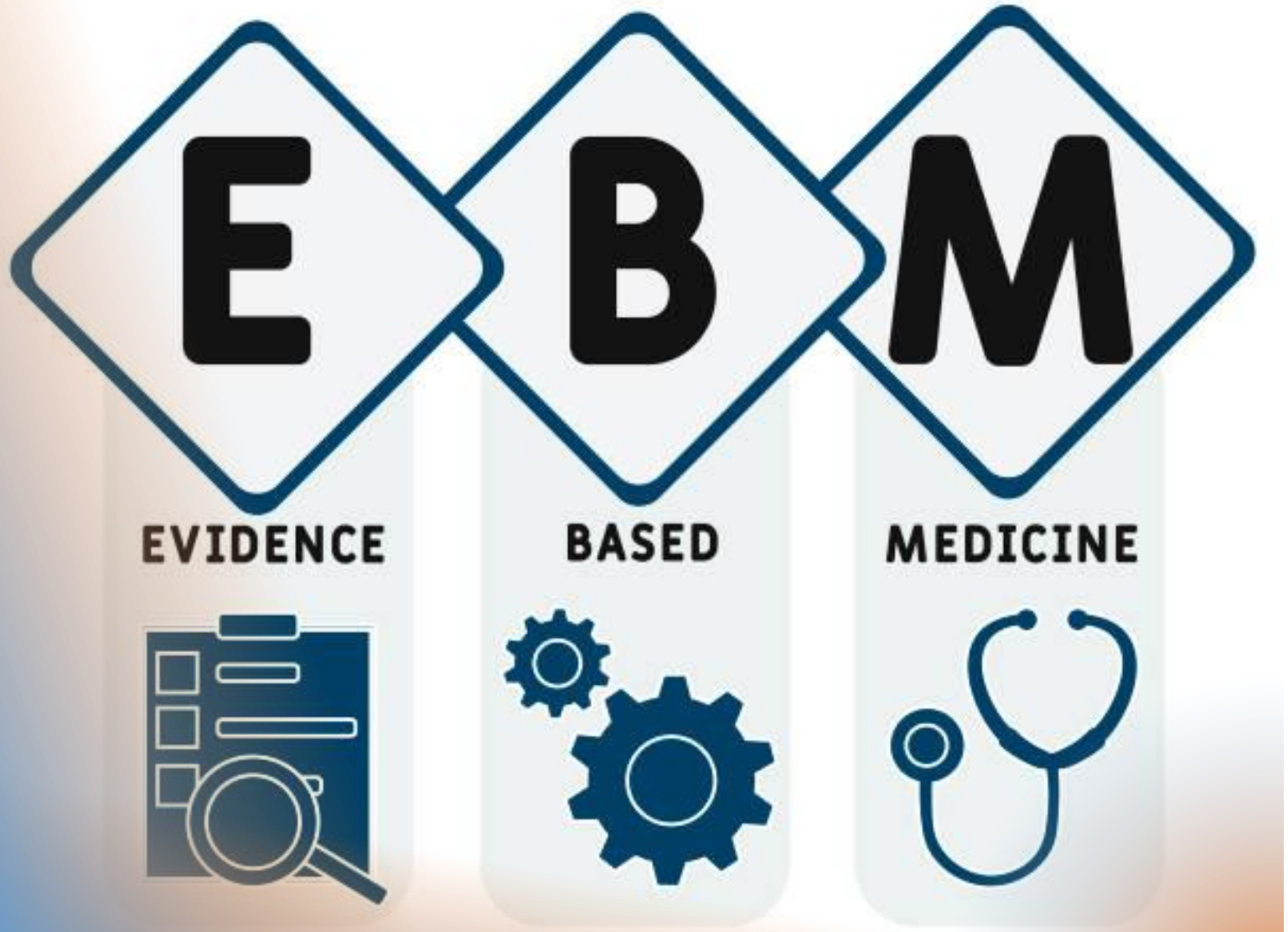

實證醫學-口頭報告

E組

趙育慈[1]、陳蕙心[1]、徐千雅[2]

嘉義基督教醫院PGY[1]

嘉義基督教醫院Clerk[2]

報告大綱

情境摘要
背景搜尋

1A - 提出問題
2A - 查詢研究
3A - 嚴謹評讀
4A - 結合臨床
5A - 執行決策

報告大綱

情境摘要

背景搜尋

1A - 提出問題
2A - 查詢研究
3A - 嚴謹評讀
4A - 結合臨床
5A - 執行決策

情境摘要

林女士55歲有高血壓、第二型糖尿病，雖然藥物控制但成效差，已至末期腎臟病變，最近eGFR15ml/min/1.73m^2，醫師已告知可能要做透析治療準備，其因要工作一直無法接受以後要過每周透析三次之生活。近日不適、噁心、嘔吐、四肢腫脹，今天呼吸喘，漸漸嗜睡，由家屬送至急診，檢查結果醫師建議要緊急做透析治療。其在唸醫學院三年級的兒子很憂心問醫師：「現在要緊急透析一定要用血液透析(HD)嗎？不可以用腹膜透析(PD)嗎？」、「如果可以用腹膜透析，是否預防性給予抗生素可以減少腹膜炎的發生？」、「透析要用抗凝血劑，是否發生中風之風險較高？」、「血液透析與腹膜透析發生中風的風險有何不同？」、「我媽媽還年輕，若考量長期做血液透析，動靜脈廔管很重要，我去實習時有看到病人用遠紅外線照射，此處置是否可以維持血液透析病人動靜脈廔管的通暢性？」

林女士, 55歲

eGFR15ml/min/1.73m2
高血壓
Type II DM

腹膜透析(PD)?
血液透析(HD)?
中風風險

預防性抗生素?
腹膜炎

遠紅外線?
靜脈廔管通暢性

報告大綱

情境摘要

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1A - 提出問題
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3A - 嚴謹評讀
4A - 結合臨床
5A - 執行決策

背景資料

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< Back

Evaluating patients for chronic peritoneal dialysis and selection of modality

Topic | Graphics (2)

Outline

Rate ☆ ☆ ☆ ☆ ☆ | Topic Feedback

AUTHOR: James L Pirkle, Jr, MD
SECTION EDITORS: Steve J Schwab, MD, FACP, FASN, John M Burkart, MD
DEPUTY EDITOR: Eric N Taylor, MD, MSc, FASN

Contributor Disclosures

All topics are updated as new evidence becomes available and our peer review process is complete.

Literature review current through: **Nov 2023.**
This topic last updated: **Feb 10, 2023.**

INTRODUCTION

Peritoneal dialysis is an effective therapy for end-stage kidney disease (ESKD). Modalities include continuous ambulatory peritoneal dialysis (CAPD) and automated peritoneal dialysis (APD).

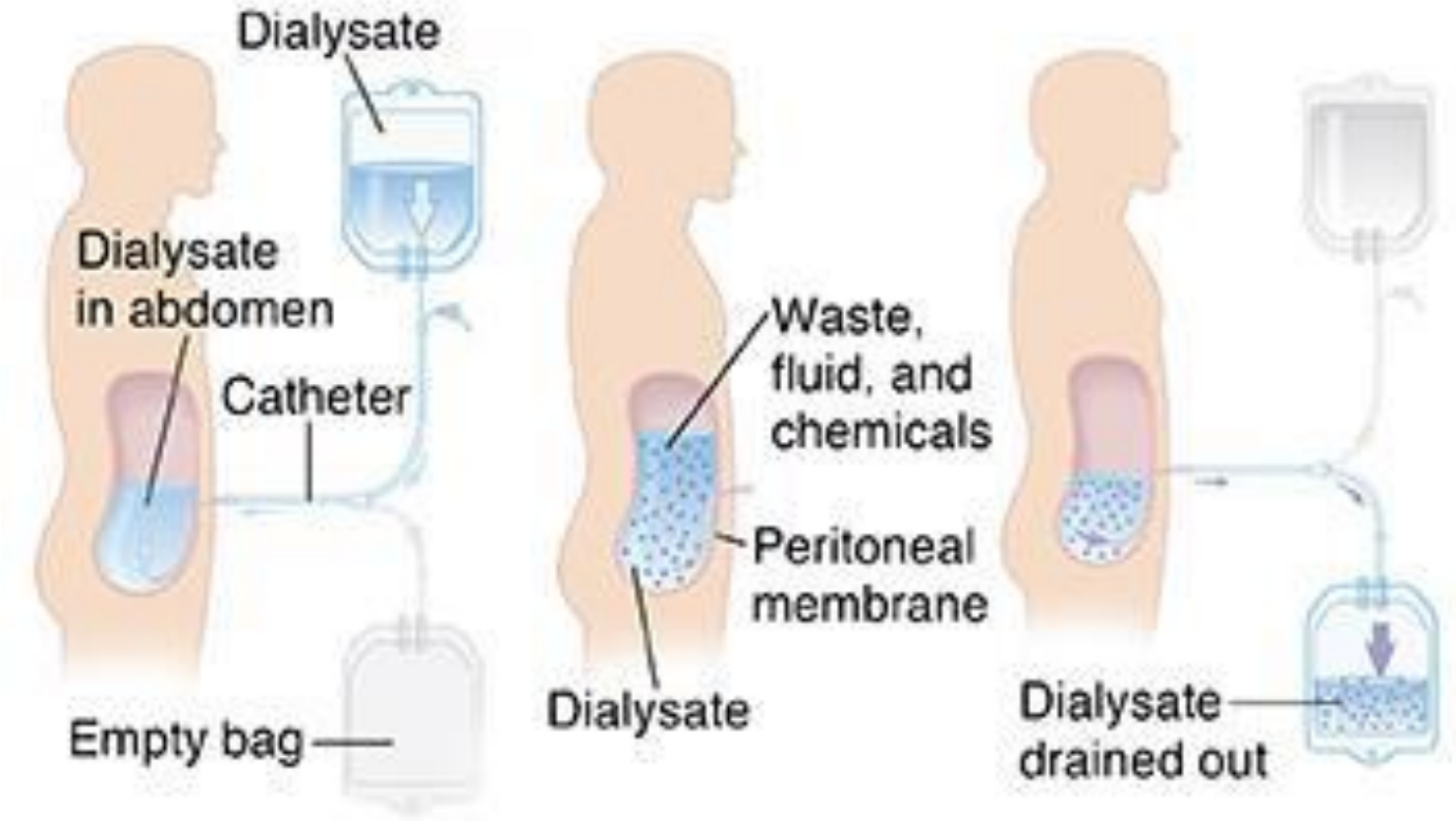
This topic provides a guide for clinicians who are considering peritoneal dialysis as a treatment option for patients. The topic reviews contraindications, timing of placement of the peritoneal catheter, and the selection of the peritoneal dialysis modality.

