

Journal Club

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文獻：

Catheter-related bloodstream infections in intensive care units: a systemic Review with meta-analysis

Ramritu P, Halton K, Cook D, Whitby M, Graves, N. (2008)

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步驟 1：系統性文獻回顧探討的問題為何？

研究族群/問題(Population/Problem):

Risk of catheter-related bloodstream infections in adult (≥ 18 years) patients within an intensive care unit (ICU)

介入措施 (Intervention) &比較(Comparison):

CRBSI preventive strategy & intervention

1. Site of insertion(2 studies) :
 - (1) Subclavian v.s Femoral(2001)
 - (2) Axillary v.s internal jugular(1998)
2. Insertion site skin disinfectiong solution(3 studies):
 - (1)10% povidone iodine(PI) vs 0.5% Chlorhexidine(Chl) gluconate(2000)
 - (2) 10% PI vs 70% isopropyl alcohol vs 2% Chl(1991)
 - (3) 5% PI/ 70% ethanol vs. 10% aqueous PI(2004)
3. Catheter replacement(1 studies) : New site vs. guidewire exchange(1992)
4. Use of devices: connectors (4 studies)
 - (1) Standard hub vs. Segur Lock(2000)
 - (2) Standard hub vs. Segur Lock(2003)
 - (3) Hub protection box and standard hub vs. needle-less closed connector with multiflo hub(2000)
 - (4) Standard 3-way stopcock vs. disinfectable needle-free connector(2004)
5. Use of devices: cuff (2 studies)
 - (1) No cuff& PNB(Polymyxin, neomycin and bacitracin ointment) vs. vitacuff & PNB(Polymyxin, neomycin and bacitracin ointment)(1989)
 - (2) No cuff vs. vitacuff (1996)
6. Number of lumens (4 studies)
 - (1) Single vs. double(1995)
 - (2) Single vs. triple (1989)

- (3) Single vs. triple(1988)
- (4) Single vs. triple(1992)
- 7. Educational programme(1 study)
 Preintervention/ Intervention education-posters, fact sheets posted in ICU
 10-page self-study module completed(2003)
- 8. Multiple interventions
 - (1) 1991 年
 - Group 1: cuff& CVC removed at 3days
 - Group 2: cuff & CVC removed at 7days
 - Group 3: no cuff & CVC removed at 3days
 - Group 4: no cuff & CVC removed at 7 days
 - (2) 1992 年
 - Group 1: CVC replaced every 3days+ insertion at new site
 - Group 2: CVC replaced every 3days+exchange over guidewire
 - Group 3:CVC replaced when clinically indicated+ exchange over a guidewire
 - (3) 1996 年
 - Phase1:PI for skin preparation
 - Phase3:chlorhexidine skin cleanser, change in criteria for guidewire exchange; extension of safe period for catheter extension from2 to 4 days
 - (4) 2005 年
 - Phase1 pretest, observation of CVC care practices
 - Phase2 effect of education programmer, standardized catheter care practices
 - Phase3 monthly CRBSI rate feedback, provision of CRBSI prevention guide to all medical residents
 - (5) 2005 年
 - Phase1 active surveillance without process control
 - Phase2 infection control education programmer; process control of CVC care; compliance with infection practices and CVC care.
 - (6) 2003 年
 - Phase 1 surveillance of CRBSI rates
 - Phase 2 training and education
 - Phase 3 performance feedback on compliance with infection control programmer and CVC care.

結果(Outcomes):

- 1. The primary outcome was incidence of Catheter-related bloodstream infections (CRBSI) in intensive care units.
- 2. Secondary outcome were intensive care unit patients will save costs, reduce length of stay, and improve outcomes.

步驟 2:系統性文獻回顧的品質如何?(FAITH)

F-研究是否找到(Find)所有的相關證據?

評讀結果：☒是 ☐否 ☐不清楚 說明[pp4]-Search methods

- 1.A search was conducted of the following electronic database for research published between January 1985 and February 2007: MEDLINE; Cumulative Index of Nursing and Allied Health Literature(CINAHL);...EMBASE;PubMed;...Cochrane Library Center for Disease Control guideline and reports....
- 2.The broad MeSH search term, 'catheterization-central venous' with combinations of prevention* and bloodstream* was used.

A- 文獻是否經過嚴格評讀(Appraisal)?

評讀結果：☒是 ☐否 ☐不清楚

說明[pp5]-Quality appraisal-第 6 行

1. This instrument and the Scottish Intercollegiate Guidelines Network(SIGN) checklist were used to assess study quality(SIGN 2001).
2. Figure 1 Search strategy and study selection.
3. All included studies were screened by two reviewers, a validated data extraction instrument was used and data collection was completed by two blinded independent reviewers. [pp1]Methods-第 3 行

I -是否只納入(included)具良好效度的文章?

評讀結果：☐是 ☐否 ☒不清楚

說明[pp1]- [pp14]Table 6

1. Table 6 Quality assessment of randomized controlled trials

只有 RCT/選擇的文獻要有足夠的 Validity(信度/效度)而能回答所問的問題。

T-作者是否已表格和圖表『總結』(Total up)試驗結果?

評讀結果：☒是 ☐否 ☐不清楚 說明[pp12,13,16-17]-Result-Figure 2,3,4, Table7

1. Figure 2 Catheter-related bloodstream infection: Segur-Lock v.s standard hub 以森林圖(forest plot)呈現研究結果。
2. Figure 3 Catheter-related bloodstream infection: vitacuff vs. no cuff 以森林圖(forest plot)呈現研究結果。
3. Figure 4 Catheter-related bloodstream infection: triple vs. single lumens 以森林圖(forest plot)呈現研究結果。
4. Table 7 Clinical heterogeneity in included studies 進行 23 篇研究結果的異質性分析。

H-試驗的結果是否相近-異質性(Heterogeneity)?

評讀結果：☐是 ☒否 ☐不清楚

說明：在森林圖(forest plot) 沒有呈現異質性卡方檢定結果，如 I^2 或 χ^2 。

結果為何？

Twenty-three studies were included in the review. The strategies that reduced catheter colonization included insertion of central venous catheters in the subclavian vein rather than other sites, use of alternate skin disinfection solutions before catheter insertion and use of Vitacuff in combination with polymyxin, neomycin and bacitracin ointment. Strategies to reduce catheter-related bloodstream infection included staff education multifaceted infection control programmes and performance feedback.

Conclusion: A range of interventions may reduce risks of catheter-related bloodstream infection, in addition to antimicrobial catheters.

討論(本研究是否可用於臨床?)

■ 同意 1 人 ■ 懷疑 4 人 ■ 不同意 5 人

討論重點摘要：

1. 此篇文章經過系統性文獻回顧(Systematic Review)評讀內容的效度，研究結果尚稱可以相信。
2. 今年已是 2013 年，本研究納入文獻的年代為：1989~2005，可能已有新的照護方法、材料發表，應再查詢本篇系統行文獻回顧納入文獻 (2005 年) 之後發表的文章，若結果相同，在臨床應用上可以更具信心。
3. 目前台灣疾病管制局(CDC) 在各地推行 CVC Care Bundle Program，後續可以將文獻中所提到的研究結果、疾病管制局所推行的 CVC Care Bundle、以及院內 ISO 三者所提的照護措施進行比較，針對差異之處，或本院尚未推動之處進行討論，可以做為更新臨床照護措施之重要依據。