經顱磁刺激是否能改善中風後神經功能及憂鬱

Department of Pediatrics
劉俊廷、王瑋德、顏瑋廷

臨床情境

“70 歲的陳伯伯是一位退休的公務人員，四個多月前左側中大腦動脈梗塞中風後併發右半邊癱瘓、動作平衡明顯困難、失語症和中風後憂鬱症候群。最近三個月來，陳伯伯不僅許多日常生活和行走活動能力仍需要家人打電協助,也因為憂鬱症的關係無法自行完成自我照顧,他的兒子聽說醫院最近有一種自費新穎的腦刺激療法「**重複性跨顱磁刺激(repetitive transcranial magnetic stimulation, rTMS)**」。能否**改善上述神經功能**?對於**中風後憂鬱是否有幫助**?請您用實證醫學的方法,來解答陳伯伯家人內心疑慮對此治療在中風失能問題的實證療效和安全性問題。”

根據臨床問題形成 PICO

	PICO/ 關鍵字	MeSH/ 同義詞	中文關鍵字(繁/ 簡體)
P	• 70 y/o male with Stroke with hemiplegia, Depression, Aphasia	• Cerebrovascular accident • Ischemic Stroke • Depression • Depressive Disorder, Major • Aphasia	• 腦中風 • 大腦動脈梗塞 • 憂鬱症/抑鬱症 • 失語症
I	• Repetitive transcranial magnetic stimulation (rTMS)	• Transcranial Magnetic Stimulation	• 重複性跨顱磁刺激
C	• Usual care	• Standard of Care	• 標準治療
O	Major • Neurologic function improvement Minor • Depression remission rate • Improved ADL • Adverse effects	Major • Nervous System Physiological Phenomena • Neurologic Manifestations Minor • Depression • Depressive Disorder, Major • Activities of Daily Living • Adverse effects	• 改善神經功能 • 改善憂鬱 • 改善日常生活活動 • 副作用

問題類型 ■ 治療 / 預防型 □ 診斷型 □ 預後型 □ 傷害 / 病因型

搜尋策略

首先以『P』、『I』、『O』做搜尋，再依據結果適當加入關鍵字及同義詞

P	AND	I	AND	C	AND	O
Ischemic Stroke OR Cerebrovascular accident OR Aphasia OR Depression		Repetitive transcranial magnetic stimulation OR rTMS		Standard treatment OR Usual care		Neurologic function OR Depression remission rate OR Depression OR Activities of Daily Living

限定搜尋範圍	Free full text、Within 5 years、Human species
限定研究類型	Systematic review、Meta-analysis
限定語言地區	不限

關鍵字及資料庫語法設定

	自由詞彙	Emtree 控制詞彙	Mesh 控制詞彙
P	• Stroke • Depression • Aphasia	• Cerebrovascular accident • Ischemic stroke	• Stroke • Depression • Aphasia
I	• Repetitive transcranial magnetic stimulation • rTMS	• Repetitive transcranial magnetic stimulation	• Factor Xa Inhibitor
O	• Neurologic function improvement • Depression remission rate • Improved ADL • Adverse effects	• Neurodisability • Depression • Daily life activity • Adverse effects	• Nervous System Physiological Phenomena • Depression • Activities of Daily Living • Adverse effects
	Ovid MEDLINE®	Embase®	Cochrane Library
使用周全性語法，增加搜尋範圍。	().mp exp ""/	():ti,ab,de,kw ""/exp	():ti,ab,kw [mh ""]

Ovid MEDLINE®

Ovid®

Wolters Kluwer

My Account | Support & Training | Help | Feedback | Logoff

Search | Journals | Books | Multimedia | My Workspace | What's New

▼ **Search History** (13) View Saved

Contract

	# ▲	Searches	Results	Type	Actions	Annotations
☐	1	depression.mp.	391815	Advanced	Display Results | More	
☐	2	exp "depression"/	134952	Advanced	Display Results | More	
☐	3	stroke.mp.	289449	Advanced	Display Results | More	
☐	4	exp "stroke"/	151538	Advanced	Display Results | More	
☐	5	1 or 2	391815	Advanced	Display Results | More	
☐	6	3 or 4	312020	Advanced	Display Results | More	
☐	7	5 and 6	8675	Advanced	Display Results | More	
☐	8	rTMS.mp.	4201	Advanced	Display Results | More	
☐	9	transcranial magnetic stimulation.mp.	16495	Advanced	Display Results | More	
☐	10	exp "transcranial Magnetic Stimulation"/	13076	Advanced	Display Results | More	
☐	11	7 and 10	72	Advanced	Display Results | More	
☐	12	meta-analysis.pt.	147015	Advanced	Display Results | More	
☐	13	11 and 12	7	Advanced	Display Results | More	

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History | Save | Delete | Print view | Export | Email | Combine > | using And Or | Collapse