The prescription for peritoneal dialysis and the evaluation of decreased solute clearance and ultrafiltration are discussed elsewhere:

- (See "Prescribing peritoneal dialysis".)
- (See "Inadequate solute clearance in peritoneal dialysis".)
- (See "Peritoneal equilibration test".)
- (See "Management of hypervolemia in patients on peritoneal dialysis".)

背景資料

Wolters Kluwer
UpToDate®



背景資料

Wolters Kluwer UpToDate®

Contents ⌄ Calculators Drug Interactions UpToDate Pathways

< Back

Stroke Etiology, classification, and epidemiology

Topic Graphics (11)

Outline

AUTHOR: Louis R Caplan, MD
SECTION EDITOR: Scott E Kasner, MD
DEPUTY EDITOR: John F Dashe, MD, PhD
Contributor Disclosures

All topics are updated as new evidence becomes available and our peer review process is complete.
Literature review current through: **Nov 2023.**
This topic last updated: **Jun 15, 2022.**

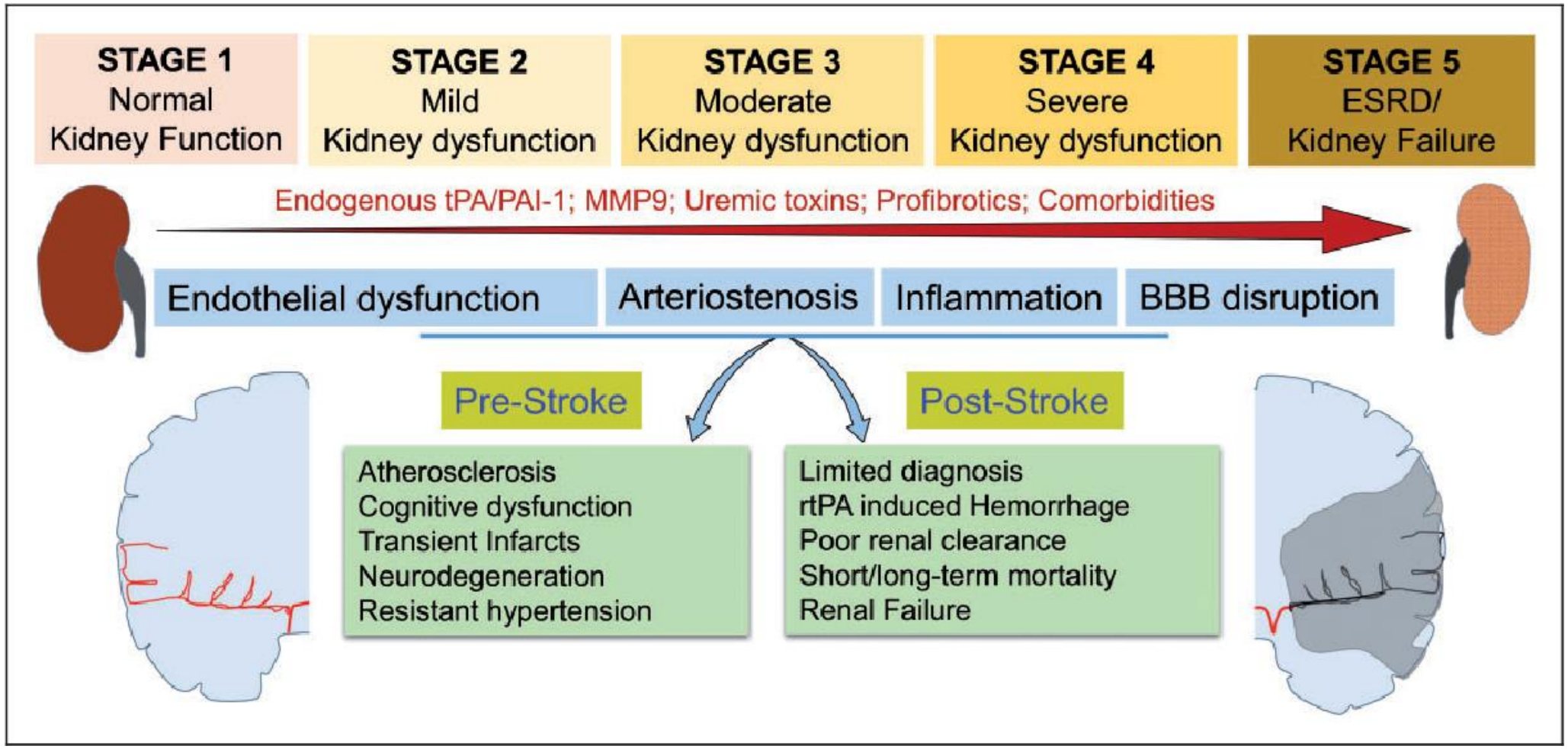
INTRODUCTION

The two broad categories of stroke, hemorrhage and ischemia, are diametrically opposite conditions: hemorrhage is characterized by too much blood within the closed cranial cavity, while ischemia is characterized by too little blood to supply an adequate amount of oxygen and nutrients to a part of the brain [1].

Each of these categories can be divided into subtypes that have somewhat different causes, clinical pictures, clinical courses, outcomes, and treatment strategies. As an example, intracranial hemorrhage can be caused by intracerebral hemorrhage (ICH, also called parenchymal hemorrhage), which involves bleeding directly into brain tissue, and subarachnoid hemorrhage (SAH), which involves bleeding into the cerebrospinal fluid that surrounds the brain and spinal cord [1].

This topic will review the classification of stroke. The clinical diagnosis of stroke subtypes and an overview of stroke evaluation are discussed separately. (See "Clinical diagnosis of stroke subtypes" and "Overview of the evaluation of stroke".)

背景資料


STAGE 1
Normal
Kidney Function
STAGE 2
Mild
Kidney dysfunction
STAGE 3
Moderate
Kidney dysfunction
STAGE 4
Severe
Kidney dysfunction
STAGE 5
ESRD/
Kidney Failure
Endogenous tPA/PAI-1; MMP9; Uremic toxins; Profibrotics; Comorbidities
Endothelial dysfunction
Arteriostenosis
Inflammation
BBB disruption
Pre-Stroke
Post-Stroke
Atherosclerosis
Cognitive dysfunction
Transient Infarcts
Neurodegeneration
Resistant hypertension
Limited diagnosis
rtPA induced Hemorrhage
Poor renal clearance
Short/long-term mortality
Renal Failure

報告大綱

情境摘要
背景搜尋

1A - 提出問題
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3A - 嚴謹評讀
4A - 結合臨床
5A - 執行決策

	Free-Text	Mesh同義字
P	Woman Hypertension Type II DM ESRD Peritoneal dialysis	"women"[MeSH Terms] "hypertension"[MeSH Terms] "diabetes mellitus, type 2"[MeSH Terms] "kidney failure, chronic"[MeSH Terms] "peritoneal dialysis"[MeSH Terms]
I	Prophylactic antibiotics	"antibiotic prophylaxis"[MeSH Terms]
C	Placebo	Placebo [MeSH Terms]
O	Peritonitis Adverse event	"peritonitis"[MeSH Terms] "Adverse event"[All Fields]

問題設計：■治療型 □診斷型 □篩檢型 □預後型

	Free-Text	Mesh同義字
P	Woman Hypertension Type II DM ESRD	"women"[MeSH Terms] "hypertension"[MeSH Terms] "diabetes mellitus, type 2"[MeSH Terms] "kidney failure, chronic"[MeSH Terms]
I	Peritoneal dialysis	"peritoneal dialysis"[MeSH Terms]
C	Hemodialysis	"renal dialysis"[MeSH Terms]
O	Stroke risk Adverse event	"Hemodialysis"[MeSH Terms] "Adverse event"[All Fields]

