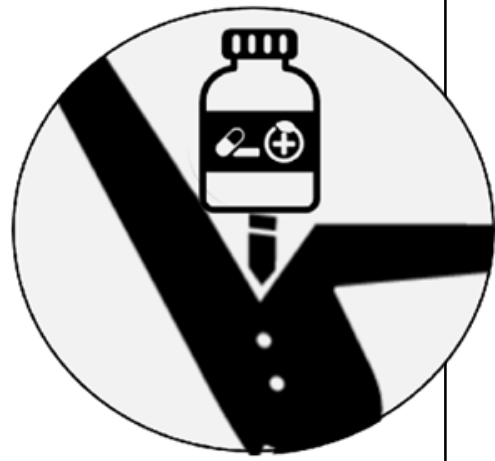
# 2023 實證醫學競賽

# 組別:C

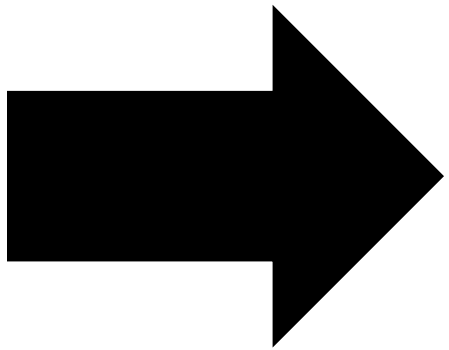



**許琳翊 PGY醫師 1**
**黃庭威 藥師 2**
**呂一寶 醫事放射師 3**

一般科PGY 、藥劑科、影像醫學科

# 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

# 臨床情境

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eGFR 15 ml/min/1.73m$^2$，醫師已告知可能要做透析治療準備，其因藥工作一直無法接受以後要過每週透析三次之生活。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：「現在要做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，動靜脈瘻管很重要，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瘻管的通暢性？」，您如何在實證證據、病人家屬之考量、成本、風險、效果等層面向家屬說明其所提問之問題，以盡快做決策與處置。

# 背景資料

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- **General principles** – Hemodialysis (HD) and continuous kidney replacement therapies (CKRT) are typically delivered with some form of anticoagulation (eg, unfractionated heparin [UFH] or low-molecular-weight heparin [LMWH]) to prevent clotting in the blood circuit. (See 'Introduction' above.)

- **Assessing bleeding risk** – Patients on chronic HD are generally prothrombotic. However, the risk of bleeding exceeds the risk of clotting among patients who have severe thrombocytopenia, evidence of active bleeding, a history of major surgery within the prior 72 hours (table 1), active intracranial or extradural hemorrhage, uremic pericarditis, coagulation factor VII or VIII deficiency, or who are being treated with systemic anticoagulants. Patients who are on antiplatelet agents alone are not considered to be at a high risk for bleeding. (See 'Assessing bleeding risk' above.)

# 背景資料

- **Advantages of PD for AKI** – Compared with other available modalities, peritoneal dialysis (PD) has several advantages as a kidney replacement therapy (KRT) for patients with acute kidney injury (AKI). These include logistical ease of setting up PD, superior hemodynamic tolerance, lower risk of dialysis disequilibrium syndrome, lack of a need for anticoagulation, and hyperalimentation among malnourished patients. In addition, PD is used for AKI when hemodialysis (HD) and continuous KRT are not available. (See 'Advantages of PD for AKI' above.)

# PICO - 1

| | |
|---|---|
| P | Female with hypertension , type II DM,  and ESRD |
| I | Peritoneal Dialysis |
| C | Hemodialysis |
| O | Risk of stroke<br>Peritonitis |

# PICO - 2

| | |
|---|---|
| P | Female with hypertension , type II DM, and ESRD with HD |
| I | Far Infrared Therapy |
| C | placebo or none |
| O | Permeability of Arteriovenous fistula<br>Low temperature burns |

| | Free-Text | Synonyms |
|---|---|---|
| P | Female, Hypertension, Diabetes mellitus, CKD | "Adults"[All Fields] "Patients"[All Fields] |
| I | Peritoneal Dialysis | "Peritoneal Dialysis"[All Fields] |
| C | Hemodialysis | "Hemodialysis"[All Fields] |
| O | Risk of stroke Peritonitis | "Stroke"[All Fields] |

