery.

Objective

To determine whether remote ischemic preconditioning（远端缺血预处理） reduces the rate and severity of acute kidney injury in patients undergoing cardiac surgery.

Design

Randomized controlled trial between August 2013 and June 2014

Setting

Multicenter, at 4 hospitals in Germany

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Effect of Remote Ischemic Preconditioning on Kidney Injury Among High-Risk Patients Undergoing Cardiac Surgery: A Randomized Clinical Trial

Alexander Zarbock, MD, et al. JAMA. 2015;313(21):2133-2141

Participant

We enrolled 240 patients at high risk for acute kidney injury, as identified by a Cleveland Clinic Foundation score of 6 or higher(克利夫兰临床基金评分≥6).

Intervention

Experimental group: patients received either remote ischemic preconditioning (3 cycles of 5-minute ischemia and 5-minute reperfusion in one upper arm after induction of anesthesia)
Control group: sham remote ischemic preconditioning

Outcome

The primary end point was the rate of acute kidney injury(AKI) within the first 72 hours after cardiac surgery.
The secondary end points included use of renal replacement therapy(CRRT), duration of intensive care unit stay, occurrence of myocardial infarction and stroke, in-hospital and 30-day mortality, and change in acute kidney injury biomarkers.

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Alexander Zarbock, MD, et al. JAMA. 2015;313(21):2133-2141

Result

Acute kidney injury was significantly reduced with remote ischemic preconditioning (45 of 120 patients [37.5%]) compared with control (63 of 120 patients [52.5%]; absolute risk reduction, 15%; 95% CI, 2.56%-27.44%; P=0.02).

Fewer patients receiving remote ischemic preconditioning received renal replacement therapy (7 [5.8%] vs 19 [15.8%]; absolute risk reduction, 10%; 95% CI, 2.25%-17.75%; P=0.01).

Remote ischemic preconditioning reduced intensive care unit stay (3 days [interquartile range, 2-5]) vs 4 days (interquartile range, 2-7) (P=0.04).

There was no significant effect of remote ischemic preconditioning on myocardial infarction, stroke, or mortality.

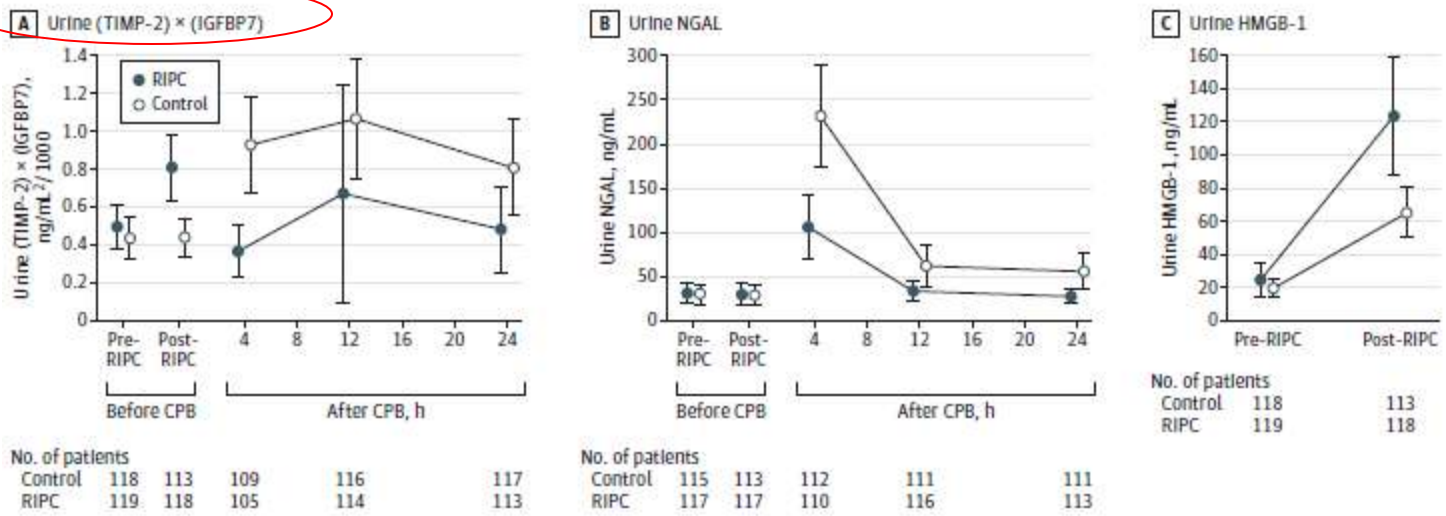
Remote ischemic preconditioning significantly attenuated the release of urinary insulin-like growth factor-binding protein 7(IGFBP7) and tissue inhibitor of metalloproteinases 2(TIMP2) after surgery (remote ischemic preconditioning, 0.36 vs control, 0.97 ng/mL2/1000; difference, 0.61; 95% CI, 0.27-0.86; P<0.001).