問題設計：■治療型 □診斷型 □篩檢型 □預後型

治療型問題，建議選讀之最佳證據等級Level I的文獻為：Systematic review of RCT

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or *n*-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, *n*-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or *n*-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non -randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

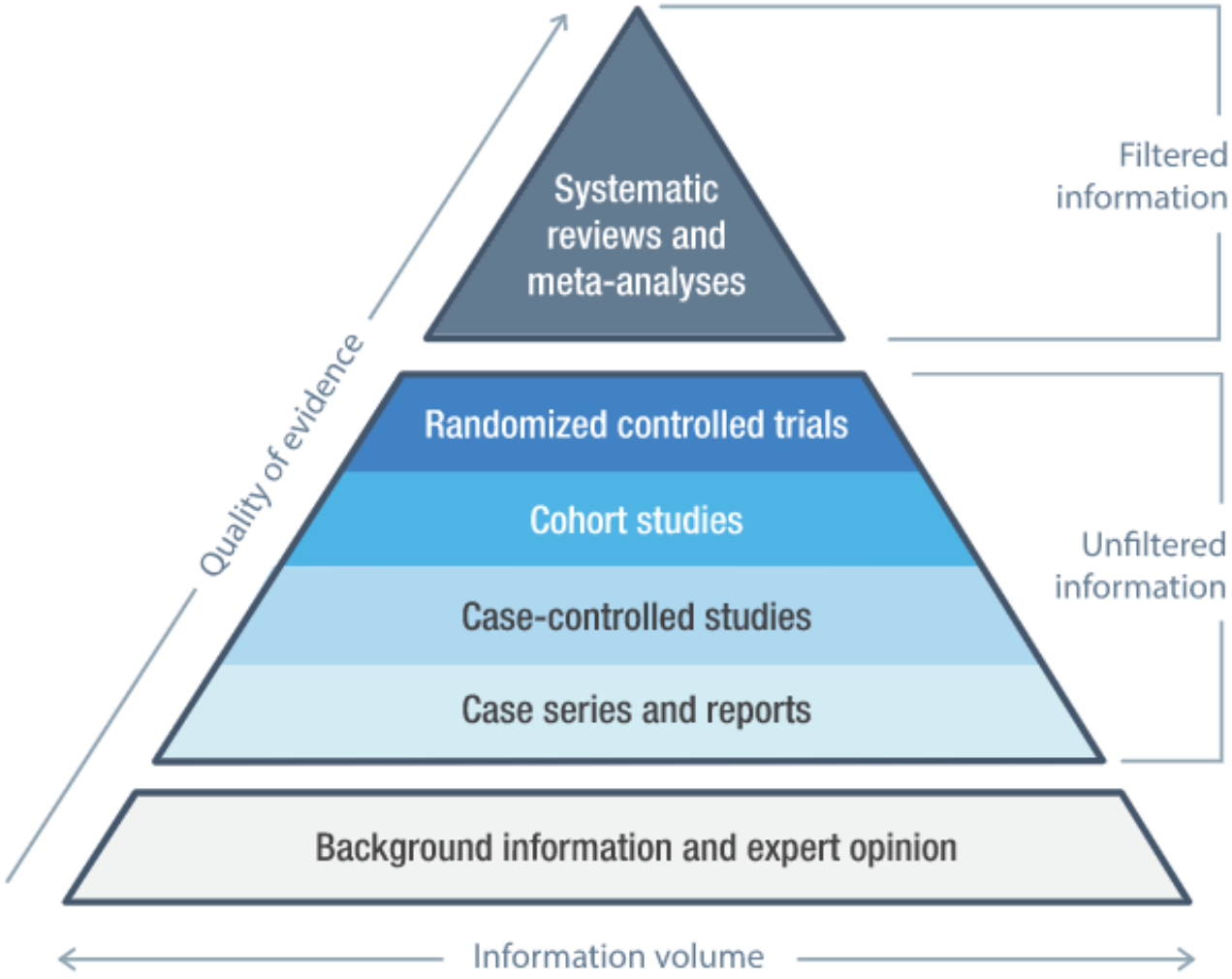
*** Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.**

**** As always, a systematic review is generally better than an individual study.**

How to cite the Levels of Evidence Table

OCEBM Levels of Evidence Working Group*. "The Oxford 2011 Levels of Evidence".
Oxford Centre for Evidence-Based Medicine. http://www.cebm.net/index.aspx?o=5653

** OCEBM Table of Evidence Working Group = Jeremy Howick, Iain Chalmers (James Lind Library), Paul Glasziou, Trish Greenhalgh, Carl Heneghan, Alessandro Liberati, Ivan Moschetti, Bob Phillips, Hazel Thornton, Olive Goddard and Mary Hodgkinson*



治療型問題，建議選讀之最佳證據等級Level I的文獻為：

Systematic review of RCT

報告大綱

情境摘要
背景搜尋

1A - 提出問題
2A - 查詢研究
3A - 嚴謹評讀
4A - 結合臨床
5A - 執行決策

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Search manager lets you add unlimited search lines, view results per line and access the MeSH browser using the new MeSH button.
Title Abstract Keyword woman
AND Title Abstract Keyword kidney failure, chronic
AND Title Abstract Keyword peritoneal dialysis
AND Title Abstract Keyword Hemodialysis
(Word variations have been searched)
Search limits Send to search manager Run search
Clear all
Filter your results
Date
Publication date
The last 3 months 0
Cochrane Reviews 1
Cochrane Protocols 0
Trials 15
Editorials 0
Special Collections 0
Clinical Answers 0
More
1 Cochrane Review matching woman in Title Abstract Keyword AND kidney failure, chronic in Title Abstract Keyword AND peritoneal dialysis in Title Abstract Keyword AND Hemodialysis in Title Abstract Keyword - (Word variations have been searched)
Cochrane Database of Systematic Reviews
Issue 12 of 12, December 2023

Search	Query	Items
5	(woman) AND (kidney failure, chronic)AND (peritoneal dialysis)AND (Hemodialysis) PIC	16
4	Hemodialysis C	360
3	peritoneal dialysis I	6,906
2	kidney failure, chronic P	435,659
1	woman P	8,562,891

關鍵字搜索

History and Search Details

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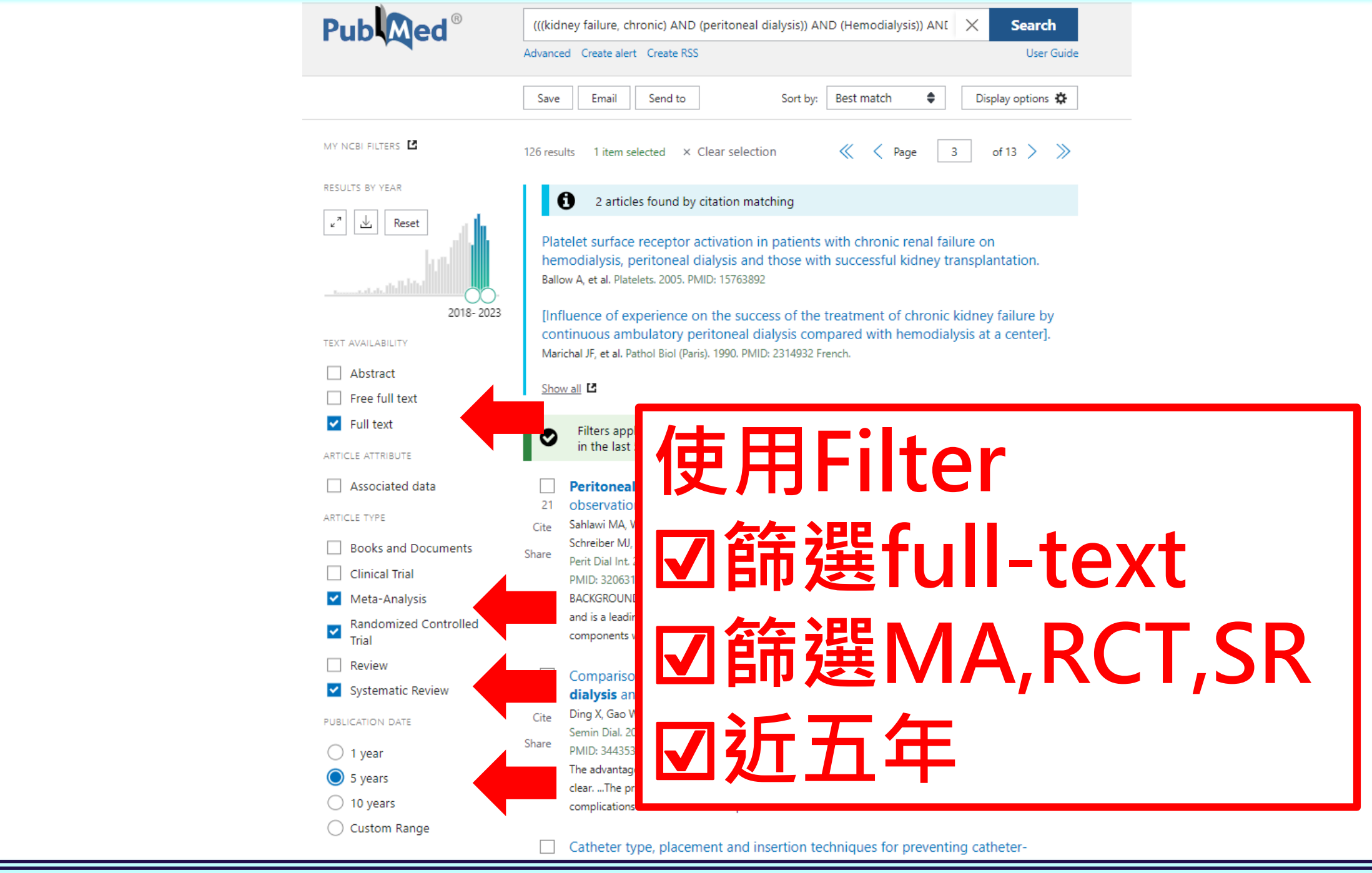
Search	Actions	Details	Query	Results	Time
#12	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (Hemodialysis)** Filters: **Full text, Meta-Analysis, Systematic Review, in the last 5 years**	91	21:32:01
#11	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (Hemodialysis)** Filters: **Full text, Meta-Analysis, Randomized Controlled Trial, Systematic Review, in the last 5 years**	126	21:31:20
#10	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (Hemodialysis)** Filters: **Meta-Analysis, Randomized Controlled Trial, Systematic Review, in the last 5 years**	126	21:31:12
#9	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (Hemodialysis)** Filters: **Meta-Analysis, Randomized Controlled Trial, in the last 5 years**	98	21:29:07
#8	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (Hemodialysis)** Filters: **Meta-Analysis, Randomized Controlled Trial**	442	21:28:57
#7	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (Hemodialysis)** Filters: **Meta-Analysis**	116	21:28:54
#6	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (Hemodialysis)**	13,860	
#5	•••	>	Search: **(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AND (stroke)**	166	
#4	•••	>	Search: **stroke**	447,811	
#3	•••	>	Search: **Hemodialysis**	179,144	
#2	•••	>	Search: **peritoneal dialysis**	36,875	
#1	•••	>	Search: **kidney failure, chronic**	125,055	