#13	#7 AND #11 AND ([cochrane review]/lim OR [meta analysis]/lim)	22
#12	#7 AND #11	356
#11	#8 OR #9 OR #10	30,180
#10	**'transcranial magnetic stimulation'**/exp	27,168
#9	**'transcranial magnetic stimulation'**:ti,ab,de,kw	29,523
#8	**rtms**:ti,ab,de,kw	8,317
#7	#5 AND #6	22,722
#6	#3 OR #4	561,273
#5	#1 OR #2	807,457
#4	**'stroke'**/exp	367,536
#3	**stroke**:ti,ab,de,kw	460,572
#2	**'depression'**/exp	550,840
#1	**depression**:ti,ab,de,kw	760,080

Cochrane Library

Save this search | View saved searches | Search help

View fewer lines | Print

#1	(depression):ti,ab,kw	Limits	83304
#2	[mh "depression"]	Limits	13465
#3	stroke:ti,ab,kw	Limits	59807
#4	[mh "stroke"]	Limits	10877
#5	#1 or #2	Limits	83304
#6	#3 or #4	Limits	60246
#7	#5 and #6	Limits	2512
#8	rTMS:ti,ab,kw	Limits	3270
#9	(transcranial magnetic stimulation):ti,ab,kw	Limits	5823
#10	[mh "transcranial magnetic stimulation"]	Limits	1539
#11	#7 and #10	Limits	12

Clear all

Highlight orphan lines

Save this search | View saved searches | Search help

airiti Library 華藝線上圖書館

查詢 (穿顱磁刺激) = 所有欄位 AND (中風) = 所有欄位

查詢表達式：([ALL]:(穿顱磁刺激) AND [ALL]:(中風))

篇名.關鍵字.摘要 | 作者 | 刊名 | 起始年 — 結束年 | 檢索結果再查詢

每頁 10 筆

共 2 筆 ， 1 - 2 筆

共 1 頁 1

書目匯出 加入收藏 加入購物車 相關程度最高

1 **由三種功能性神經造影看中風患者之動作恢復機制**

林立峰(Li-Fong Lin) ； 朱唯勤(Woei-Chyn Chu) ； 胡名霞(Ming-Hsia Hu) ；

物理治療 28卷4期 (2003/08) , 217-225

中風 ； 功能性神經造影 ； 可塑性 ； 物理治療 ； Stroke ； Functional neuroimaging ； Plasticity ； Physical therapy

預覽摘要 加入收藏 加入購物車 全文下載

2 **偏癱肩痛症候群**

魏國展 ； 吳爵宏 ；

臨床醫學月刊 84卷5期 (2019/11) , 758-764

腦中風（stroke） ； 肩痛（shoulder pain） ； 診斷（diagnosis） ； 治療（treatment） ；

10.6666/ClinMed.201911_84(5).0126

預覽摘要 | 參考文獻 (10)