No adverse events were reported with remote ischemic preconditioning.

Table 2. Primary and Secondary Study Outcomes, by Group

	Control (n = 120)	RIPC (n = 120)	ARR or Median Difference (95% CI)	*P* Value
Primary Outcome, No. (%)				
AKI within 72 h	63 (52.5)	45 (37.5)	15 (2.56 to 27.44)	.02
AKI stage				
1	32 (26.7)	30 (25)		
2	14 (11.7)	8 (6.7)		
3	17 (14.2)	7 (5.8)		
Secondary Outcomes				
RRT, No. (%)	19 (15.8)	7 (5.8)	10 (2.25 to 17.75)	.01
Mechanical ventilation, median (IQR), h	15 (12-21)	14 (11-21)	1 (−1.54 to 4)[a]	.16
Intensive care unit stay, median (IQR), d	4 (2-7)	3 (2-5)	1 (0 to 2)[a]	.04
Hospital stay, median (IQR), d	13 (10-19)	12 (9-19)	1 (−2 to 2.5)[a]	.45
In-hospital death, No. (%)	4 (3.3)	6 (5.0)	1.67 (0 to 6.72)[b]	.54
30-d mortality, No. (%)	5 (4.2)	7 (5.8)	1.67 (0 to 7.18)[b]	.77
Myocardial infarction, No. (%)	5 (4.2)	6 (5.0)	0.83 (0 to 6.12)[b]	.76
Stroke, No. (%)	3 (2.5)	2 (1.7)	0.83 (0 to 4.45)[b]	.65

Figure 2. Analysis of Acute Kidney Injury Biomarkers



A, Analysis of urine (TIMP-2) × (IGFBP7) before and after remote ischemic preconditioning (RIPC) and cardiopulmonary bypass (CPB) (pre-RIPC, *P* = .33; post-RIPC, *P* = <.01; 4 h after CPB, *P* = .01; 12 h after CPB, *P* = .01; 24 h after CPB, *P* = .35) (lower and upper limit of the reference range, 0.03 [2.5 percentile] and 1.93 [97.5 percentile], respectively). B, Analysis of urine neutrophil gelatinase-associated lipocalin (NGAL) concentrations before and after RIPC and CPB (pre-RIPC, *P* = .79; post-RIPC, *P* = .72; 4 h after CPB, *P* = .04; 12 h after CPB, *P* = .74; 24 h after CPB, *P* = .28) (reference range, 153 ng/mL; 90% CI, 142 to 182 ng/mL). C, Analysis of HMGB-1 concentrations before and after RIPC (pre-RIPC, *P* = .23; post-RIPC, *P* = <.01) (reference range: mean, 0.39 ng/mL; upper limit of the reference range, 1.4 ng/mL [97.5 percentile]). Error bars indicate 95% CI. All *P* values are for comparison of RIPC vs control. HMGB-1 indicates high-mobility group box 1; (TIMP-2) × (IGFBP7) indicates the product of urine IGFBP7 (insulinlike growth factor–binding protein 7) and TIMP-2 (tissue inhibitor of metalloproteinases 2).

JAMA The Journal of the American Medical Association

Effect of Remote Ischemic Preconditioning on Kidney Injury Among High-Risk Patients Undergoing Cardiac Surgery: A Randomized Clinical Trial

Alexander Zarbock, MD, et al. JAMA. 2015;313(21):2133-2141

Conclusion

Among high-risk patients undergoing cardiac surgery, remote ischemic preconditioning compared with no ischemic preconditioning significantly reduced the rate of acute kidney injury(AKI) and use of renal replacement therapy(CRRT).

THE LANCET

Mortality risk attributable to high and low ambient temperature: a multi-country observational study

Gasparrini A et al, Lancet.2015 May 20. (14)62114-0

Background

Although studies have provided estimates of premature deaths(过早死亡) attributable to either heat or cold in selected countries, none has so far offered a systematic assessment across the whole temperature range in populations exposed to different climates.