加 Filter

PICO

O C I P

用MESH term結合布林邏輯運算得出以下搜尋結果


PubMed
(((kidney failure, chronic) AND (peritoneal dialysis)) AND (Hemodialysis)) AN
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Advanced
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Create RSS
User Guide
Save
Email
Send to
Sort by:
Best match
Display options
MY NCBI FILTERS
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1 item selected
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Page
3
of 13
RESULTS BY YEAR
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2018- 2023
2 articles found by citation matching
Platelet surface receptor activation in patients with chronic renal failure on hemodialysis, peritoneal dialysis and those with successful kidney transplantation.
Ballow A, et al. Platelets. 2005. PMID: 15763892
[Influence of experience on the success of the treatment of chronic kidney failure by continuous ambulatory peritoneal dialysis compared with hemodialysis at a center].
Marichal JF, et al. Pathol Biol (Paris). 1990. PMID: 2314932 French.
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☑近五年

PubMed

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'Burden of **Kidney** Disease' among Chinese **ki** ...

29 Cite Share

Efficacy and Safety of Mineralocorticoid Receptor Antagonists in **Kidney Failure** Patients Treated with **Dialysis**: A Systematic Review and Meta-Analysis.

Chen KT, Kang YN, Lin YC, Tsai IL, Chang WC, Fang TC, Wu MS, Kao CC.

Clin J Am Soc Nephrol. 2021 Jun;16(6):916-925. doi: 10.2215/CJN.15841020. Epub 2021 Jun 11.

PMID: 34117083 Free PMC article.

Thus, we aimed to determine the benefits and side effects of mineralocorticoid receptor antagonists in patients with **kidney failure** treated with **dialysis**. DESIGN, SETTING, PARTICIPANTS, & MEASUREMENTS: This is a systematic review and meta-analysis of rand ...

30 Cite Share

Comparison of risk of stroke in patients treated with **peritoneal dialysis** and **hemodialysis**: a systematic review and meta-analysis.

Zhan X, Yang M, Chen Y, Zhang L, Yan C, Wang Y.

Ren Fail. 2019 Nov;41(1):650-656. doi: 10.1080/0886022X.2019.1632210.

PMID: 31296101 Free PMC article.

Objective: Accumulating evidence has demonstrated that **dialysis** patients are at increased risk for stroke. However, the impact of **dialysis** modalities on stroke risk remains controversial. We conducted a systematic review and meta-analysis to determine the effect of ...

選擇文獻

2019

RENAL FAILURE
2019, VOL. 41, NO. 1, 650–656
https://doi.org/10.1080/0886022X.2019.1632210

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STATE OF THE ART REVIEW

OPEN ACCESS Check for updates

Comparison of risk of stroke in patients treated with peritoneal dialysis and hemodialysis: a systematic review and meta-analysis

Xiaojiang Zhan, Mei Yang, Yanbing Chen, Li Zhang, Caixia Yan and Yu Wang

Department of Nephrology, The First Affiliated Hospital of Nanchang University, Nanchang, Jiangxi, China

選擇理由

2019

1.符合PICO

2.2019發表

3.為SR of RCT

RENAL FAIL
2019, VOL. 41, NO. 1, 650–656
https://doi.org/10.1080/0886022X.2019.1628264

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STATE OF THE ART REVIEW

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Comparison of risk of stroke in patients treated with peritoneal dialysis and hemodialysis: a systematic review and meta-analysis

Xiaojiang Zhan, Jia Yang, Yanbing Chen, Li Zhang, Caixia Yan and Yu Wang

Department of Nephrology, The First Affiliated Hospital of Nanchang University, Nanchang, Jiangxi, China

報告大綱

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4A - 結合臨床
5A - 執行決策

Critical Appraisal Skills Programme

Validiy

(可信性)

Practice

(適用性)

Importance

(重要性)

問題一: 此研究是否問了一個清楚明確的問題?

☑ Yes ☐ No ☐ Can't tell

STATE OF THE ART REVIEW

OPEN ACCESS Check for updates

Comparison of risk of stroke in patients treated with peritoneal dialysis and hemodialysis: a systematic review and meta-analysis

P O I C

...evalence of end-stage renal disease (ESRD) ...has increased sharply in recent years. Hemodialysis (HD) and peritoneal dialysis (PD) have been widely accepted for treatment of ESRD [1]. Cardiovascular disease (CVD) is the most common cause of morbidity and mortality in ESRD patients in whom dialysis therapy is initiated, accounting for 33% of hospitalizations, 37% of rehospitalizations, and 41% of deaths [2]. Stroke represents one of the main causes of cardiovascular mortality in patients with ESRD [3,4]. PD has been considered to be superior to HD for cerebrovascular protection because anticoagulation is not required during PD, and PD maintains better control of hypertension. However, PD

P I C O P

PICO包含在題目以及內文中，是一個清楚明確的問題

問題二：作者是否尋找適當研究型態的文獻?

☑ Yes ☐ No ☐ Can't tell

Comparison of risk of stroke in patients treated with peritoneal dialysis and hemodialysis: a systematic review and meta-analysis

Inclusion criteria

The following inclusion criteria were used: (1) the study design was a cohort study that evaluated the association between the dialysis modality (PD or HD) and stroke; (2) the outcomes of interest were stroke events; and (3) the hazard ratios (HRs) with 95% confidence intervals (CIs) were provided.

收錄文獻: cohort study, 來做systematic review，並且都是評估PD/HD和stroke關係

➡ 符合RCT &PICO設計

問題三：你認為所有重要且相關的研究都被納入?

☑ Yes ☐ No ☐ Can't tell

Methods

Literature search

A literature search of PubMed, EMBASE, and Web of Science was performed to identify relevant studies. No date or language restrictions were applied. The search terms included 'stroke' 'intracranial embolism' 'cerebral infarction' 'brain infarction' 'ischemic attack' 'cerebrovascular disease' 'cerebrovascular disorder' 'hemorrhagic stroke' 'cerebrovascular accident' 'peritoneal dialysis' 'hemodialysis' 'haemodialysis' 'renal

納入的研究來自3個資料庫,包含了PubMed、Embase、Web of science

問題四：作者是否評估所納入研究文獻的品質?

This modified NOS consisted of three parts: the selection of the study patients, the comparability of the study groups, and the ascertainment of outcomes. A score of 0 to 9 stars was allocated to each study. Studies achieving a score of ≥ 6 stars were considered to be high quality. Meta-regression analysis was not performed due to the limited number of studies. Publication bias was evaluated using funnel plots. Statistical analysis was performed using Review Manager Version 5.3 (The Cochrane Collaboration, Oxford, London, UK). Generally, the results with a *P* values <0.05 ($\alpha = 0.05$) were considered statistically significant.

☑ Yes ☐ No ☐ Can't tell

使用了modified NOS來評估quality和risk of bias(>=6 star means high quality)

Table 1. Characteristics of included studies.