**問題類型：傷害型**

**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 |

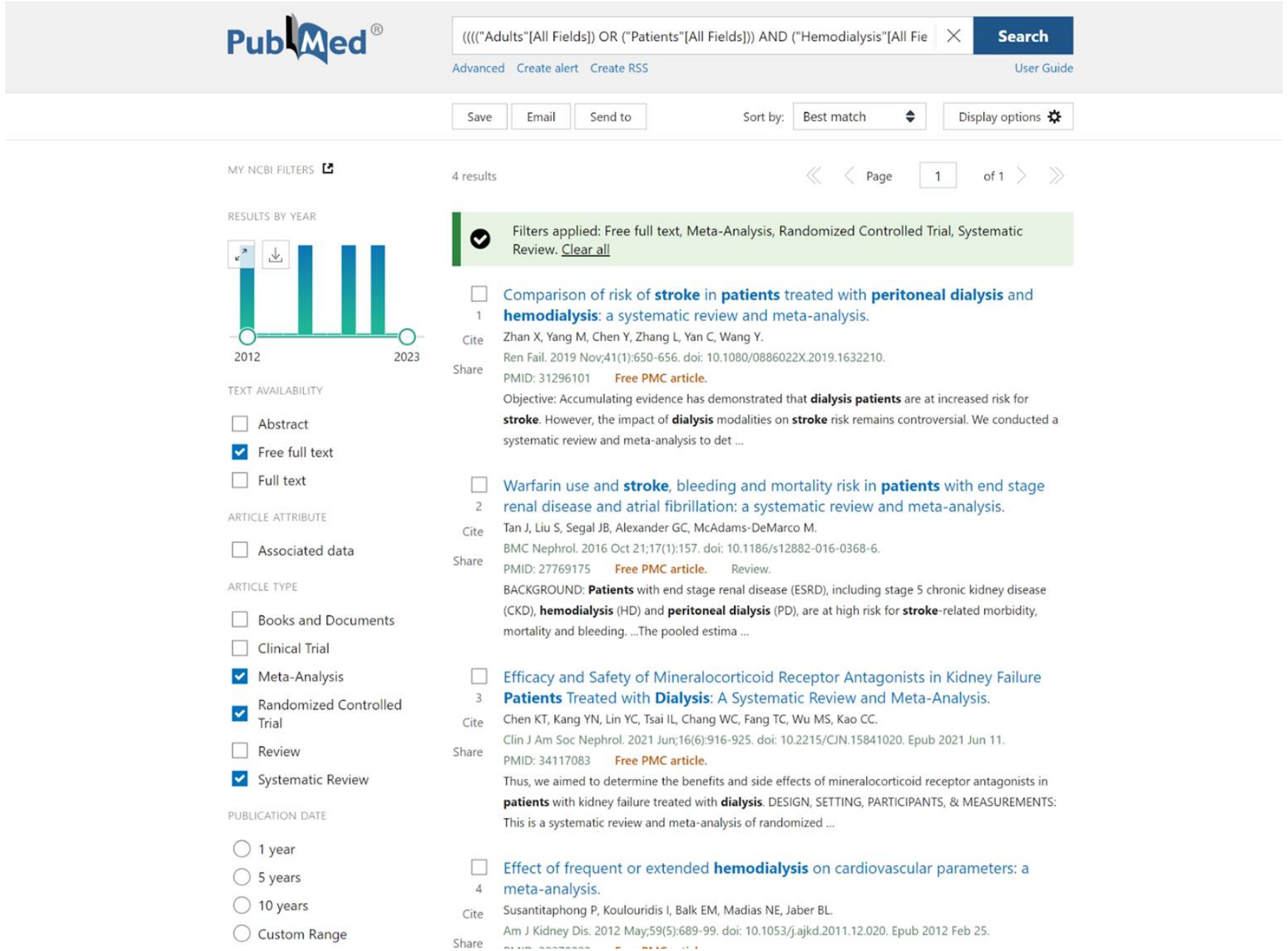
*** Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.**

**** 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*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Best match
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4 results
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1
of 1
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2023
Filters applied: Free full text, Meta-Analysis, Randomized Controlled Trial, Systematic Review. Clear all
TEXT AVAILABILITY
Abstract
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Full text
ARTICLE ATTRIBUTE
Associated data
ARTICLE TYPE
Books and Documents
Clinical Trial
Meta-Analysis
Randomized Controlled Trial
Review
Systematic Review
PUBLICATION DATE
1 year
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10 years
Custom Range
1
Cite
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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 det ...
2
Cite
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Warfarin use and stroke, bleeding and mortality risk in patients with end stage renal disease and atrial fibrillation: a systematic review and meta-analysis.
Tan J, Liu S, Segal JB, Alexander GC, McAdams-DeMarco M.
BMC Nephrol. 2016 Oct 21;17(1):157. doi: 10.1186/s12882-016-0368-6.
PMID: 27769175 Free PMC article. Review.
BACKGROUND: Patients with end stage renal disease (ESRD), including stage 5 chronic kidney disease (CKD), hemodialysis (HD) and peritoneal dialysis (PD), are at high risk for stroke-related morbidity, mortality and bleeding. ...The pooled estima ...
3
Cite
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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 randomized ...
4
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Effect of frequent or extended hemodialysis on cardiovascular parameters: a meta-analysis.
Susantitaphong P, Koulouridis I, Balk EM, Madias NE, Jaber BL.
Am J Kidney Dis. 2012 May;59(5):689-99. doi: 10.1053/j.ajkd.2011.12.020. Epub 2012 Feb 25.

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|---|---|---|---|---|---|
| #1 | (Adults):ti,ab,kw<br>(Word variations have been searched) | S | Limits | 834001 |
| #2 | Patients | | Limits | 1132885 |
| #3 | Peritoneal dialysis | | Limits | 2785 |
| #4 | Hemodialysis | | Limits | 14950 |
| #5 | Stroke | | Limits | 84595 |
| #6 | (((#1 OR #2) AND #3) AND #4) AND #5 | | Limits | 71 |
| #7 | Type a search term or use the S or MeSH buttons to compose | S MeSH | Limits | N/A |

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**32** Trials matching **"#6 - (((#1 OR #2) AND #3) AND #4) AND #5"**

Cochrane Central Register of Controlled Trials
Issue 11 of 12, November 2023

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1 **Two daytime icodextrin exchanges decrease brain natriuretic peptide levels and improve cardiac functions in continuous ambulatory peritoneal dialysis patients**

T Sav, MT Inanc, A Dogan, O Oymak, C Utas

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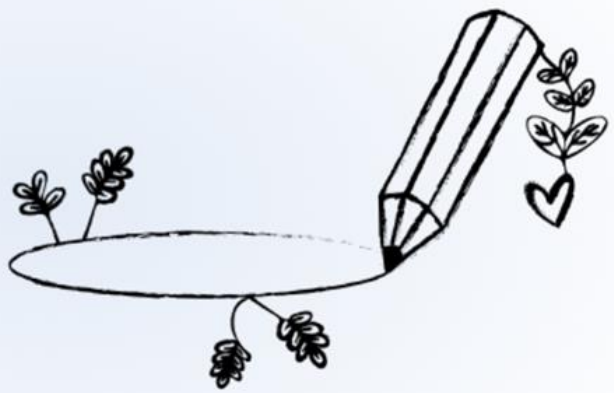

# 選擇文獻

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

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

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

**ABSTRACT**

**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 peritoneal dialysis (PD) and hemodialysis (HD) on stroke risk.

**Methods:** A systematic search of PubMed, EMBASE, and Web of Science was performed to identify articles comparing the stroke outcomes of dialysis patients. Hazard ratios (HRs) with 95% confidence intervals (95% CIs) were extracted and synthesized to examine stroke outcomes, including ischemic stroke, hemorrhagic stroke, and overall stroke.