Objective

We aimed to quantify the total mortality burden attributable to non-optimum ambient temperature (非最佳环境温度), and the relative contributions from heat and cold and from moderate and extreme temperatures.

Design

An observational study between 1985 to 2012.

Setting

384 locations in Australia, Brazil, Canada, China, Italy, Japan, South Korea, Spain, Sweden, Taiwan, Thailand, UK, and USA.

THE LANCET

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Method

We fitted a standard time-series Poisson model(标准时间序列泊松模型)for each location, controlling for trends and day of the week.

We estimated temperature-mortality associations with a distributed lag non-linear model（非线性滞后模型）with 21 days of lag, and then pooled them in a multivariate metaregression (多元回归) that included country indicators and temperature average and range.

We calculated attributable deaths for heat and cold, defined as temperatures above and below the optimum temperature, which corresponded to the point of minimum mortality, and for moderate and extreme temperatures, defined using cutoffs at the 2.5th and 97.5th temperature percentiles.

THE LANCET

Mortality risk attributable to high and low ambient temperature: a multicountry observational study

Gasparrini A et al, Lancet.2015 May 20. (14)62114-0.

Result

We analyzed 74225200 deaths in various periods between 1985 and 2012.

In total, 7.71% (95% empirical CI 7.43-7.91) of mortality was attributable to non-optimunm temperature in the selected countries within the study period, with substantial differences between countries, ranging from 3.37% (3.06 to 3.63) in Thailand to 11.00% (9.29 to 12.47) in China.

The temperature percentile of minimum mortality varied from roughly the 60th percentile in tropical areas(热带地区) to about the 80-90th percentile in temperate regions(温带地区).

	Minimum mortality percentile	Total	Cold	Heat
Australia	83th	6·96% (4·27 to 9·51)	6·50% (3·91 to 8·94)	0·45% (0·20 to 0·70)
Brazil	60th	3·53% (3·00 to 4·01)	2·83% (2·34 to 3·30)	0·70% (0·45 to 0·93)
Canada	81st	5·00% (3·83 to 6·07)	4·46% (3·39 to 5·48)	0·54% (0·39 to 0·66)
China	83rd	11·00% (9·29 to 12·47)	10·36% (8·72 to 11·77)	0·64% (0·47 to 0·79)
Italy	79th	10·97% (8·03 to 13·43)	9·35% (6·59 to 11·72)	1·62% (1·24 to 1·98)
Japan	86th	10·12% (9·61 to 10·56)	9·81% (9·32 to 10·22)	0·32% (0·27 to 0·36)
South Korea	89th	7·24% (4·45 to 9·73)	6·93% (4·12 to 9·44)	0·31% (0·15 to 0·45)
Spain	78th	6·52% (5·82 to 7·16)	5·46% (4·79 to 6·07)	1·06% (0·96 to 1·16)
Sweden	93rd	3·87% (−6·20 to 12·93)	3·69% (−6·31 to 12·61)	0·18% (−0·47 to 0·65)
Taiwan	62nd	4·75% (3·26 to 6·06)	3·89% (2·50 to 5·31)	0·86% (0·12 to 1·50)
Thailand	60th	3·37% (3·06 to 3·63)	2·61% (2·31 to 2·88)	0·76% (0·65 to 0·86)
UK	90th	8·78% (8·00 to 9·54)	8·48% (7·72 to 9·25)	0·30% (0·25 to 0·36)
USA	84th	5·86% (5·50 to 6·17)	5·51% (5·17 to 5·82)	0·35% (0·30 to 0·39)
Total	81st	7·71% (7·43 to 7·91)	7·29% (7·02 to 7·49)	0·42% (0·39 to 0·44)

Attributable mortality computed as total and as separate components for cold and heat. Data are median percentile or % (95% empirical CI).