加入收藏 加入購物車 全文下載

万方数据 WANFANG DATA 知识服务平台

學術論文 期刊 學位 會議 外文文獻 學者 專利 標準 成果 圖書 地方志 法規 機構 專家

cql://穿顱磁刺激 and 中風

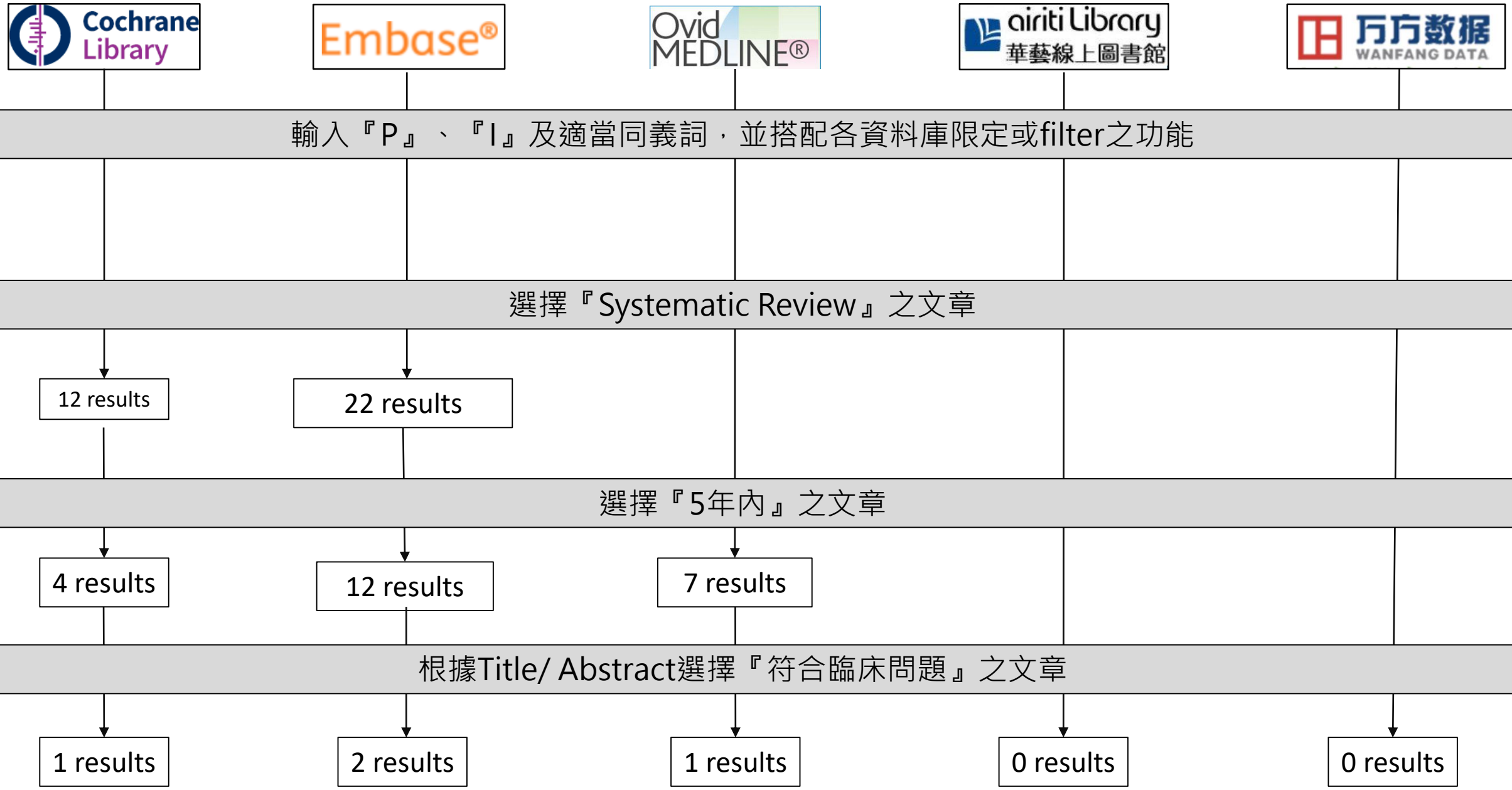
检索

跨庫檢索
高級檢索

首頁 > 檢索結果

提示

沒有命中的記錄!


Cochrane Library
Embase®
Ovid MEDLINE®
airiti Library 華藝線上圖書館
万方数据 WANFANG DATA
輸入『P』、『I』及適當同義詞，並搭配各資料庫限定或filter之功能
選擇『Systematic Review』之文章
12 results
22 results
選擇『5年內』之文章
4 results
12 results
7 results
根據Title/ Abstract選擇『符合臨床問題』之文章
1 results
2 results
1 results
0 results
0 results

收納文章之比較

收　納　文　章	M	P	I	C	O	T
Pharmacological, psychological, and non-invasive brain stimulation interventions for treating depression after stroke (Review). 2020. Cochrane Library	🟢	🟢	🟢	🟢	🟢	🟢
Efficacy and Safety of High-Frequency Repetitive Transcranial Magnetic Stimulation for Poststroke Depression: a Systematic Review and Meta-analysis. 2019. ACRM AMERICAN CONGRESS OF REHABILITATION MEDICINE	🟡	🟢	🟢	🟢	🟢	🟢

評讀之文獻

Cochrane Library

Cochrane Database of Systematic Reviews

- 最符合臨床情境
- 最新的發表年份
- 最佳的研究品質 (RCT)
- Cochrane方法學嚴謹
- 使用CASP進行評估讀

Impact factor
9.27 (10/155)

Pharmacological, psychological, and non-invasive brain stimulation interventions for treating depression after stroke (Review)

Allida S, Cox KL, Hsieh CF, Lang H, House A, Hackett ML

Bruins Slot KM. *Cochrane Database Syst Rev.* 2018 .

1 此回顧是否問了一個清楚明確的臨床問題？

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ABSTRACT

Background

Depression is an important morbidity associated with stroke that impacts on recovery yet often undetected or inadequately treated. This is an update and expansion of a Cochrane Review first published in 2004 and updated in 2008.

Objectives

Primary objective

• To determine whether pharmacological therapy, non-invasive brain stimulation, psychological therapy, or combinations of these interventions reduce the prevalence of diagnosable depression after stroke

Secondary objectives

• To determine whether pharmacological therapy, non-invasive brain stimulation, psychological therapy, or combinations of these interventions reduce levels of depressive symptoms, improve physical and neurological function and health-related quality of life, and reduce dependency after stroke

• To assess the safety of and adherence to such treatments

P	Depression after stroke
I	Pharmacological therapy, non-invasive brain stimulation, psychological therapy, or combinations
C	Usual care
O	Primary: reduce the prevalence of diagnosable depression after stroke Secondary: • Reduce levels of depressive symptoms, improve physical and neurological function and health-related quality of life, and reduce dependency after stroke • The safety of and adherence to such treatments

此文清楚地定義PICO的內容。包括選定的族群、使用的介入以及欲評估之結果。

評讀結果 ☒ Yes ☐ No ☐ Can't tell

2 作者是否收納適當的研究類型？

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Types of studies

We restricted the review to all relevant randomised controlled trials (RCTs) only. There was no restriction on eligibility of RCTs on the basis of language, sample size, duration of follow-up, or publication status. Trials that met all inclusion criteria, but from which no outcome data were available (neither from the report of the trial nor from the study authors), could not contribute meaningfully to a pooled estimate of effect. These trials were regarded as 'dropouts' rather than as ineligible.