**Results:** The search yielded five studies composed of 1,219,245 patients that were evaluated in the final analysis. The results showed that PD was associated with a lower risk for hemorrhagic stroke compared with HD (HR = 0.78; 95% CI: 0.69–0.88; $p < 0.001$). For ischemic stroke, the results showed that PD was associated with a higher risk compared with HD among the non-Asian patients (HR = 1.13; 95% CI: 1.05–1.23; $p = 0.002$), but there were no significant differences between PD and HD for the Asian patients. Similarly, there were no significant differences between the effects of the PD and HD approaches on overall stroke risk.

**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.

**ARTICLE HISTORY**
Received 5 November 2018
Revised 5 April 2019
Accepted 8 April 2019

**KEYWORDS**
Peritoneal dialysis; hemodialysis; stroke; meta-analysis

## 選擇理由：

1. 符合PICO
2. 為2019年發表
3. 為Meta-analysis

## History and Search Details

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| #7 | ••• | › | Search: ((((**"Adults"[All Fields]) OR ("Patients"[All Fields])) AND ("Hemodialysis"[All Fields])) AND ("Peritoneal dialysis"[All Fields])) AND ("Stroke"[All Fields]) AND ((ffrft[Filter]) AND (meta-analysis[Filter] OR randomizedcontrolledtrial[Filter] OR systematicreview[Filter]))** Filters: **Free full text, Meta-Analysis, Randomized Controlled Trial, Systematic Review** | 4 | 22:29:56 |
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| #5 | ••• | › | Search: **"Stroke"[All Fields]** | 418,840 | 22:28:35 |
| #4 | ••• | › | Search: **"Peritoneal dialysis"[All Fields]** | 36,356 | 22:28:26 |
| #3 | ••• | › | Search: **"Hemodialysis"[All Fields]** | 78,223 | 22:27:59 |
| #2 | ••• | › | Search: **"Patients"[All Fields]** | 7,184,075 | 22:27:40 |
| #1 | ••• | › | Search: **"Adults"[All Fields]** | 775,604 | 22:27:26 |

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P I C O

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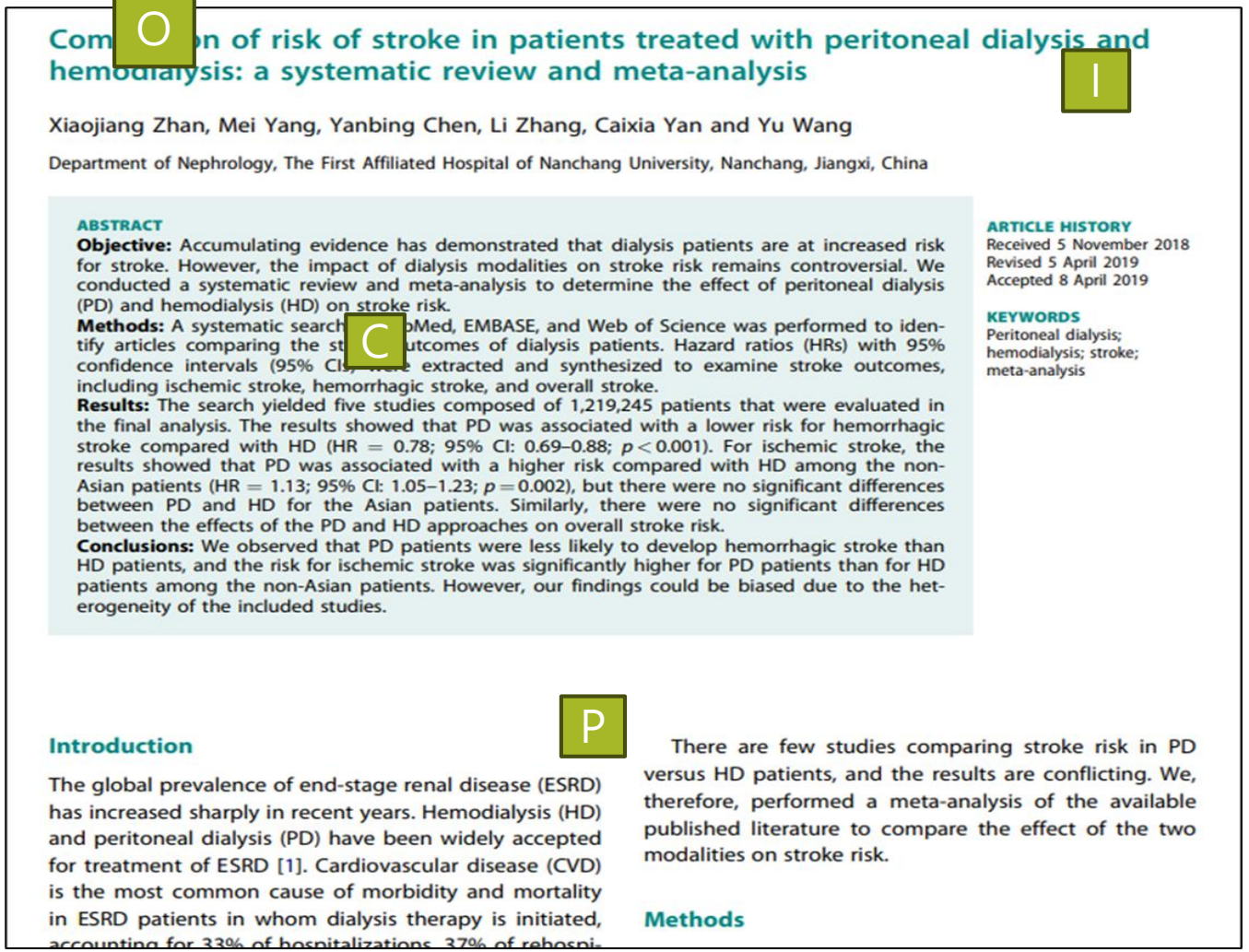
# 問題1：此篇系統性文獻回顧是否問了一個清楚、明確的問題？

- [x] YES
- [ ] NO
- [ ] Can't tell



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## Com[illegible]n of risk of stroke in patients treated with peritoneal dialysis and hemodialysis: a systematic review and meta-analysis

I

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

**ABSTRACT**

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**Methods:** A systematic search [illegible]oMed, EMBASE, and Web of Science was performed to identify articles comparing the st[illegible]utcomes of dialysis patients. Hazard ratios (HRs) with 95% confidence intervals (95% CI[illegible] extracted and synthesized to examine stroke outcomes, including ischemic stroke, hemorrhagic stroke, and overall stroke.

