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Depression, post-traumatic stress disorder, and functional disability in survivors of critical illness in the BRAIN-ICU study: a longitudinal cohort study

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背景

- ◆ 在美国，每年约有**500万人**入住ICU
- ◆ **80%**得以存活
- ◆ 在这些存活的患者中，可能出现“**ICU后综合症**”（**Post-intensive care syndrome**）
 - 认知障碍，抑郁，创伤后应激综合症，功能障碍，生活质量下降。



Summary

Background Critical illness is associated with cognitive impairment, but mental health and functional disabilities in survivors of intensive care are inadequately characterised. We aimed to assess associations of age and duration of delirium with mental health and functional disabilities in this group.

危重病往往伴有认知障碍，但是ICU存活病患的精神卫生及功能障碍没有得到足够认识。我们研究的目的，就是评估患有精神障碍及功能障碍的患者年龄与谵妄持续时间。

Methods In this prospective, multicentre cohort study, we enrolled patients with respiratory failure or shock who were undergoing treatment in medical or surgical ICUs in Nashville, TN, USA. We obtained data for baseline demographics and in-hospital variables, and assessed survivors at 3 months and 12 months with measures of depression (Beck Depression Inventory II), post-traumatic stress disorder (PTSD, Post-Traumatic Stress Disorder Checklist—Event Specific Version), and functional disability (activities of daily living scales, Pfeffer Functional Activities Questionnaire, and Katz Activities of Daily Living Scale). We used linear and proportional odds logistic regression to assess the independent associations between age and duration of delirium with mental health and functional disabilities. This study is registered with ClinicalTrials.gov, number NCT00392795.

本研究为前瞻性，多中心，队列研究。共纳入田纳西州Nashville市多家内外科ICU中呼吸衰竭或者休克的病患。通过人口学分析，以及对3个月及12个月患者的抑郁，PTSD，功能障碍进行统计分析。



本研究的 目的

- ◆ 验证抑郁症状多为躯体症状。
- ◆ 年龄与预后的关系。
- ◆ 瞻望对预后的影响。



5210 patients eligible

4384 excluded from enrolment

825 significant recent time in intensive care unit

725 substance abuse or psychiatric disorder

692 surrogate refusal

454 pre-existing severe cognitive disorder

357 no surrogate available

328 moribund on screening

242 rapidly resolving organ failure

239 residence >200 miles from study sites

164 cardiac arrest with anoxic brain injury

120 participation in conflicting study

81 blind, deaf, or unable to understand English

46 previously enrolled in this study

40 recent cardiac bypass surgery

19 incarcerated or homeless

52 others

研究流程

◆ 收集数据

- 年龄，既往认知障碍，抑郁情况，其他精神疾病，教育程度，生活自理能力，工具性生活能力，疾病严重程度，**ICU**镇静评估，器官功能评价。

◆ 出院后**3**个月及**12**个月，再行随访评估

- 抑郁水平，**PTSD**，生活自理能力，工具性生活能力，生活质量



	In-hospital cohort (n=821)	Follow-up cohort (n=467)
Age at enrolment, years	61 (51-71)	59 (49-69)
Ethnic group, white*	740 (90%)	413 (88%)
Sex		
Men	420 (51%)	234 (50%)
Women	401 (49%)	233 (50%)
Education, years	12 (12-14)	12 (12-14)
IQCODE at enrolment†	3.0 (3.0-3.1)	3.0 (3.0-3.1)
History of depression	261 (32%)	159 (34%)
History of mental health illness (not depression)	66 (8%)	44 (9%)
History of ADL disability	229 (28%)	120 (26%)
History of IADL disability	93 (11%)	44 (9%)
Charlson comorbidity score‡	2 (1-4)	2 (1-4)
Framingham stroke risk	9 (6-14)	9 (5-14)
APACHE II score at enrolment§	25 (19-31)	24 (19-30)
SOFA score at enrolment¶	9 (7-12)	9 (7-12)
Admission diagnosis		
Sepsis	244 (30%)	136 (29%)
Acute respiratory failure	135 (16%)	71 (15%)

随访观察

	3 month follow-up cohort (n=448)	12 month follow-up cohort (n=382)
Psychological		
Depression (Beck Depression Inventory II)		
Data available	406	347
Score	10.0 (5.0-17.0)	10.0 (4.6-16.5)
Somatic score	8 (5-13)	8 (4-13)
Cognitive-affective score	2 (0-4)	1 (0-5)
No depression (score of 0-13)	257 (63%)	231 (67%)
Mild depression (score of 14-19)	66 (16%)	43 (12%)
Moderate depression (score of 20-28)	47 (12%)	48 (14%)
Severe depression (score of ≥29)	36 (9%)	25 (7%)
Score—history of depression vs no history*	14.0 (9.0-24.0) vs 9.0 (4.0-14.8)	12.0 (5.0-22.0) vs 9.0 (4.0-15.0)
Depression prevalence—history of depression vs no history†	71/137 (52%) vs 76/255 (30%)	49/115 (43%) vs 62/217 (29%)
Post-traumatic stress disorder		
Data available	415	361
PCL-S	23 (19-29)	22 (19-28)
Probable post-traumatic stress disorder‡	27 (7%)	24 (7%)