49 total included studies (56 comparisons) in quantitative synthesis (meta-analysis) in this update:

n = 33 studies (39 comparisons) included in this update

n = 16 studies (17 comparisons) from the previous review

Strengths

- 清楚定義收納的研究類型
- 收錄符合**治療型問題的RCT文章**
- 清楚定義了**納入條件**
- 清楚定義了**排除條件**

Weaknesses

- 納入的RCTs部分**未維持盲性(blinding)**
- 收錄之 RCTs 部分**無適當的隨機序列產生及分派隱匿**

評讀結果 ☒ Yes ☐ No ☐ Can't tell

3

重要、相關的研究是否皆被納入？

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Electronic searches

We searched the following bibliographic databases.

- Cochrane Depression Anxiety and Neurosis Trials Register (last searched August 2018).
- Cochrane Central Register of Controlled Trials (CENTRAL; 2018, Issue 1), in the Cochrane Library (Appendix 2).
- MEDLINE (OVID): 1966 to August 2018 (Appendix 3).
- Embase (OVID): 1980 to August 2018 (Appendix 4).
- PsycINFO (OVID): 1967 to August 2018 (Appendix 5).
- Cumulative Index to Nursing and Allied Health Literature (CINAHL) (EBSCO): 1982 to August 2018 (Appendix 6).

Searching other resources

We searched the following resources using "stroke" or "brain infarction" or "depression" or "low mood" from inception to August 2018.

- US National Institutes of Health Ongoing Trials Register ClinicalTrials.gov (www.clinicaltrials.gov).
- World Health Organization International Clinical Trials Registry Platform (WHO ICTRP) (www.who.int/ictrp/en/).

We also searched abstracts and conference proceedings from the following international conferences for relevant studies.

- European Stroke Organisation Conference (2015 to 2018).
- Stroke Society of Australasia Annual Scientific Meetings (2008 to 2018).
- World Stroke Congress (2000 to 2016).
- Asia Pacific Stroke Conference (2011 to 2017).

Personal communications

We contacted the study authors to ask for information on ongoing studies or to request additional study data and, in some instances, additional analyses.

Strengths

- 搜尋了重要的初級和次級資料庫
  - Medline
  - Embase
  - CENTRAL
- 搜尋註冊但尚未發表的試驗
  - ClinicalTrials.gov
  - WHO ICTRP
- 從重要試驗的 reference 尋找相關研究
- 聯絡重要之藥廠、試驗主持人等
- 含有亞洲資料庫

Weaknesses

- 並未列出 funnel plot

評讀結果

☒ Yes ☐ No ☐ Can't tell

4

作者是否評估收納研究的品質？

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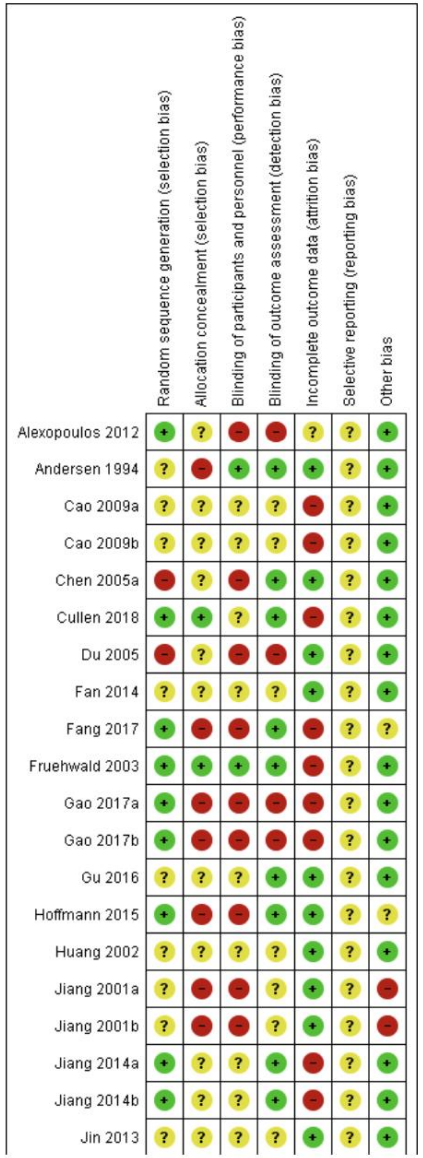