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**ARTICLE HISTORY**
Received 5 November 2018
Revised 5 April 2019
Accepted 8 April 2019

**KEYWORDS**
Peritoneal dialysis; hemodialysis; stroke; meta-analysis

P

### Introduction

The global prevalence 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 rehospi-

There are few studies comparing stroke risk in PD versus HD patients, and the results are conflicting. We, therefore, performed a meta-analysis of the available published literature to compare the effect of the two modalities on stroke risk.

### Methods

文獻內容均與
我們設定的
PICO相符合

# 問題2：作者是否尋找適當研究型態的文獻？

- [x] YES
- [ ] NO
- [ ] Can't tell

cial'. The Boolean operators 'OR' and 'AND' were used to facilitate the search. The reference lists of retrieved articles were manually searched to identify related articles. The latest date of this search was 30 June 2018.

### *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.

### *Exclusion criteria*

The following exclusion criteria were used: (1) the inclusion criteria were not met; (2) the study population included pediatric patients; (3) the method of data col-

This modified NOS consisted of three par
tion of the study patients, the compara
study groups, and the ascertainment of
score of 0 to 9 stars was allocated to
Studies achieving a score of $\geq$ 6 stars wer
to be high quality. Meta-regression anal
performed due to the limited number
Publication bias was evaluated using
Statistical analysis was performed us
Manager Version 5.3 (The Cochrane C
Oxford, London, UK). Generally, the results
ues $<0.05$ ($\alpha = 0.05$) were considered
significant.

## Results

### *Description of eligible studies*

Five studies [2,3,11–13] published from 2
fulfilled the inclusion criteria and were inc

# 問題3：你認為所有重要且相關的研究都被納入？

- YES
- NO
- Can't tell

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## 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

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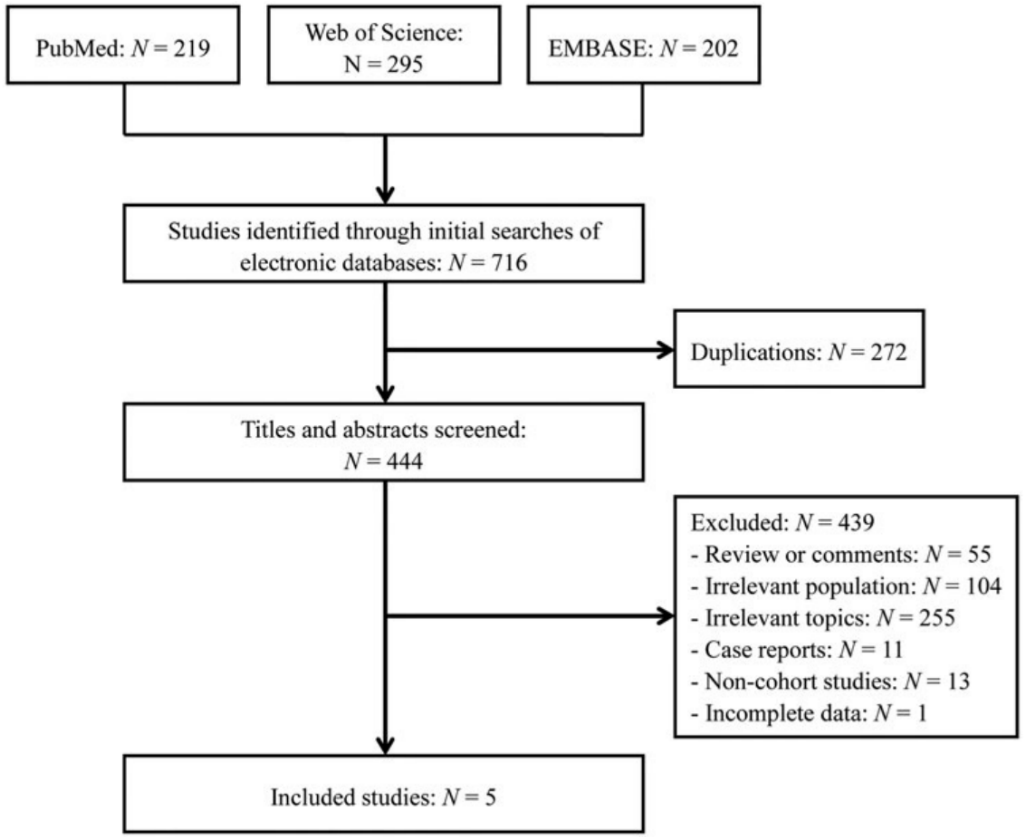



Figure 1. Flow diagram of studies identified, included and excluded.

# 問題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
☐ NO
☐ Can't tell

### *Exclusion criteria*

The following exclusion criteria were used: (1) the inclusion criteria were not met; (2) the study population included pediatric patients; (3) the method of data collection was not valid; and (4) the studies were duplicate articles, reviews, commentaries, or editorials.

### *Data extraction*

Two reviewers (X.Z. and M.Y.) independently extracted data from the included studies, and any discrepancy was resolved by discussion until a consensus was reached. The following information was extracted from each included study: the first author's name, country of the population studied, year of publication, study design, inclusion and exclusion criteria, sample size, follow-up duration, characteristics of the study population, stroke events recorded, adjusted confounding variables, and study quality. In all cases of missing or incomplete data, the corresponding authors were contacted.