随访观察

Functional	3 month follow-up cohort (n=448)	12 month follow-up cohort (n=382)
Activities of daily living		
Data available	428	374
Katz Activities of Daily Living	0 (0-1)	0 (0-1)§
Patients with at least partial disability	139 (32%)	102 (27%)
Functional disability (history of disability vs no history)¶	31/45 (69%) vs 98/367 (27%)	22/40 (55%) vs 69/319 (22%)
Instrumental activities of daily living scale		
Data available	422	372
Functional activities questionnaire	3 (0-9)	2 (0-8)
Patients with disability	108 (26%)	87 (23%)
Functional disability		
Functional activities questionnaire (history of disability vs no history)**	9.5 (7.0-16.8) vs 2.2 (0.0-8.0)	10.0 (6.0-14.8) vs 2.0 (0.0-7.0)
Functional disability prevalence—history of disability vs no history††	19/34 (56%) vs 87/384 (23%)	21/34 (62%) vs 66/333 (20%)
Quality of life		
Short Form-36		
Data available	416	361
Mental component	56 (40-62)	55 (45-60)
Physical component	29 (22-38)	32 (25-43)



谵妄

	Effect of delirium duration at 3 months		Effect of delirium duration at 12 months	
	Point estimate (95% CI)	p value	Point estimate (95% CI)	p value
Beck Depression Inventory II*	1.63 (0.94 to 2.85)	0.38	2.31 (1.25 to 4.27)	0.05
PCL-S*	1.39 (0.78 to 2.47)	0.59	1.92 (1.03 to 3.55)	0.18
Katz Activities of Daily Living*	1.50 (0.63 to 3.57)	0.18	0.63 (0.27 to 1.46)	0.51
Functional Activities Questionnaire*	1.57 (0.89 to 2.77)	0.35	1.84 (0.96 to 3.54)	0.21
Short Form-36 (physical component)†	0.79 (-2.59 to 4.18)	0.77	-3.72 (-8.60 to 1.16)	0.18
Short Form-36 (mental component)†	-4.53 (-8.81 to -0.24)	0.10	-5.79 (-10.26 to -1.31)	0.03

PCL-S=Post-Traumatic Stress Disorder Checklist. *Proportional odds logistic regression: point estimates show odds ratios (95% CIs) between the 75th and 25th percentiles of the exposure in question, holding all other covariates constant; for example, a patient with 5 days of delirium (our 75th percentile) had on average 2.3 times the odds of a higher (worse) score on the Beck Depression Inventory II at 12 month follow-up than did a patient with no days of delirium (our 25th percentile), assuming all other covariates were equal. †Linear regression: point estimates (95% CIs) show the average difference in Short Form-36 component scores for patients at the 75th percentile of the exposure compared with patients at the 25th percentile; for example, a patient with 5 days of delirium (our 75th percentile) had on average a 12 month Short Form-36 (mental component) score 5.8 points lower than did a patient with no delirium (our 25th percentile). p<0.05 shows significance even when the comparison of the 25th and 75th percentiles yields a point estimate with a 95% CI that crosses zero because we used non-linear terms for continuous exposures.



讨论

- ◆ 抑郁比**PTSD**更为常见。（**5倍**）
- ◆ 多数抑郁症状为躯体症状。
- ◆ 对于精神状态和功能缺陷，没有年龄差异。
- ◆ 但老年患者生活质量更差。
- ◆ 谵妄与长期预后没有直接关系。



讨论

- ◆ 入**ICU**，可能是痴呆样认知障碍的始动因素。
多数**ICU**患者出院后都有躯体症状，并且造成自理能力及生活能力的下降。



讨论

◆ PTSD

- 既往的研究显示，PTSD发病率为50%
- 本研究的PTSD发病率为7%
- 本研究样本量大，且病种较多
- DSM-IV诊断标准
- 其他症状可能掩盖PTSD的表现



讨论

- ◆ 老年
- ◆ 高龄是功能障碍的危险因素。



讨论

◆ 研究方法

- 研究结果依赖于大样本，一系列复杂的统计方法
- 但是评价工具可能存在过度评价的可能。
 - 比如抑郁量表。



讨论

- ◆ 研究的局限性
- ◆ 既往抑郁
- ◆ 信息采集
- ◆ 行为观察，病例描述都是由代理人完成
- ◆ 谵妄与认知障碍有关，认知障碍直接影响到生活能力及生活质量。



建议

- ◆ 早期行康复锻炼及抗抑郁治疗。



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谢谢。



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