Table 2: **Attributable mortality by country**

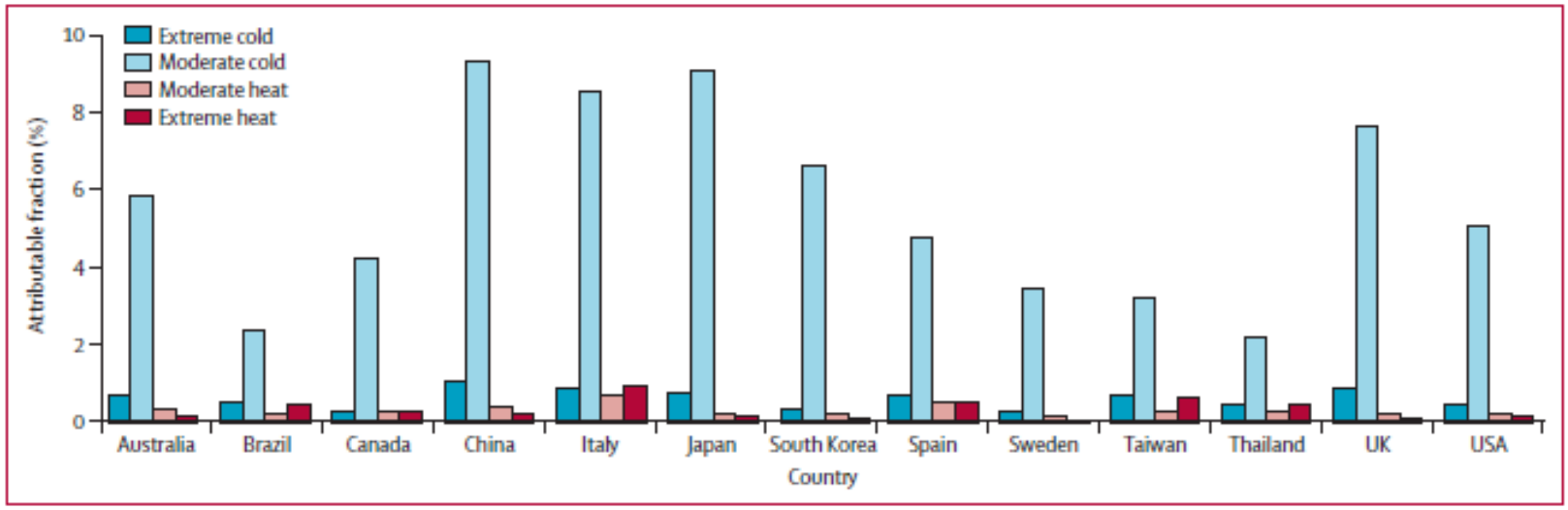

Figure 2: **Fraction of all-cause mortality attributable to moderate and extreme hot and cold temperature by country**
Extreme and moderate high and low temperatures were defined with the minimum mortality temperature and the 2·5th and 97·5th percentiles of temperature. distribution as cutoffs.

THE LANCET

Mortality risk attributable to high and low ambient temperature: a multicountry observational study

Gasparrini A et al, Lancet.2015 May 20. (14)62114-0.

Conclusion

Most of the temperature-related mortality burden was attributable to the contribution of cold.

This evidence has important implications for the planning of public-health interventions to minimise the health consequences of adverse temperatures.

THE LANCET Respiratory Medicine

Long-term survival of critically ill patients treated with prolonged mechanical ventilation: a systematic review and meta-analysis

Damuth E, et al. Lancet Respir Med. 2015 May 20. (15)00150-2.

Background

Prolonged dependence on mechanical ventilation after critical illness is an emerging public health challenge; however, long-term outcomes are incompletely understood.

Objective

We aimed to systematically analyse long-term survival of critically ill patients treated with prolonged mechanical ventilation.

Method

We searched PubMed, CINAHL, and the Cochrane Library between 1988 and Nov 6, 2013, with no language restrictions, for studies on prolonged mechanical ventilation.
We included studies of adult populations treated with mechanical ventilation for more than 14 days, who were admitted to a ventilator weaning unit, or who had a tracheostomy for acute respiratory failure.
We abstracted data with a standardized collection template and assessed study quality using a customized Newcastle-Ottawa Scale.

THE LANCET Respiratory Medicine

Long-term survival of critically ill patients treated with prolonged mechanical ventilation: a systematic review and meta-analysis

Damuth E, et al. Lancet Respir Med. 2015 May 20. (15)00150-2.

Method

We did a stratified analysis(亚组分析) based on study setting (eg, acute vs post-acute care hospitals), and used a random-effects model to calculate pooled statistics (proportions with 95% CIs) for all outcomes.