First author, year	Country	Design	No. of patients: PD/HD	Follow-up	Study quality (score)
Masson, 2016 [11]	Australia	Retrospective	3042/7422	3.8 (1.6–7.8)(m)[a]	★★★★★★★★★
Kim, 2015 [2]	Korea	Retrospective	7387/22 892	21.5 (0–57)(m)[b]	★★★★★★
Fu, 2015 [12]	China	Prospective	305/285	32.5 (3–71.8)(m)[b]	★★★★★★★★★
Stack, 2015 [13]	America	Retrospective	86 168/1,011,578	NA	★★★★
Wang, 2014 [3]	China	Retrospective	5974/74 192	HD: 4.2 ± 3.2 (y) [c] PD: 3.0 ± 2.3 (y) [c]	★★★★★★★

問題四：作者是否評估所納入研究文獻的品質?

Statistical analysis

This systematic review was performed according to the recommendations of the Cochrane Collaboration and the Quality of Reporting of Meta-analyses (QUORUM) guidelines [6,7]. Study heterogeneity was assessed using the chi-squared test with significance set at $P < 0.10$ and the I^2 statistic. If I^2 was >50%, a random-effects (RE) model was used. Otherwise, a fixed-effects (FE) model was used [8]. Subgroup analyses were used to explore the sources of heterogeneity. Sensitivity analyses were performed by removing individual studies one at a time to assess the robustness of the results. The Newcastle–Ottawa Scale (NOS), with some modifications to match the needs of this study, was used to

☑ Yes ☐ No ☐ Can't tell

Data extraction

Two reviewers (X.Z. and M.Y.) independently extracted data from the included studies, and any discrepancy

兩位評讀者確保評估的品質，使用了modified NOS來評估quality和risk of bias

➡ 符合RoB,GRADE,兩人評讀

問題五：如果作者將研究結果進行合併, 是否合理?

Statistical analysis

This systematic review was performed according to the recommendations of the Cochrane Collaboration and the Quality of Reporting of Meta-analyses (QUORUM) guidelines [6,7]. Study heterogeneity was assessed using the chi-squared test with significance set at $P < 0.10$ and the I^2 statistic. If I^2 was >50%, a random-

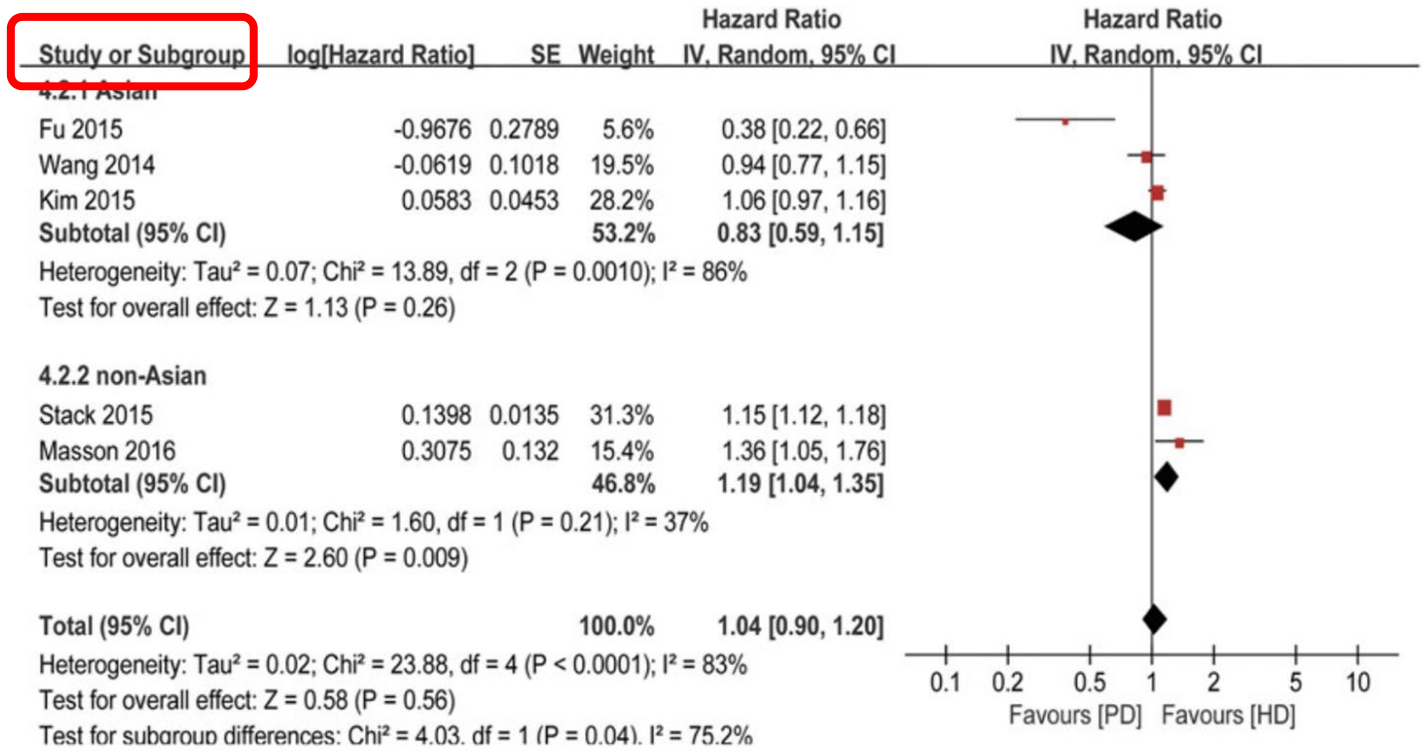
using the chi-squared test with significance set at $P < 0.10$ and the I^2 statistic. If I^2 was >50%, a random-effects (RE) model was used. Otherwise, a fixed-effects (FE) model was used [8]. Subgroup analyses were used to explore the sources of heterogeneity. Sensitivity analyses were performed by removing individual studies one at a time to assess the robustness of the results.

☑ Yes ☐ No ☐ Can't tell

分析研究異質性:
chi squared test+ I square
並做次群組分析和敏感性測試

問題五：如果作者將研究結果進行合併, 是否合理?

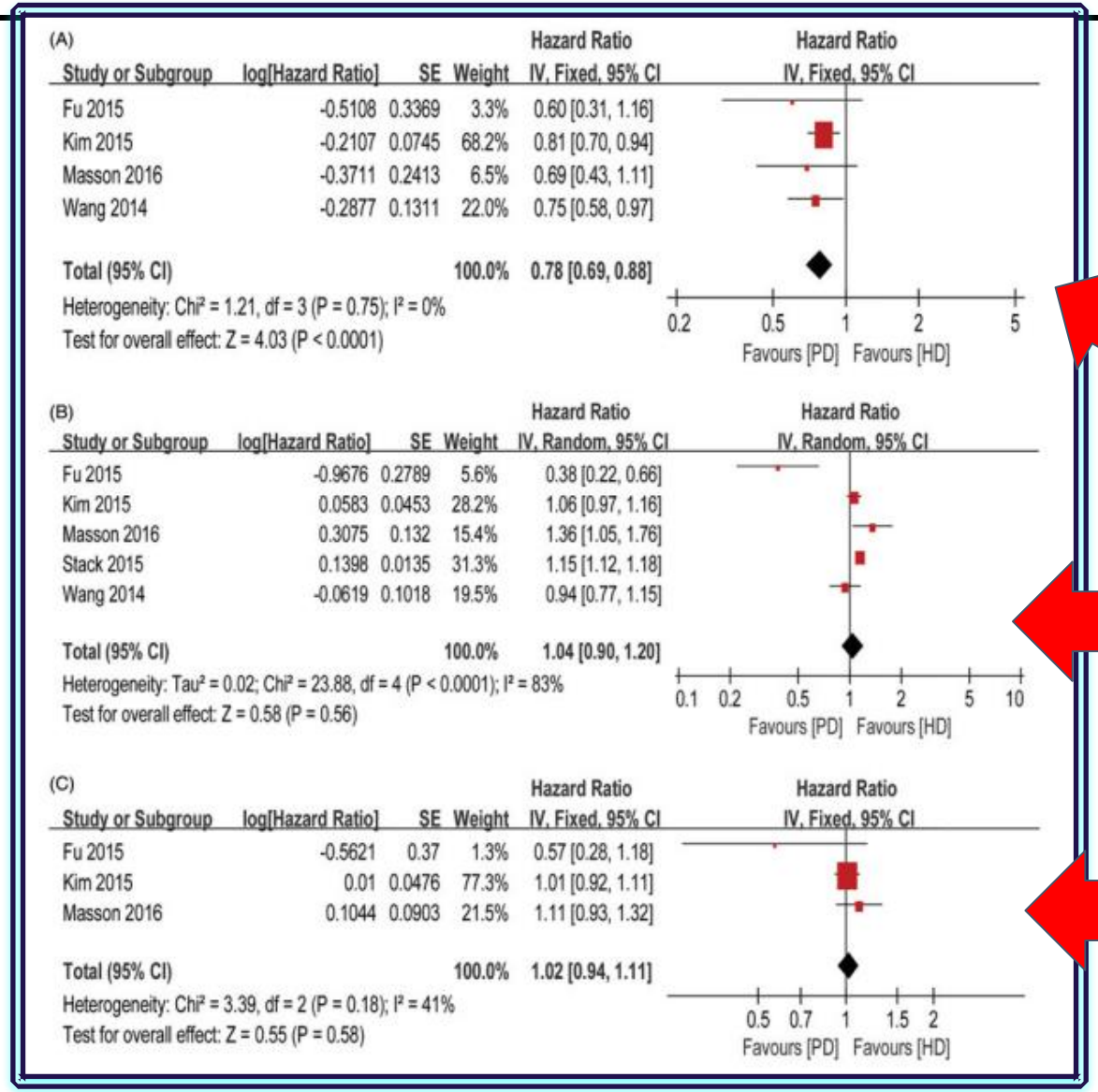
☑ Yes ☐ No ☐ Can't tell



e 3. Subgroup analyses of ischemic stroke comparing PD with HD.