### *Statistical analysis*

This systematic review was performed according to the recommendations of the Cochrane Collaboration and

## Results

### *Description of eligible studies*

Five studies [2,3,11–13] published from 2014 to 2016 fulfilled the inclusion criteria and were included in the meta-analysis (Figure 1). Examination of the reference lists of these studies did not identify any further studies for evaluation. Three studies [2,11,12] assessed all-cause stroke; five studies [2,3,11–13] assessed ischemic stroke; and four studies [2,3,11,12] assessed hemorrhagic stroke risk between the two groups. The characteristics of included studies are shown in Table 1. One study was a prospective cohort study; three studies were retrospective cohort studies; and the remaining one was a conference abstract. Two of these studies were conducted in China; one study was conducted in Korea; and the other two studies were conducted in Australia and the United States.

### *Methodological quality of included studies*

Agreement between the two reviewers for study selection was 100%, and the quality assessment was 80%. For the included studies, the risk for bias was evaluated using the modified NOS.

有提及
Two
reviewers

# 問題5：如果作者將研究結果進行合併，這樣的合併是否合理？

☐ 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)

Hazard Ratio IV, Fixed, 95% CI
0.2 0.5 1 2 5
Favours [PD] Favours [HD]

(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)

Hazard Ratio IV, Random, 95% CI
0.1 0.2 0.5 1 2 5 10
Favours [PD] Favours [HD]

(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)

Hazard Ratio IV, Fixed, 95% CI
0.5 0.7 1 1.5 2
Favours [PD] Favours [HD]

Figure 2. Meta-analysis of stroke risks comparing PD with HD: (A) hemorrhagic stroke; (B) ischemic stroke; and (C) overall stroke.

# 問題5：如果作者將研究結果進行合併，這樣的合併是否合理？

☐ YES
☐ NO
☐ Can't tell

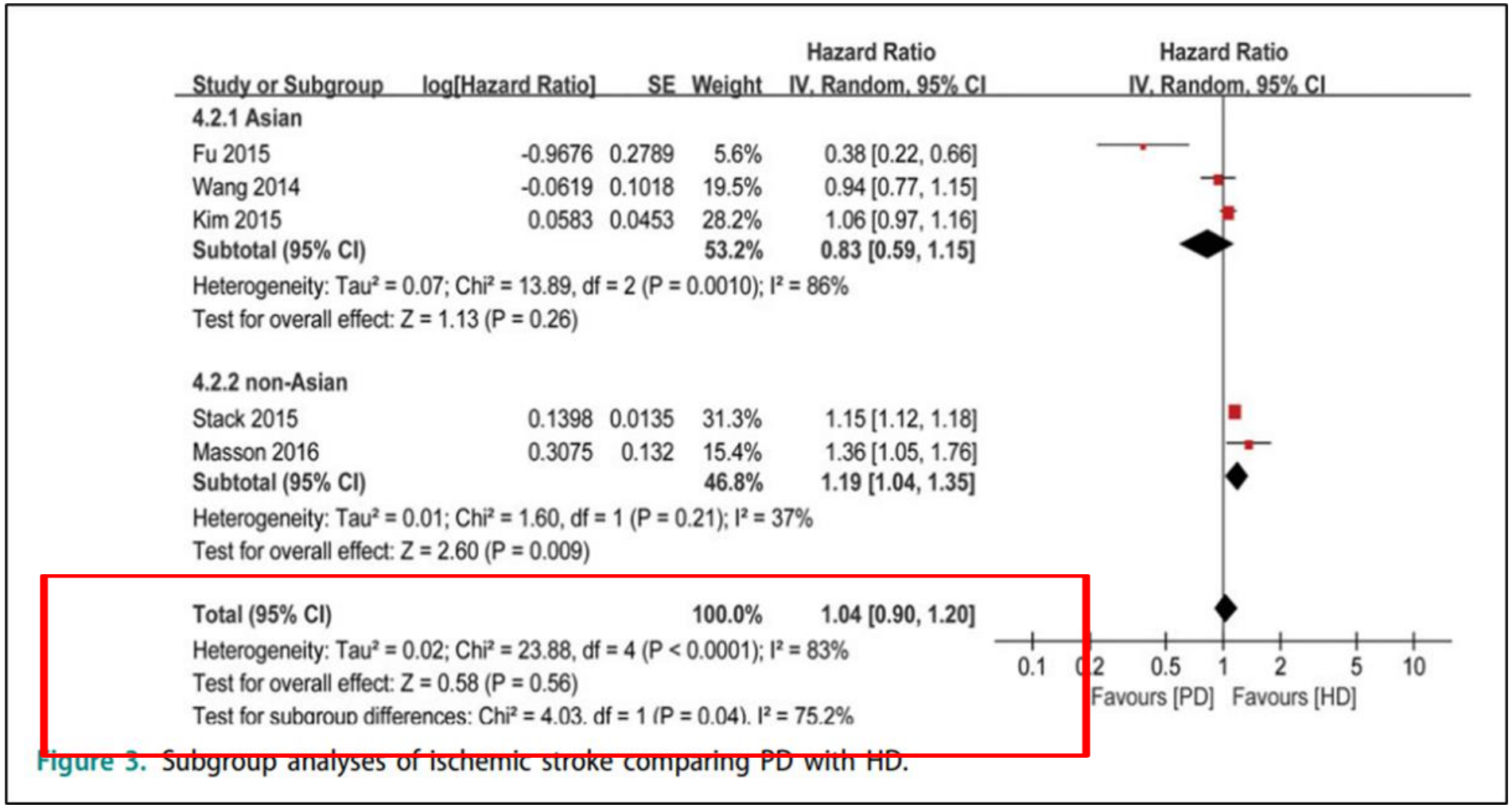



Figure 3. Subgroup analyses of ischemic stroke comparing PD with HD.

# 問題5：如果作者將研究結果進行合併，這樣的合併是否合理？

☐ YES
☐ NO
☐ Can't tell

### *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

Agreement between the two
tion was 100%, and the qual
For the included studies, the r
using the modified NOS.