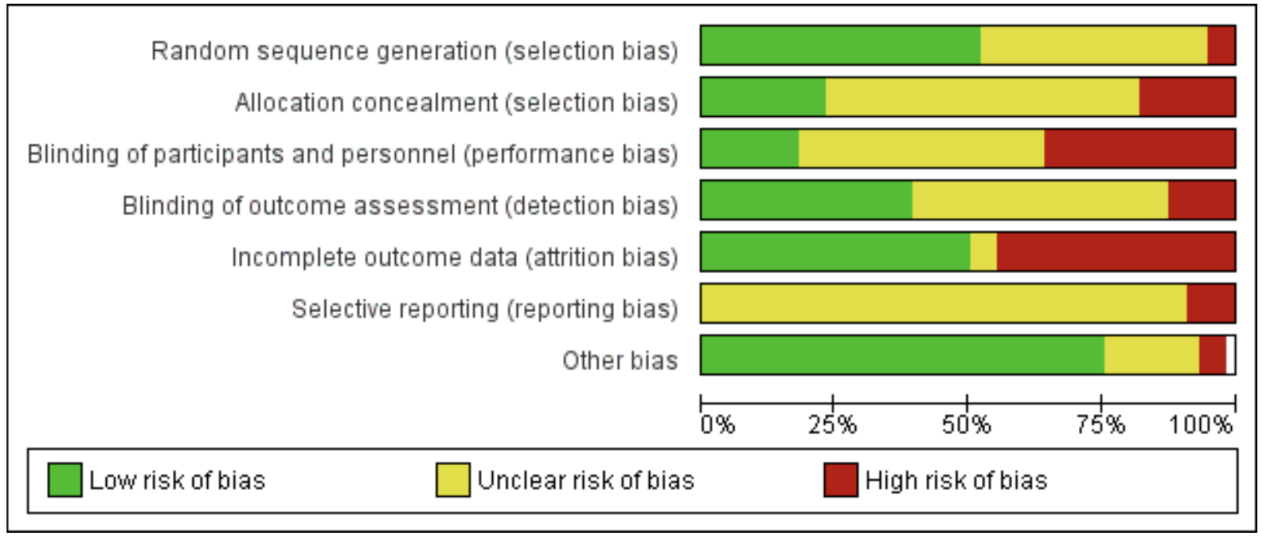

Strengths

- 兩位作者使用Cochrane risk of bias tool 2.0 獨立評讀
- 適當說明各 RCT High risk之原因

Weaknesses

評讀結果

☒ Yes ☐ No ☐ Can't tell

5 作者是否將結果合併？合併是否合理？

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6

此篇回顧呈現什麼結果？

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7

結果精準嗎？

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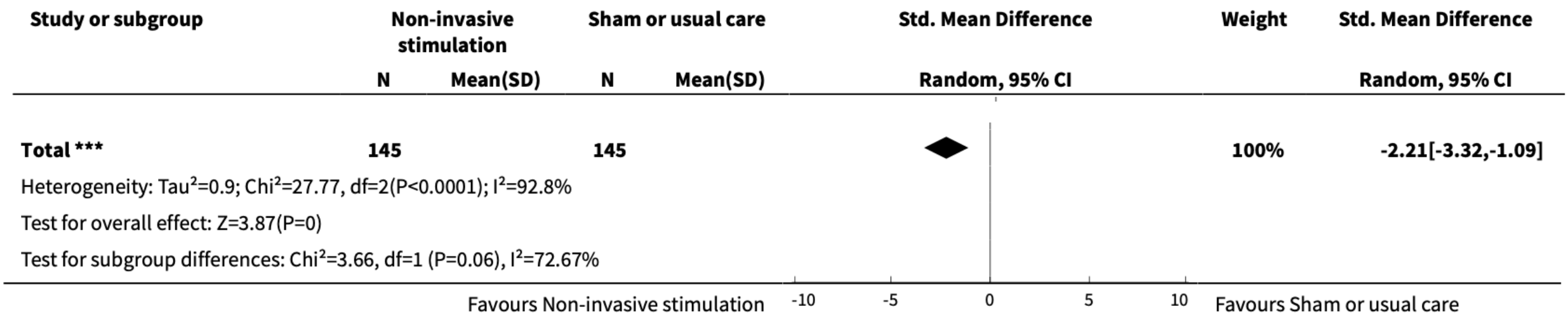
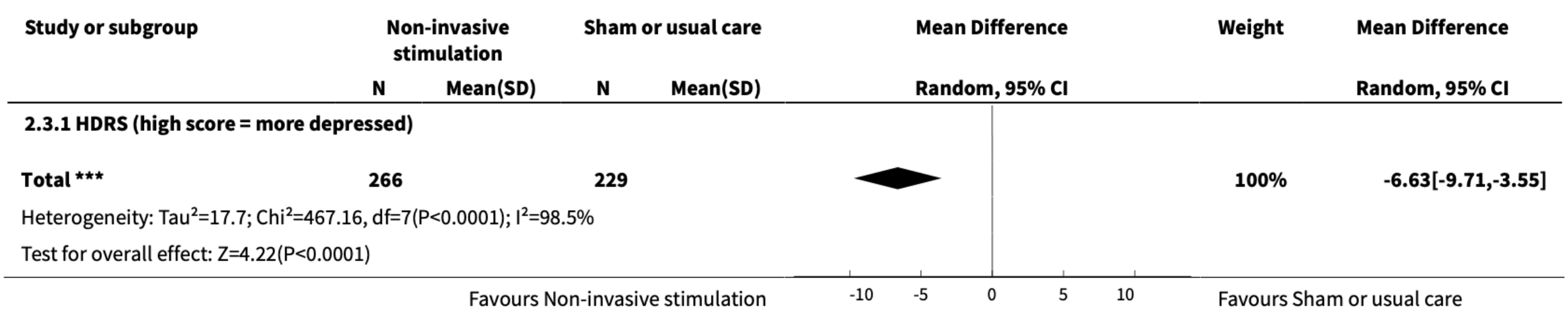