Outcome

The primary outcome was mortality at 1 year.
Secondary outcomes were in-hospital mortality, successful liberation from mechanical ventilation while in hospital, and mortality at time points longer than 1 year.

THE LANCET Respiratory Medicine

Long-term survival of critically ill patients treated with prolonged mechanical ventilation: a systematic review and meta-analysis

Damuth E, et al. Lancet Respir Med. 2015 May 20. (15)00150-2.

Result

Of 6326 studies identified, 402 underwent full manuscript review, and 124 studies from 16 countries met the inclusion criteria.

39 studies reported mortality at 1 year, which was 59% (95% CI 56-62). Among the 29 high-quality studies, the pooled mortality at 1 year was 62% (95% CI 57-67).

Pooled mortality at hospital discharge was 29% (95% CI 26-32).

For studies in post-acute care hospitals(后续护理医院), outcomes were worse in the USA than internationally (mortality at 1 year was 73% [95% CI 67-78] in the USA vs 47% [29-65] in non-USA countries; in-hospital mortality was 31% [26-37] vs 18% [14-24]; and liberation from ventilation was 47% [42-51] vs 63% [59-68]; p<0·0001 for all).

THE LANCET Respiratory Medicine

Long-term survival of critically ill patients treated with prolonged mechanical ventilation: a systematic review and meta-analysis.

Damuth E, et al. Lancet Respir Med. 2015 May 20. (15)00150-2.

Conclusion

Although a high proportion of patients survived to hospital discharge, fewer than half of patients survived beyond 1 year.

Future studies should focus on optimum patient selection or prolonged mechanical ventilation and integration of long-term outcome information into clinical decision making.

The NEW ENGLAND JOURNAL of MEDICINE

Trial of Short-Course Antimicrobial Therapy for Intra-abdominal Infection

Robert G. Sawyer, M.D., N Engl J Med 2015; 372:1996-2005

Background

The successful treatment of intra-abdominal infection requires a combination of anatomical source control and antibiotics. The appropriate duration of antimicrobial therapy remains unclear.

Design

Open label multi-center randomized controlled trial from August 2008 to August 2013

Setting

Patients were enrolled at 23 sites through-out the United state and Canada

Trial of Short-Course Antimicrobial Therapy for Intra-abdominal Infection

Robert G. Sawyer, M.D., N Engl J Med 2015; 372:1996-2005

Participant

We randomly assigned 518 patients with complicated intra-abdominal infection.

Intervention

Experimental group: receive a fixed course of antibiotics

Control group: receive antimicrobial therapy until 2 days after the resolution of the physiological abnormalities related to SIRS

Outcome

The primary outcome was a composite of surgical-site infection, recurrent intra-abdominal infection, or death within 30 days after the index source-control procedure, according to treatment group.

Secondary outcomes included the duration of therapy and rates of subsequent infections.

Trial of Short-Course Antimicrobial Therapy for Intra-abdominal Infection

Robert G. Sawyer, M.D., N Engl J Med 2015; 372:1996-2005

Result

Surgical-site infection, recurrent intra-abdominal infection, or death occurred in 56 of 257 patients in the experimental group (21.8%), as compared with 58 of 260 patients in the control group (22.3%) (absolute difference, -0.5 percentage point; 95% confidence interval [CI], -7.0 to 8.0; P=0.92).

The median duration of antibiotic therapy was 4.0 days (interquartile range, 4.0 to 5.0) in the experimental group, as compared with 8.0 days (interquartile range, 5.0 to 10.0) in the control group (absolute difference, -4.0 days; 95% CI, -4.7 to -3.3; P<0.001).

No significant between-group differences were found in the individual rates of the components of the primary outcome or in other secondary outcomes.

Table 2. Primary and Major Secondary Outcomes.*

Variable	Control Group (N=260)	Experimental Group (N=257)	P Value
Primary outcome: surgical-site infection, recurrent intraabdominal infection, or death — no. (%)	58 (22.3)	56 (21.8)	0.92
Surgical-site infection	23 (8.8)	17 (6.6)	0.43
Recurrent intraabdominal infection	36 (13.8)	40 (15.6)	0.67
Death	2 (0.8)	3 (1.2)	0.99
Time to event — no. of days after index source-control procedure			
Diagnosis of surgical-site infection	15.1±0.6	8.8±0.4	<0.001
Diagnosis of recurrent intraabdominal infection	15.1±0.5	10.8±0.4	<0.001
Death	19.0±1.0	18.5±0.5	0.66