### *Association between dialysi*
### *stroke risk*

Three studies investigated the
lysis modality and overall stro
derived from individual studie
PD versus HD patients are pr
pooled data showed no signi
PD and HD patients in overall
1.02; 95% CI: 0.94–1.11; *P*

有進行
次群組分析與
敏感性測試

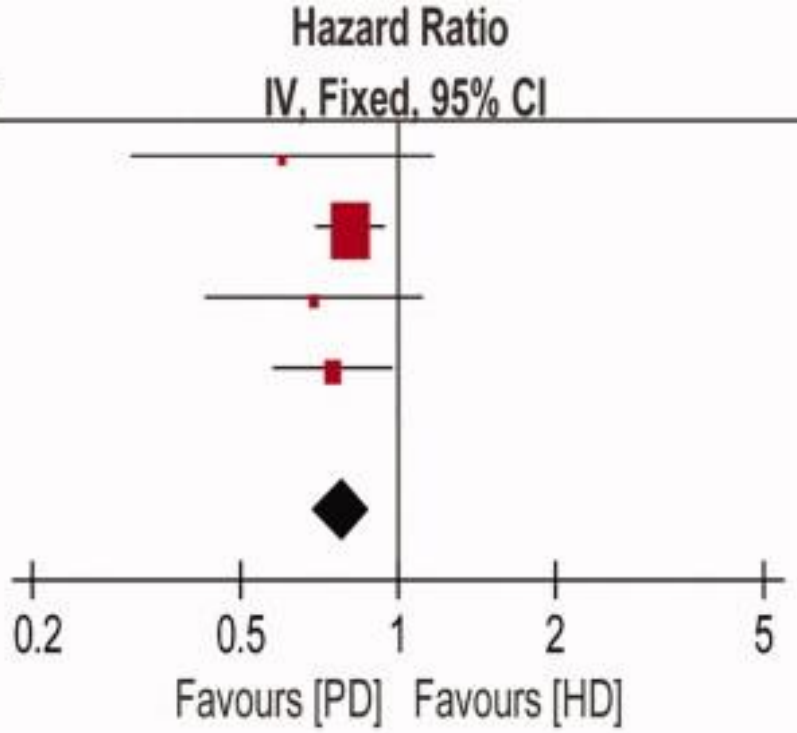
# 問題6：這篇系統性文獻回顧的整體結果為何？

(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: $Chi^2 = 1.21$, $df = 3$ ($P = 0.75$); $I^2 = 0\%$

Test for overall effect: $Z = 4.03$ ($P < 0.0001$)




Hemorrhagic stroke

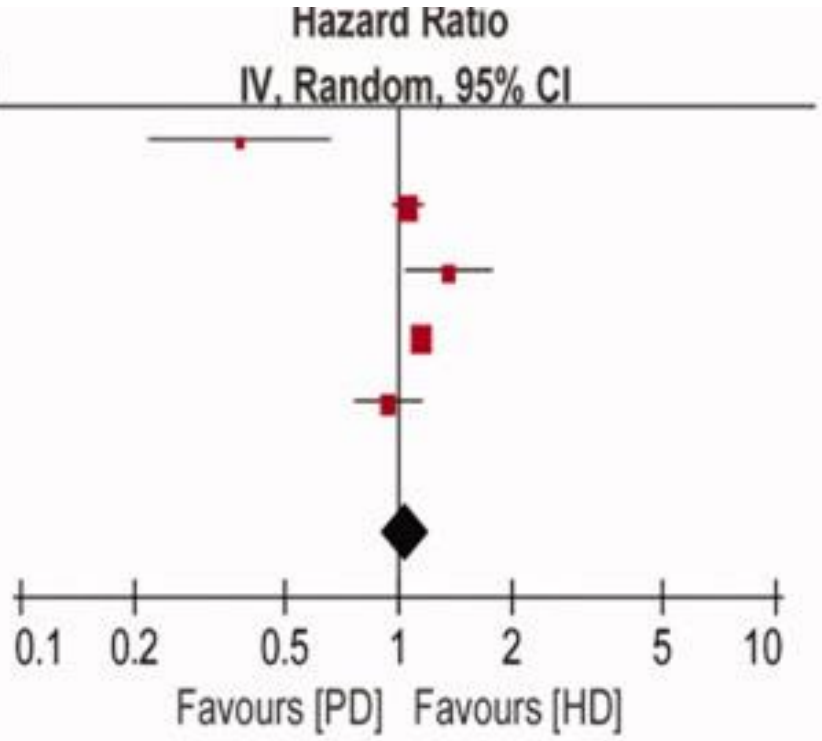
# 問題6：這篇系統性文獻回顧的整體結果為何？

(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)