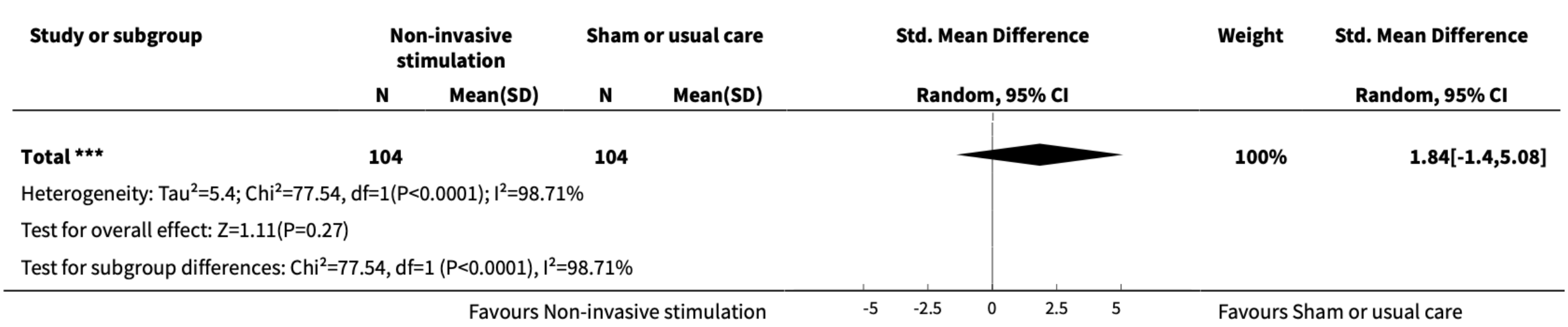
Neurological function	
Comparison	Non-invasive stimulation versus sham or usual care
Duration	2 weeks to 12 weeks
Heterogeneity	I^2 = 92.8 %
Result	**SMD -2.21 [-3.32, -1.09]**
Conclusion	使用經顱磁刺激較常規治療能改善中風後神經功能，結果不精確

評讀結果 ☐ **Yes** ☐ **No** ☐ **Can't tell**



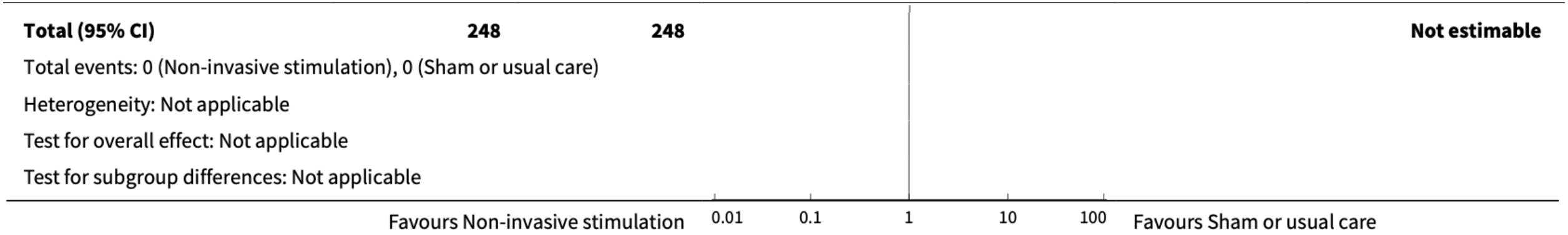
Depression Score	
Comparison	Non-invasive stimulation versus sham or usual care
Duration	2 weeks to 12 weeks
Heterogeneity	I^2 = 98.5 %
Result	**MD -6.63 [-9.71, -3.55]**
Conclusion	使用經顱磁刺激較常規治療能改善中風後憂鬱程度，結果不精確