分析研究異質性:
chi squared test+ I square，
並做次群組分析
和敏感性測試

問題六：這篇系統性文獻回顧的整體結果為何？



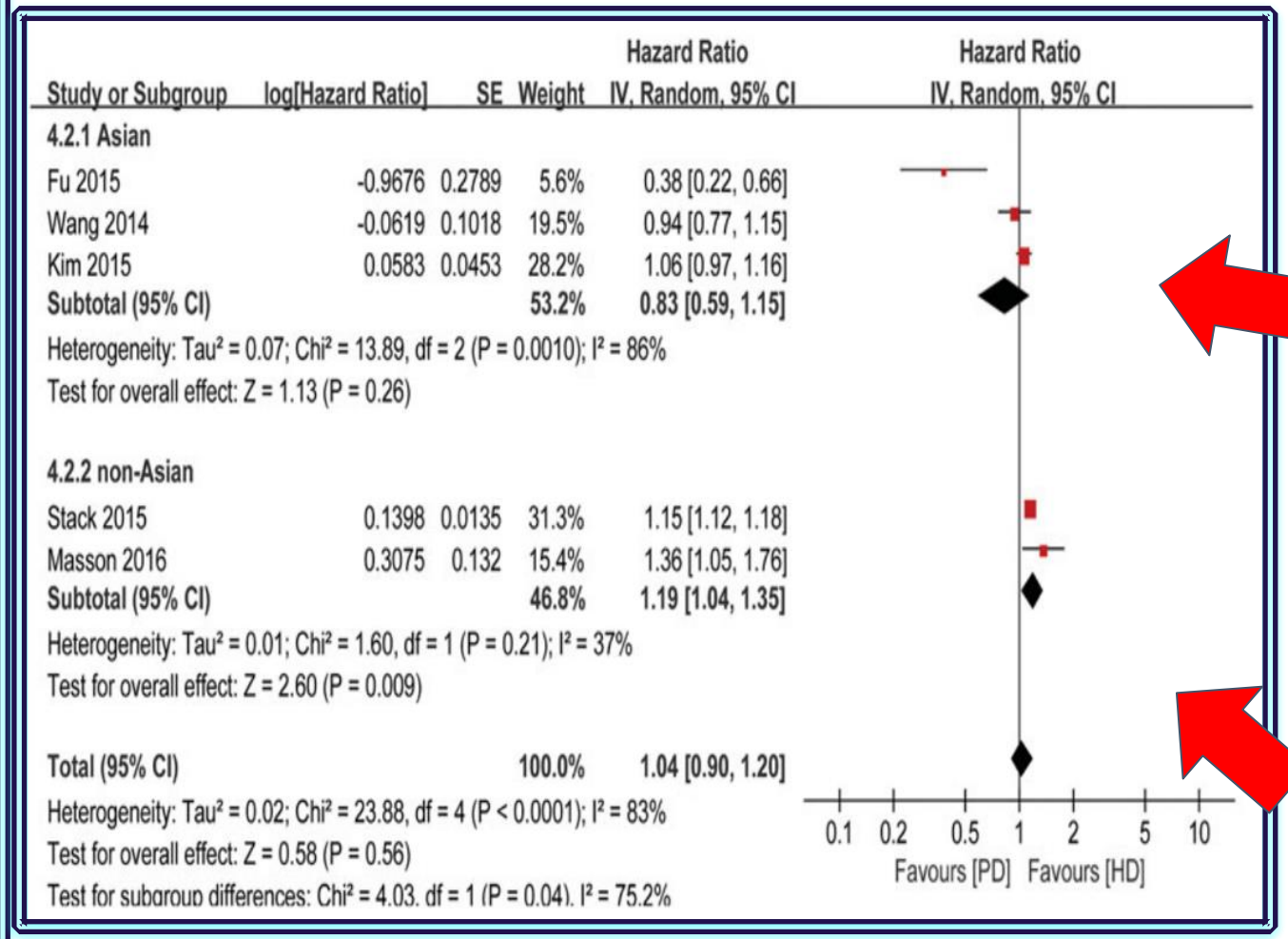
☑ Yes ☐ No ☐ Can't tell

-Hemorrhagic stroke:
PD有顯著差異降低(22%)中風率

-Ischemic stroke:
PD/HD沒有顯著差別
HR:0.78, P<0.0001

-Overall stroke:
PD/HD沒有顯著差別

問題六：這篇系統性文獻回顧的整體結果為何？



☑ Yes ☐ No ☐ Can't tell

針對缺血性中風:

亞洲族群:

HR:0.83,P:0.26,

做PD可能降低中風率

非亞洲族群:

HR:1.19,P:0.009

問題六：這篇系統性文獻回顧的整體結果為何？

☑ Yes ☐ No ☐ Can't tell

[19]. Third, most patients receiving PD use glucose-based dialysate, which may increase the burden of glucose and lead to more metabolic side effects, including obesity, dyslipidemia, hyperinsulinemia and peripheral insulin resistance, more than those receiving HD [20–22]. However, Fu et al. [12] reported that HD

-Side effect:
PD病人使用含葡萄糖透析藥水，更易產生代謝副作用(肥胖、血脂異常、高胰島素濃度及胰島素阻抗)

問題七：結果精準嗎？

☐ Yes ☑ No ☐ Can't tell

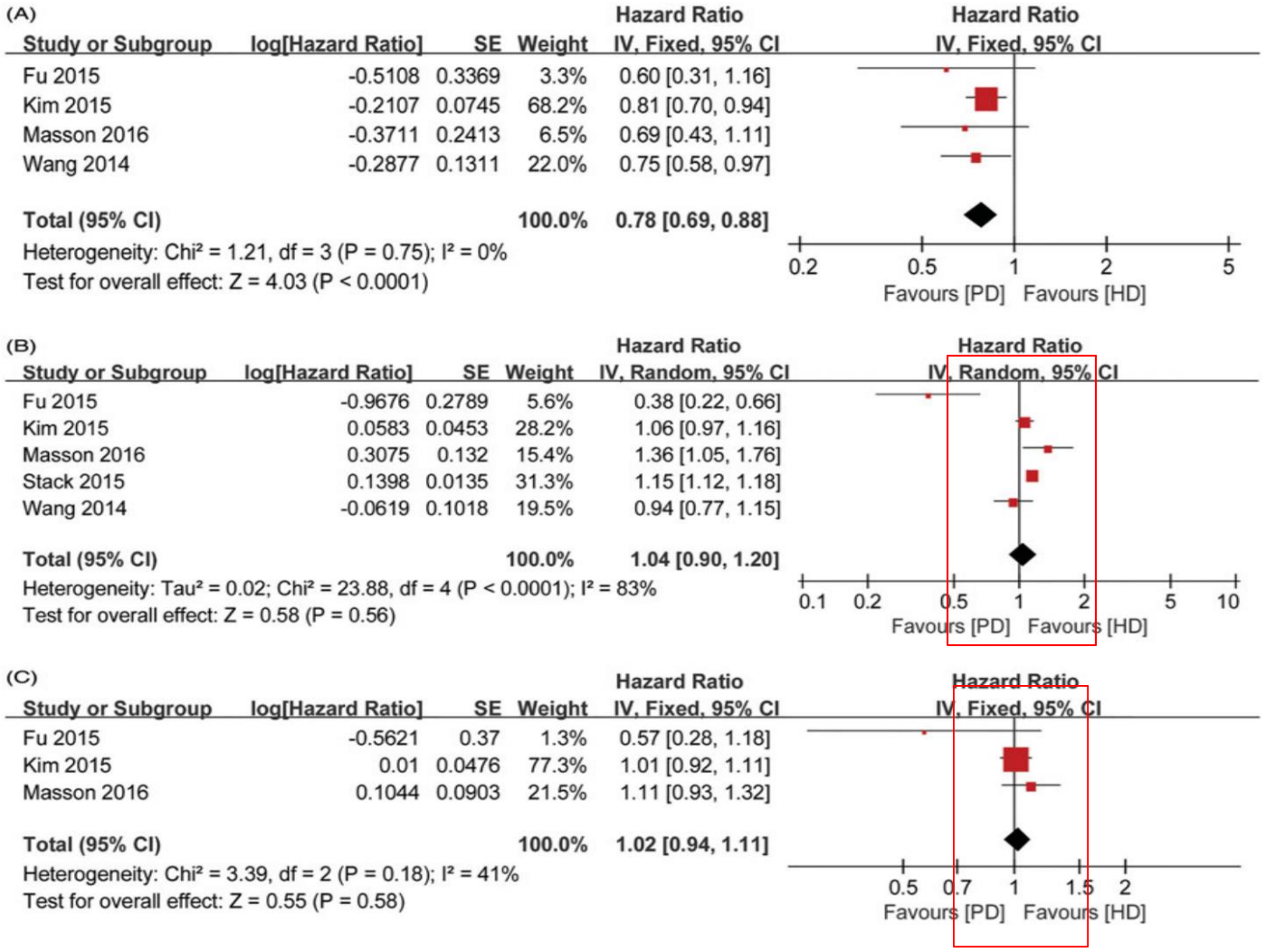
First author, year	Country	Design	No. of patients: PD/HD	Follow-up	Study quality (score)
Masson, 2016 [11]	Australia	Retrospective	3042/7422	3.8 (1.6–7.8)(m)[a]	★★★★★★★★
Kim, 2015 [2]	Korea	Retrospective	7387/22 892	21.5 (0–57)(m)[b]	★★★★★★
Fu, 2015 [12]	China	Prospective	305/285	32.5 (3–71.8)(m)[b]	★★★★★★★★
Stack, 2015 [13]	America	Retrospective	86 168/1,011,578	NA	★★★★
Wang, 2014 [3]	China	Retrospective	5974/74 192	HD: 4.2 ± 3.2 (y) [c] PD: 3.0 ± 2.3 (y) [c]	★★★★★★★