Ischemic stroke

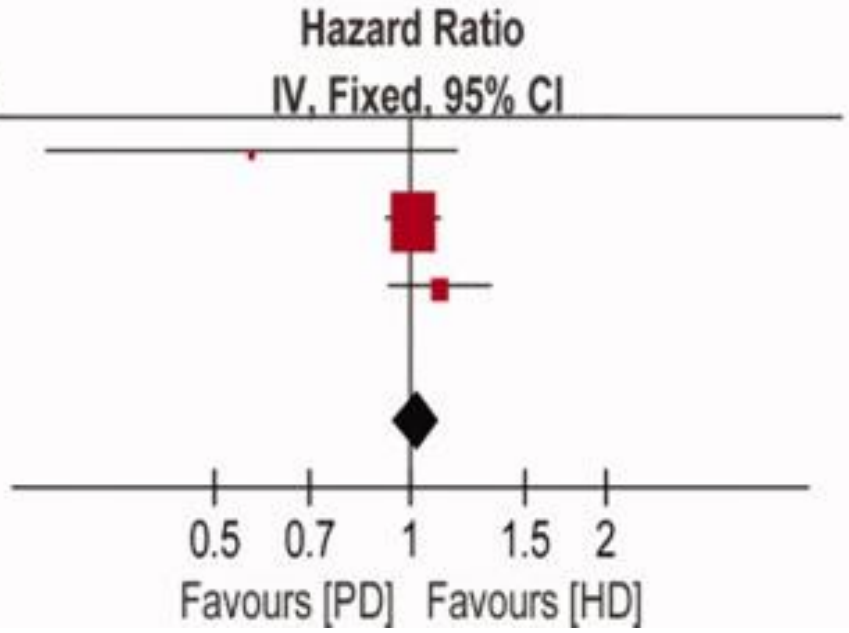
# 問題6：這篇系統性文獻回顧的整體結果為何？

(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%

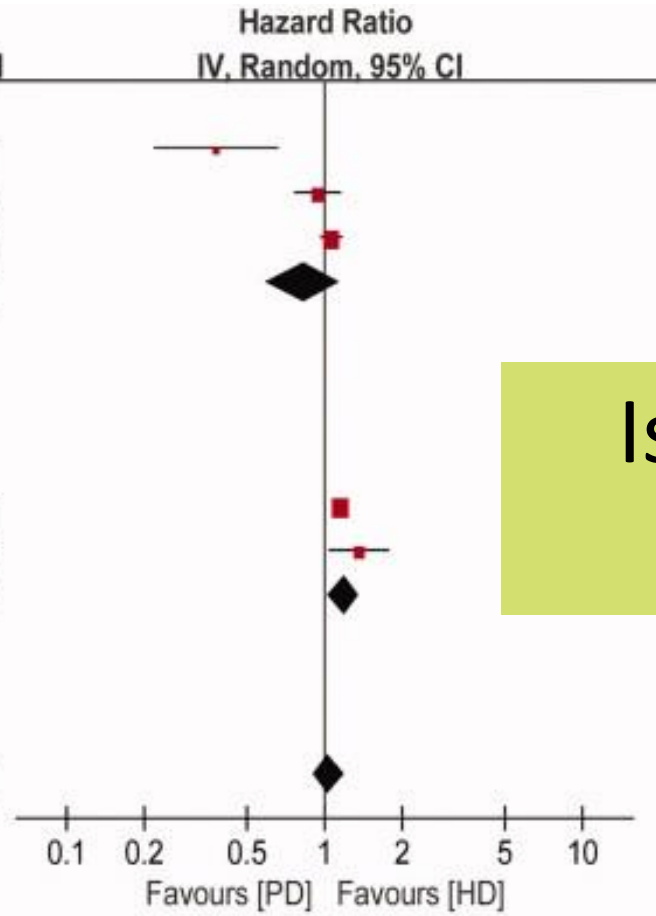
Test for overall effect: Z = 0.55 (P = 0.58)




Overall stroke

# 問題6：這篇系統性文獻回顧的整體結果為何？

| Study or Subgroup | log[Hazard Ratio] | SE | Weight | Hazard Ratio IV, Random, 95% CI |
|---|---|---|---|---|
| **4.2.1 Asian** | | | | |
| Fu 2015 | -0.9676 | 0.2789 | 5.6% | 0.38 [0.22, 0.66] |
| Wang 2014 | -0.0619 | 0.1018 | 19.5% | 0.94 [0.77, 1.15] |
| Kim 2015 | 0.0583 | 0.0453 | 28.2% | 1.06 [0.97, 1.16] |
| **Subtotal (95% CI)** | | | **53.2%** | **0.83 [0.59, 1.15]** |
| Heterogeneity: Tau² = 0.07; Chi² = 13.89, df = 2 (P = 0.0010); I² = 86% | | | | |
| Test for overall effect: Z = 1.13 (P = 0.26) | | | | |
| **4.2.2 non-Asian** | | | | |
| Stack 2015 | 0.1398 | 0.0135 | 31.3% | 1.15 [1.12, 1.18] |
| Masson 2016 | 0.3075 | 0.132 | 15.4% | 1.36 [1.05, 1.76] |
| **Subtotal (95% CI)** | | | **46.8%** | **1.19 [1.04, 1.35]** |
| Heterogeneity: Tau² = 0.01; Chi² = 1.60, df = 1 (P = 0.21); I² = 37% | | | | |
| Test for overall effect: Z = 2.60 (P = 0.009) | | | | |
| **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) | | | | |
| Test for subgroup differences: Chi² = 4.03, df = 1 (P = 0.04), I² = 75.2% | | | | |




Ischemic stroke

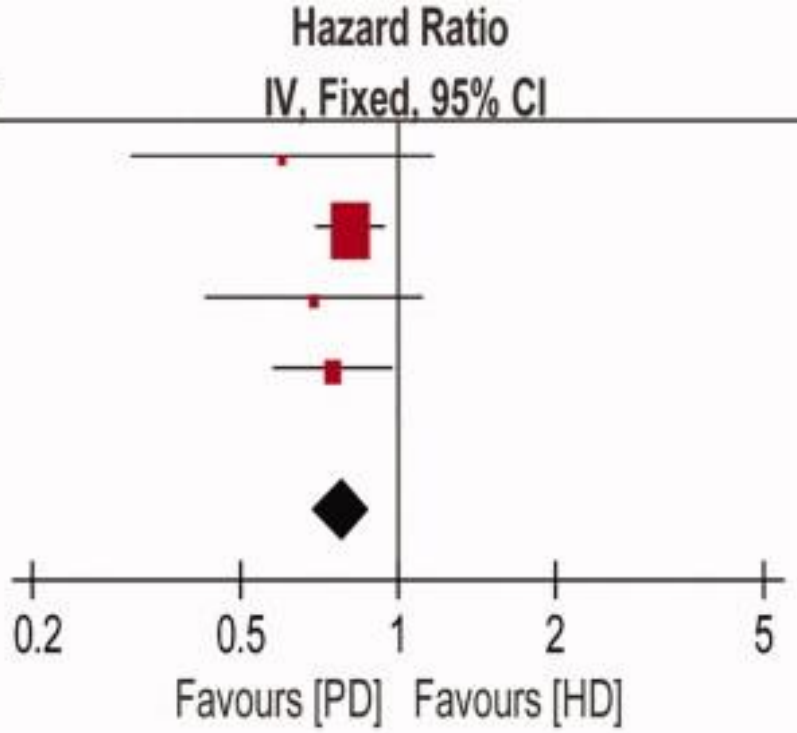
# 問題7：結果精準嗎？

☐ 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)