評讀結果 ■ **Yes** □ **No** □ **Can't tell**



All-cause Deaths	
Comparison	Non-invasive stimulation versus sham or usual care
Duration	2 weeks to 12 weeks
Heterogeneity	I^2 = 98.71 %
Result	**SMD 1.84 [-1.4, 5.08]**
Conclusion	使用經顱磁刺激較常規治療能改善中風後ADL，結果不精確

評讀結果 ☐ **Yes** ☐ **No** ☐ **Can't tell**



Adverse events: all.	
Comparison	Non-invasive stimulation versus sham or usual care
Duration	2 weeks to 12 weeks
Heterogeneity	I^2 = - %
Result	-
Conclusion	使用經顱磁刺激與常規治療均未出現明顯副作用

評讀結果 ☑ Yes ☐ No ☐ Can't tell

8

此研究是否適用於你的病人？

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	評讀文獻	臨床情境
P	Depression after stroke	• Stroke with hemiplegia • Depression • Aphasia
I	Pharmacological therapy, non-invasive brain stimulation, psychological therapy, or combinations	• Repetitive transcranial magnetic stimulation (rTMS)
C	Usual care	• Standard treatment
O	Primary: reduce the prevalence of diagnosable depression after stroke Secondary: • Reduce levels of depressive symptoms, improve physical and neurological function and health-related quality of life, and reduce dependency after stroke • The safety of and adherence to such treatments	Major • Neurologic function improvement Minor • Depression remission rate • Improved ADL • Adverse effects
我們的病患與文獻是否相似 ■年齡 ■性別 ■種族 ■共病 ■同時服用其他藥物 ■疾病嚴重度		是
這項治療在台灣是否可行？		可

評讀結果 ■ **Yes** □ **No** □ **Can't tell**

9

是否所有重要結果都被考量到？

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	臨床重要Outcomes	評讀文獻Outcomes
Efficacy	**Stroke** Poststroke depression Neurologic function Activities of daily living	✓
Adverse Effects	Central nervous system events (e.g. confusion, sedation, tremor) Gastrointestinal effects (e.g. constipation, diarrhoea) Recurrent stroke Other events (e.g. dysuria, eye discomfort)	✓
Serious Adverse Effects	Death	✓

評讀結果 ☐ Yes ☐ No ☐ Can't tell

10

這些好處隨之而來的傷害和花費是否值得？

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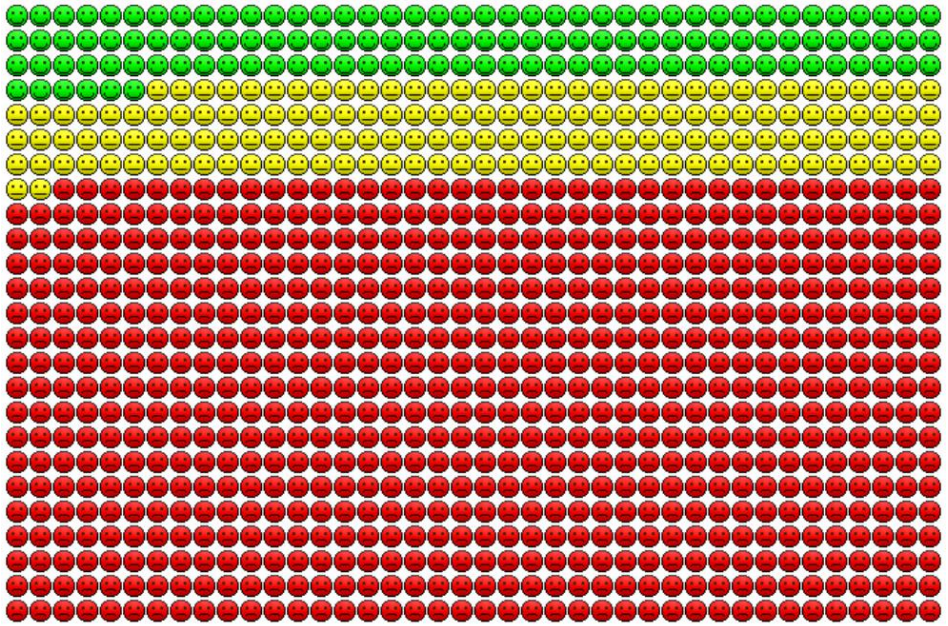
rTMS versus control for depression in individuals with PSD

Remission rates of depression for rTMS



NNT = 7 [4, 15]

每治療**7位**病人，有1位可因接受rTMS**使中風後憂鬱症候群緩解**

Efficacy and Safety of High-Frequency Repetitive Transcranial Magnetic Stimulation for Poststroke Depression: a Systematic Review and Meta-analysis. 2019