studies. Second, the number of studies included was relatively small. Third, heterogeneity among studies comparing the risk for ischemic stroke was marked.

sample size不夠大

問題七：結果精準嗎？

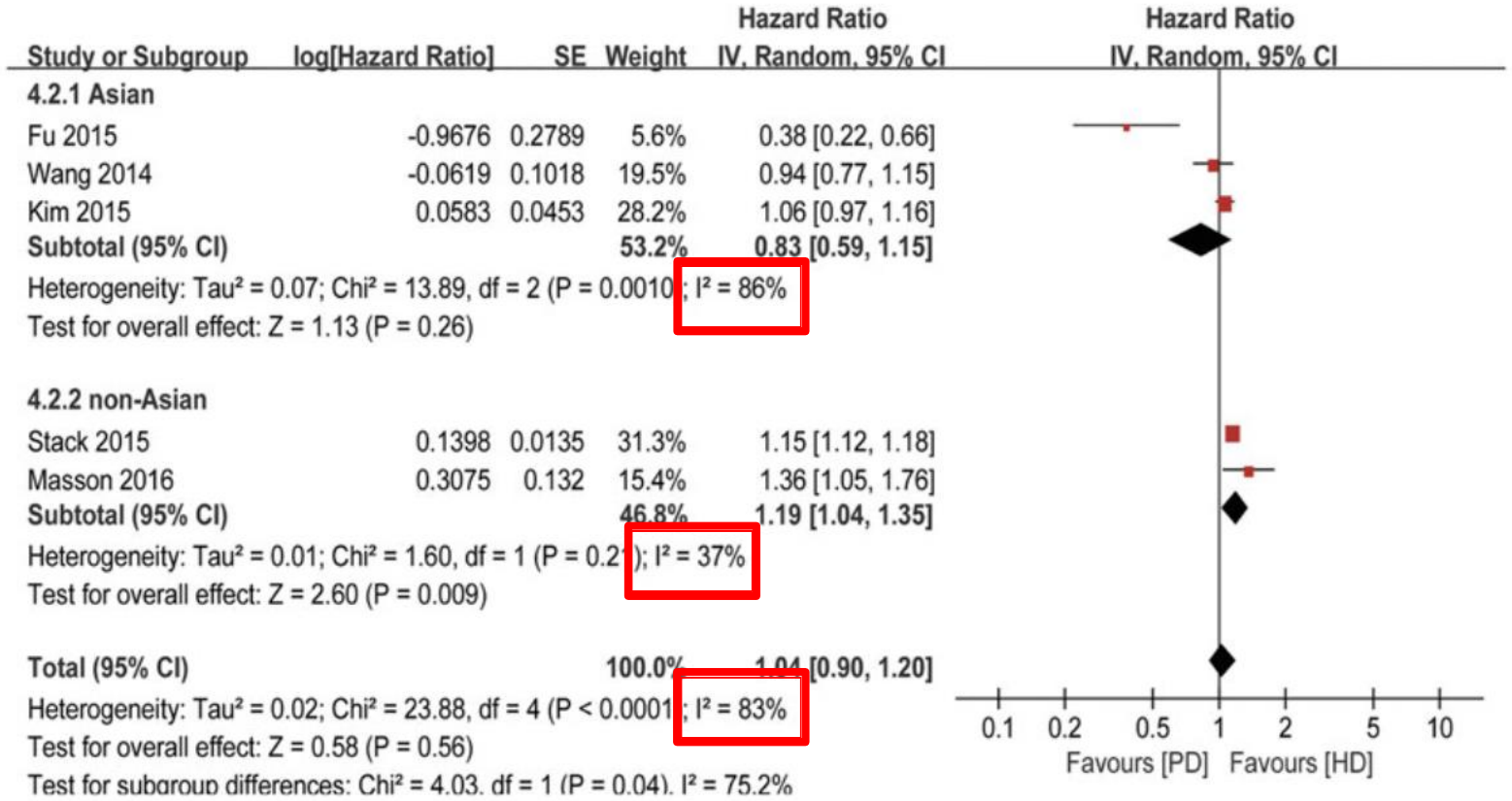
☐ Yes ☑ No ☐ Can't tell



信賴區間跨過1

問題七：結果精準嗎？

☐ Yes ☑ No ☐ Can't tell



ure 3. Subgroup analyses of ischemic stroke comparing PD with HD.

異質性

各情況不一

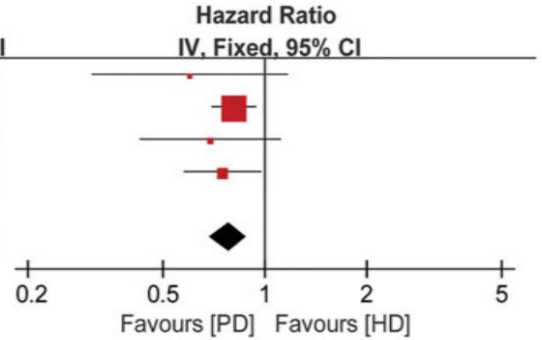
問題七：結果精準嗎？

☐ Yes ☑ No ☐ Can't tell

(A)

Study or Subgroup	log[Hazard Ratio]	SE	Weight	Hazard Ratio IV, Fixed, 95% CI
Fu 2015	-0.5108	0.3369	3.3%	0.60 [0.31, 1.16]
Kim 2015	-0.2107	0.0745	68.2%	0.81 [0.70, 0.94]
Masson 2016	-0.3711	0.2413	6.5%	0.69 [0.43, 1.11]
Wang 2014	-0.2877	0.1311	22.0%	0.75 [0.58, 0.97]
Total (95% CI)			**100.0%**	**0.78 [0.69, 0.88]**

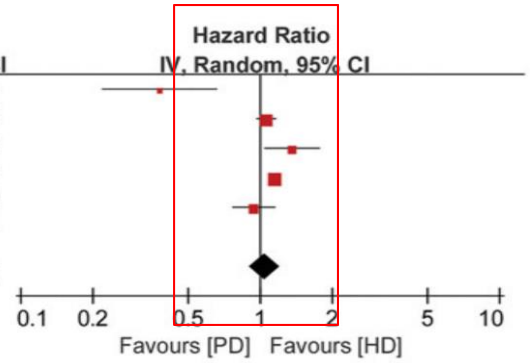
Heterogeneity: Chi² = 1.21, df = 3 (P = 0.75); I² = 0%
Test for overall effect: Z = 4.03 (P < 0.0001)



(B)

Study or Subgroup	log[Hazard Ratio]	SE	Weight	Hazard Ratio IV, Random, 95% CI
Fu 2015	-0.9676	0.2789	5.6%	0.38 [0.22, 0.66]
Kim 2015	0.0583	0.0453	28.2%	1.06 [0.97, 1.16]
Masson 2016	0.3075	0.132	15.4%	1.36 [1.05, 1.76]
Stack 2015	0.1398	0.0135	31.3%	1.15 [1.12, 1.18]
Wang 2014	-0.0619	0.1018	19.5%	0.94 [0.77, 1.15]
Total (95% CI)			**100.0%**	**1.04 [0.90, 1.20]**

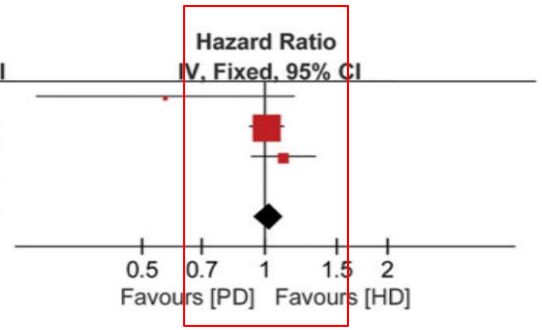
Heterogeneity: Tau² = 0.02; Chi² = 23.88, df = 4 (P < 0.0001); I² = 83%
Test for overall effect: Z = 0.58 (P = 0.56)



(C)

Study or Subgroup	log[Hazard Ratio]	SE	Weight	Hazard Ratio IV, Fixed, 95% CI
Fu 2015	-0.5621	0.37	1.3%	0.57 [0.28, 1.18]
Kim 2015	0.01	0.0476	77.3%	1.01 [0.92, 1.11]
Masson 2016	0.1044	0.0903	21.5%	1.11 [0.93, 1.32]
Total (95% CI)			**100.0%**	**1.02 [0.94, 1.11]**

Heterogeneity: Chi² = 3.39, df = 2 (P = 0.18); I² = 41%
Test for overall effect: Z = 0.55 (P = 0.58)



sample size不夠大,
信賴區間跨過中線,
異質性各情況不一
→ 不精準

問題八：此研究結果是否可應用到當地的族群？

☑ Yes ☐ No ☐ Can't tell

Table 1. Characteristics of included studies.