Hemorrhagic stroke

# 問題7：結果精準嗎？

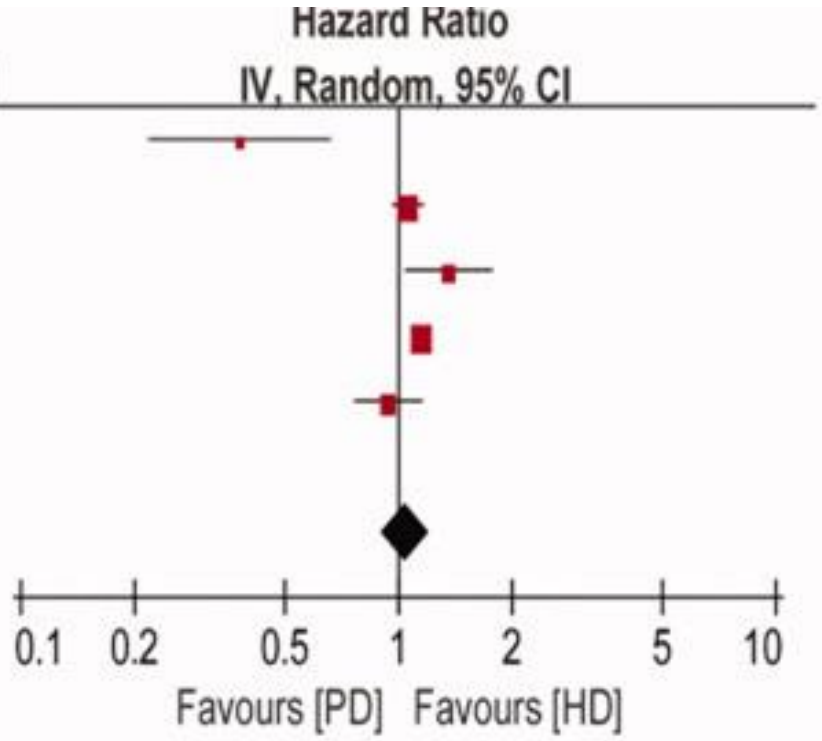
☐ YES
☐ NO
☐ Can't tell

(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: $Tau^2 = 0.02$; $Chi^2 = 23.88$, df = 4 ($P < 0.0001$); $I^2 = 83\%$

Test for overall effect: Z = 0.58 (P = 0.56)




Ischemic stroke

# 問題7：結果精準嗎？

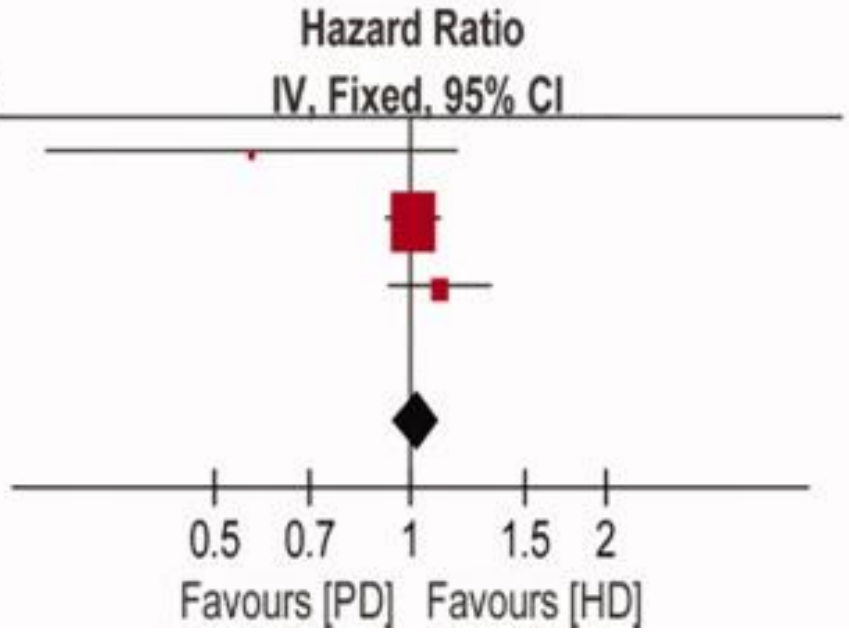
- YES
- NO
- Can't tell

(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)




Overall stroke

# 問題8：此研究結果是否可應用到當地的族群？

- [x] YES
- [ ] NO
- [ ] Can't tell

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]<br>PD: 3.0 ± 2.3（y）[c] | ★★★★★★★ |

# 問題9：是否所有重要的臨床結果都有被考量到？

- YES
- NO
- Can’t tell

- Different types of stroke
- Subgroup of different race

# 問題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？

- [x] YES
- [ ] NO
- [ ] Can't tell

**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.

| 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？ | Yes |
| 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 |

# 共享決策

| 醫療現況(實證醫學) | 病人的治療偏好 |
| --- | --- |
| 證據等級：CEBM Level 1<br>建議等級：Weak | 對腹膜透析有一些期待，但是對於其發生腹膜炎以及中風的風險有所擔憂。 |
| **利弊平衡** | **費用資源** |
| 使用腹膜透析的中風機率與血液透析並沒有明顯差異。<br>腹膜透析的好處為持續穩定的透析，且生活作息較不受影響，然而教養賴病人及家屬的操作能力。 | 腹膜透析每個月費用約為4萬5千元，目前腹膜透析機器租借可申請健保。 |

# 共享決策

- 林小姐的兒子您好，經過我們團隊縝密的實證搜尋後，目前現有最佳證據是由**系統性回顧的研究**支持，使用腹膜透析治療的中風風險與使用血液透析並沒有明顯的差異，其花費約為每個月**4萬5千**，機器租借可申請健保，因為您的媽媽屬於**慢性腎臟病的族群**，所以建議能接受是當的透析治療，平常也要**保持良好衛生習慣**以及**定期回診**，這樣才能定期評估腹膜透析相關的效果以及避免相關併發症。


Thank You!