評讀結果

☒ **Yes** ☐ **No** ☐ **Can't tell**

www.nntonline.net/visualrx/

Cost-effectiveness Analysis

藥物	優點	缺點(副作用)	單價(健保單價)
rTMS	**非侵入式 無明顯副作用**	**自費治療項目**	多以10次作為一個治療單位， **每單位rTMS治療需花費 25,000至50,000元**
Fluoxetine	單價低	1. 常見-頭痛、緊張、焦慮、失眠、噁心、腹瀉。 2. 偶有-發疹、蕁痲疹，其他還包括發燒、淋巴腺病變、蛋白尿、轉胺酶輕度上升、嗜睡、疲憊、震顫、眩暈、心悸、搔癢、肌痛、關節痛、性功能障礙。	2.8 元/顆
Deanxit	單價低	口乾舌燥、便秘、疲勞、嗜睡、靜坐不能、體重增加、失眠、焦慮、或坐立不安、暈眩伴隨著/或無姿勢性低血壓、震顫、視力模糊。	2.31 元/顆
心理諮商會談	可依個人狀況調整會談內容	自費治療項目(健保給付項目大約在數百元，健保不給付部份，仍需自費負擔)	2500元/兩小時

Cost-effectiveness Analysis

成本分析-COPE (CHAMPIC vs WELLBUTRIN)

NNT		時間(週)		花費(元/週)		COPE
7	x	4	x	25000	=	700000

成本分析-個人負擔

健保保費/月		自付額/月		掛號費/月		每月總花費
321	+	100000	+	460	=	100781元/ 月

衛生福利部中央健康保險署
NATIONAL HEALTH INSURANCE ADMINISTRATION,MINISTRY OF HEALTH AND WELF

Quality of Evidence

臨床問題: Non-invasive stimulation versus sham or usual care

		Neu. function	Depression	ADL
		SMD -2.21 [-3.32, -1.09]	MD -6.63 [-9.71, -3.55]	SMD 1.84 [-1.4, 5.08]
研究設計		RCTs	RCTs	RCTs
降階	1. 存在誤差風險	🟡	🟡	🟡
	2. 結果不一致	🟡	🟡	🟡
	3. 證據不具直接性	🟢	🟢	🟢
	4. 結果不精準	🟡	🟡	🟡
	5. 存在發表誤差	🟢	🟢	🟢
升階	1. 效果顯著			
	2. 降低干擾因素			
	3. 具劑量-反應效果			
證據品質		⨁◯◯◯ VERY LOW	⨁◯◯◯ VERY LOW	⨁◯◯◯ VERY LOW

Reference: GRADEpro GDT

醫病共同決策 Share Decision Making

	介入1	介入2
介入方式	重複經顱磁刺激	常規治療+/- 口服抗憂鬱劑治療
介入效果	針對中風後憂鬱症候群,約7人接受治療後即有1人可達到顯著效果。對於神經功能及日常生活功能可改善，但證據尚不明確。	復健合併慢性藥物控制
介入副作用	副作用低	藥物治療副作用包含頭痛、緊張、焦慮、失眠、噁心、腹瀉、口乾舌燥、便秘、疲勞、嗜睡、靜坐不能、體重增加
成本分析	多以10次作為一個治療單位，每單位rTMS治療需花費25,000至50,000元 (自費治療項目)	藥價約數百元/周
身心靈負擔	對於重複經顱磁刺激費用與治療成效之負擔	長期照顧患病家屬之身心負擔

價值偏好

病人偏好	很重要	重要	普通	不重要	很不重要
治療有效性	5	4	3	2	1
副作用程度	5	4	3	2	1
介入方便性	5	4	3	2	1
經濟成本	5	4	3	2	1

了解程度

- 1.重複經顱磁刺激術可否改善神經功能?

作答 ■ Yes □ No

- 2.重複經顱磁刺激術可否改善中風後憂鬱症?

作答 ■ Yes □ No

- 3.目前已有明確證據支持中風後病人接受重複經顱磁刺激術?

作答 □ Yes ■ No

臨床回覆

“

陳先生您好，經過我們專業團隊的實證查證結果，目前有系統性回顧文獻之**低證據品質**文章支持。

經顱磁刺激與常規治療相比，能改善中風後憂鬱患者**神經功能(非常低證據品質)**、**憂鬱症(非常低證據品質)** 、**日常生活活動量(非常低證據品質)** ，且**未有明顯副作用或嚴重副作用**。唯獨價格昂貴，因此我們建議您考量自身經濟狀況，選擇性使用**經顱磁刺激治療**。

除此之外，可與精神科醫師討論**使用抗憂鬱劑**，及持續復健科**中風後復健**，才能改善陳伯伯的中風後活動及憂鬱情形。

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謝謝各位評審聆聽

醫病共同決策輔助工具