Secondary outcome			
Surgical-site infection or recurrent intraabdominal infection with resistant pathogen — no. (%)	9 (3.5)	6 (2.3)	0.62
Site of extraabdominal infection — no. (%)			
Any site†	13 (5.0)	23 (8.9)	0.11
Urine	10 (3.8)	13 (5.1)	0.65
Blood	3 (1.2)	5 (1.9)	0.71
Lung	3 (1.2)	3 (1.2)	0.99
Area of skin other than surgical site	1 (0.4)	4 (1.6)	0.36
Vascular catheter	0 (0)	2 (0.8)	0.47
Clostridium difficile infection — no. (%)	3 (1.2)	5 (1.9)	0.71
Extraabdominal infection with resistant pathogen — no. (%)	6 (2.3)	2 (0.8)	0.29
Duration of outcome — days			
Antimicrobial therapy for index infection			<0.001
Median	8	4	
Interquartile range	5–10	4–5	
Antimicrobial-free days at 30 days			<0.001
Median	21	25	
Interquartile range	18–25	21–26	
Hospitalization after index procedure			0.48
Median	7	7	
Interquartile range	4–11	4–11	
Hospital-free days at 30 days			0.22
Median	23	22	
Interquartile range	18–26	16–26	

Trial of Short-Course Antimicrobial Therapy for Intra-abdominal Infection

Robert G. Sawyer, M.D., N Engl J Med 2015; 372:1996-2005

Conclusion

In patients with intra-abdominal infections who had undergone an adequate source-control procedure, the outcomes after fixed-duration antibiotic therapy (approximately 4 days) were similar to those after a longer course of antibiotics (approximately 8 days) that extended until after the resolution of physiological abnormalities.

High-Flow Oxygen through Nasal Cannula in Acute Hypoxemic Respiratory Failure

Jean-Pierre Frat, M.D., N Engl J Med 2015; 372:2185-2196

Background

Whether noninvasive ventilation should be administered in patients with acute hypoxemic respiratory failure is debated. Therapy with high-flow oxygen through a nasal cannula(鼻导管) may offer an alternative in patients with hypoxemia.

Design

a multicenter, open-label, randomized controlled trial

Setting

12 settings in USA

High-Flow Oxygen through Nasal Cannula in Acute Hypoxemic Respiratory Failure

Jean-Pierre Frat, M.D., N Engl J Med 2015; 372:2185-2196

Participant

310 patients without Hypercapnia（高碳酸血症）who had acute hypoxemic respiratory failure.

Intervention

Experimental group: high- low Oxygen therapy(106)
standard oxygen therapy delivered through a face mask(94)
Control group: noninvasive positive-pressure ventilation(110)

Outcome

The primary outcome was the proportion of patients intubated at day 28.
The secondary outcomes included all-cause mortality in the intensive care unit and at 90 days and the number of ventilator-free days at day 28.

High-Flow Oxygen through Nasal Cannula in Acute Hypoxemic Respiratory Failure

Jean-Pierre Frat, M.D., N Engl J Med 2015; 372:2185-2196

Result

The intubation rate

38% (40 of 106 patients) in the high-flow-oxygen group
47% (44 of 94) in the standard group
50% (55 of 110) in the noninvasive-ventilation group (P=0.18 for all comparisons).

The number of ventilator-free days at day 28 was significantly higher in the high-flow-oxygen group (24±8 days, vs. 22±10 in the standard-oxygen group and 19±12 in the noninvasive-ventilation group; P=0.02 for all comparisons).

The hazard ratio for death at 90 days was 2.01 (95% confidence interval [CI], 1.01 to 3.99) with standard oxygen versus high-flow oxygen (P=0.046) and 2.50 (95% CI, 1.31 to 4.78) with noninvasive ventilation versus high-flow oxygen (P=0.006).

High-Flow Oxygen through Nasal Cannula in Acute Hypoxemic Respiratory Failure

Jean-Pierre Frat, M.D., N Engl J Med 2015; 372:2185-2196

Conclusion

In patients with non-hypercapnic acute hypoxemic respiratory failure, treatment with high-flow oxygen, standard oxygen, or noninvasive ventilation did not result in significantly different intubation rates.

There was a significant difference in favor of high-flow oxygen in 90-day mortality.

Part 3

Intensive Reading

Xie ZC M.D.