First author, year	Country	Design	No. of patients: PD/HD
Masson, 2016 [11]	Australia	Retrospective	3042/7422
Kim, 2015 [2]	Korea	Retrospective	7387/22 892
Fu, 2015 [12]	China	Prospective	305/285
Stack, 2015 [13]	America	Retrospective	86 168/1,011,578
Wang, 2014 [3]	China	Retrospective	5974/74 192

There was high heterogeneity in the ischemic stroke risk for PD versus HD. Almost 10% of people in Australia are Asian, and almost 5% of people in the United States are Asian. Our subgroup analyses by

研究對象包含大量亞洲人

問題九：是否所有重要的臨床結果都有被考量到？

☑ Yes ☐ No ☐ Can't tell

patients. There are three potential explanations. First, higher levels of pro-coagulant proteins and hemoconcentration are found in people undergoing PD compared to those undergoing HD [18]. Second, people who prefer PD may also have pro-thrombotic comorbidities, including heart failure, atherosclerotic heart disease, vascular access problems, or a previous stroke [19]. Third, most patients receiving PD use glucose-based dialysate, which may increase the burden of glucose and lead to more metabolic side effects, including obesity, dyslipidemia, hyperinsulinemia and peripheral insulin resistance, more than those receiving HD [20–22]. However, Fu et al. [12] reported that HD patients had a significantly higher risk for ischemic stroke compared to PD patients. A possible reason is that HD patients are more likely to exhibit characteristics that could increase the risk for stroke, such as an older age; the presence of comorbidities, such as diabetes, hypertension, and CVD; and worse nutritional status and residual renal function [12].

in the general population. For example, a previous study showed that among patients with ESRD and atrial fibrillation (AF), the incidence of stroke is significantly higher than in patients with ESRD who do not have AF [14]. Furthermore, treatments for ESRD (HD or PD) may have different effects on the risk for stroke. Kim et al. [2] described that PD patients had a 19% lower risk of hemorrhagic stroke than HD patients (HR = 0.81; 95% CI: 0.70–0.93). Wang et al. [3] showed that PD patients had a 25% lower risk of hemorrhagic stroke than HD

There was high heterogeneity in the ischemic stroke risk for PD versus HD. Almost 10% of people in

問題九：是否所有重要的臨床結果都有被考量到？

☑ Yes ☐ No ☐ Can't tell

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重要臨床結果包含兩種主要類型中風hemorrageic 和ischemic有討論到，以及PD和HD會對病人造成的已知風險

問題十：傷害和花費換得介入所產生益處是否值得？

☑ Yes ☐ No ☐ Can't tell

In conclusion, this meta-analysis found that PD patients had a lower risk for hemorrhagic stroke compared to HD patients. However, the risks for ischemic stroke and overall stroke did not differ between the

Conclusions: We observed that PD patients were less likely to develop hemorrhagic stroke than HD patients, and the risk for ischemic stroke was significantly higher for PD patients than for HD patients among the non-Asian patients. However, our findings could be biased due to the heterogeneity of the included studies.

病人使用PD，有較低的出血性中風風險；針對亞洲族群也有較低的缺血性中風風險

No	Examination	Yes/No
1	此篇系統性文獻回顧是否問了一個清楚、明確的問題?	Yes
2	作者是否尋找適當研究型態的文獻?	Yes
3	你認為所有重要且相關的研究都被納入?	Yes
4	系統性文獻回顧的作者是否評估所納入研究文獻的品質?	Yes
5	如果作者將研究結果進行合併，這樣的合併是否合理?	Yes
6	這篇系統性文獻回顧的整體結果為何？	Yes
7	結果精準嗎？	No
8	此研究結果是否可應用到當地的族群？	Yes
9	是否所有重要的臨床結果都有被考量到？	Yes
10	付出的傷害和花費換得介入措施所產生的益處是否值得？	Yes

報告大綱

情境摘要
背景搜尋

1A - 提出問題
2A - 查詢研究
3A - 嚴謹評讀
4A - 結合臨床
5A - 執行決策

臨床應用 價格

血液透析	約４０００元 / 次	健保全額給付
腹膜透析 - 藥水	一包約２００元	健保全額給付
腹膜透析 - ＡＰＤ機器	租金２７００元 / 月	健保補助

家有中風失能病人，一年花費近百萬

支出項目	說明	費用粗估
一次性費用	• 輔具：輪椅、氣墊、電動床等 • 醫療器材：氧氣機、蒸痰機、復健器材等 • 無障礙環境設施：扶手、特殊衛浴等	5～20萬元
照護服務費／每月	• 長照居家服務（以小時計算，民眾自付費1小時60元） • 社區照顧（日間照顧中心或家庭托顧，依失能程度政府最高補助約7成） • 機構照顧（護理之家、養護機構） • 聘請外籍看護 • 聘請本國看護 • 家人自行照顧	• 0.5～1.8萬元 • 0.5～1.8萬元 • 2.5～4萬元 • 約2.5萬元 • 3～7萬元 • 離職損失（薪資／退休金）
材料費／每月	尿布、營養品、衛生紙、濕紙巾、手套、醫療用品（消菌紗布、體溫套、棉花棒）等	1～3萬元

資料來源：中華民國家庭照顧者關懷總會　整理：邱淑宜

臨床應用 差異

	血液透析	腹膜透析
執行者	醫療人員（到醫療院所進行，時間受限）	病人本身或照顧者（可在家進行）
透析方式	每週三次，每次治療時間為4~5 小時	手動透析：每日４－５次（一次２０－３０分）２４小時持續進行 機器自動：每日一次（８－１０小時）睡眠休息時進行
治療方法	每次皆須在動靜脈瘻管上扎兩針	免扎針，經導管注入透析液，經過一定時間之後將透析液引流出來

臨床應用 差異

	血液透析	腹膜透析
飲食限制	限青菜水果 限水限鹽 適量魚肉蛋奶、黃豆製品	不限青菜水果 鼓勵魚肉蛋奶、黃豆製品 低鹽，適度限糖
血壓控制	透析前後血壓差異較大	持續緩慢脫水，血壓較易控制
治療時引起之不適情形	有扎針之苦，快速移除毒素及水分，透析後易出現不平衡症候群（噁心、嘔吐、痙攣、頭痛、高/低血壓）	不需扎針，平穩移除毒素及水分，透析過程不會有不適感

報告大綱

情境摘要
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1A - 提出問題
2A - 查詢研究
3A - 嚴謹評讀
4A - 結合臨床
5A - 執行決策

共享決策

醫療現況(實證醫學)

證據等級：CEBM(Level 1)
建議等級：Recommendation(strong)(不確定性低)

病人的治療偏好

- 希望可以了解不同的透析方式，發生中風的風險差異性
- 病人因要工作一直無法接受以後要過每週透析三次的生活
- 偏向使用腹膜透析

利弊平衡

- 腹膜透析治療可以預期降低出血性中風發生的機會，但在缺血性中風和整體中風的風險是沒有差異的，且可在家執行
- 嚴重的副作用包含導管感染造成的腹膜炎，因透析會流失蛋白質，長期下來可能造成營養不良
- 利益可能大於風險

費用資源

- 一般透析療程所需健保全給付
- 一旦發生中風，一年可能要近百萬
- 使用腹膜透析，每次約30~40分鐘，免扎針，可在家進行且能降低出血性中風風險，所產生之住院和介入/手術處置花費和醫療成本較低
- 選擇腹膜透析在絕大多數情況下是值得的

共享決策

林小姐和家屬您好:

經過我們團隊縝密的實證搜尋後，目前有最佳證據是由系統性文獻回顧的研究支持，使用腹膜透析治療可預期有效的降低出血性中風發生的機會，且花費是健保全額給付，因為您有高血壓和糖尿病，此族群在中風屬於高危險族群，又因為您這次有嚴重急性的末期腎臟病併發症，所以建議您接受腹膜透析治療。另外平常仍須遵從服藥、避免感染，搭配飲食和運動等調整，注重營養補充和養成合適的運動習慣，這樣才能達減少中風的機率發生喔！


THANK
YOU!