實證醫學查證競賽

第 D 組

李姵諭、劉玠廷、葉峻銘

2024/12/06

臨床情境

- 小莊是一位**30出頭的年輕醫療工作者**，由於工作的性質,常常需要長時間在電腦前坐著。忙碌的醫院生活讓他幾乎沒有時間運動,下班後總是覺得身心疲憊,只想吃點鹹酥雞來犒賞自己,然後早早洗洗睡。然而，隨著年齡增長，小莊漸漸感受到體力的下降和代謝的變慢。最近的公司健檢報告顯示出讓他頗為擔心的結果:**體重已屬於肥胖範疇**，還出現了**脂肪肝**的跡象，**血脂也有具常-HDL偏低,三酸甘油脂居高不下**。雖然血糖選在正常範圍，HbA1c也僅有5.3%,但這些指標讓小莊覺得自己必須採取一些行動。

臨床情境

- 看著周遭的朋友開始嘗試各種方法減重,如間歇性斷食、生酮飲食,甚至還有開始使用健身房會員的, 小莊不免感到壓力, 心想:「難道我也該改變一下生活方式了?」在查閱資料的過程中, 他注意到一些新的降血糖藥物, 如**GLP-1類的liraglutide和semaglutide**, 以及**SGLT2抑制劑**, 這些藥物似乎不僅能控制血糖, 對減重也有良好的效果。對於不常運動的他來說,這些藥物看起來相當吸引人。另外, 他也考慮一些**傳統療法**, 如中藥或針灸, 希望能在改變生活習慣前, 嘗試看看其他的治療選擇。
- 因此, 小莊找到您這位熱愛實證醫學的同事,想知道是否有研究支持這些藥物和療法在**肥胖、脂肪肝患者中的減重效果** ,以及它們**和運動或飲食控制相比的優劣之處**。他希望能夠了解哪一種方式最適合化便做出更有科學依據的選擇。

分析問題屬性

背景問題 (Background)

1. 成年男性肥胖
2. 血脂異常: HDL偏低、三酸高油脂偏高
3. 脂肪肝
4. GLP-1 RAs, SGLT-2

前景問題 (Foreground)

1. 降血糖藥物(GLP-1, SGLT2抑制劑)對減重的影響
2. 傳統療法(中藥、針灸)對減重的影響
3. 與運動或飲食控制相比的優劣之處

背景資訊

- 在具有心血管保護效果的血糖藥中，最令人注目的藥物有兩大類，分別為：第二型鈉-葡萄糖共同轉運通道抑制劑（Sodium-glucose co-transporter 2 inhibitor；以下簡稱SGLT2抑制劑）以及第一型類升糖素胜肽受體致效劑（Glucagon-like peptide-1 receptor agonist；以下簡稱GLP-1RA）。
- SGLT2 inhibitor:

藉由腎臟裡的特殊通道蛋白：第二型鈉-葡萄糖共同轉運通道（Sodium-glucose co-transporter 2；簡稱SGLT2），人體可以把90%被過濾掉的葡萄糖吸收回血液裡面。這樣的機轉，對於古時候營養匱乏的人類或許重要，但對現代的糖尿病友來說，這反而是把過多的糖分留在身體裡，導致高血糖不易控制。藉由抑制SGLT2對葡萄糖的回收，讓糖分可以順利地從腎臟排出、隨著尿液排掉。因此SGLT2抑制劑又被稱為「排糖藥」。

- 用藥注意事項：生殖泌尿道感染、低血壓、糖尿病酮酸中毒

背景資訊

- GLP-1RA :

當食物進入腸道後，會刺激腸道細胞分泌一群統稱為「腸泌素」的荷爾蒙。而腸泌素的主要作用，是能促進胰臟分泌胰島素，並抑制升糖素的產生，藉此將餐後血糖維持在恆定的生理範圍內。然而，糖尿病友的腸泌素作用往往是不足的，這也就是為什麼糖尿病初期容易出現飯後高血糖的原因之一。在腸泌素中，有一種重要的成分，稱為第一型類升糖素胜肽（Glucagon-like peptide-1；簡稱GLP-1）。藉由注射GLP-1的受體致效劑（即GLP-1RA，或可理解為腸泌素的類似物），可以彌補糖尿病友不足的腸泌素功能，以利血糖的控制。GLP-1RA除了能促進胰島素的釋出，以及抑制升糖素的分泌外，還能延緩胃的排空，並且具有抑制食慾、減少飢餓、增加飽足感的功用。因此，GLP1-RA不只能顯著地降低血糖，還具有很好的減重效果。

- 用藥注意事項：針劑注射、腸胃不適、甲狀腺髓質癌的風險

資料來源：台大雲林分院

分析問題屬性

背景問題 (Background)

1. 成年男性肥胖
2. 血脂異常: HDL偏低、三酸高油脂偏高
3. 脂肪肝
4. GLP-1 RAs, SGLT-2 抑制劑

前景問題 (Foreground)

1. 降血糖藥物(GLP-1, SGLT2抑制劑)對減重的影響
2. 傳統療法(中藥、針灸)對減重的影響
3. 與運動或飲食控制相比的優劣之處

根據臨床問題形成的 PICO-1

	PICO / 關鍵字	MeSH 同義詞	中文關鍵字
P	Metabolic syndrome Adult		
I	GLP-1 RAs SGLT-2 inhibitors		
C	運動以及飲食控制		
O	Weight loss		

■治療/預防型問題　□診斷型問題　□預後型問題　□傷害/病因型問題

根據臨床問題形成的 PICO-2

	PICO / 關鍵字	MeSH 同義詞	中文關鍵字
P	Fatty liver Adult		脂肪肝OR成人
I	GLP-1 RAs SGLT-2 inhibitors		類升糖素 胜肽-1 AND SGLT2抑制劑
C			
O	Weight		體重

■治療/預防型問題　□診斷型問題　□預後型問題　□傷害/病因型問題

根據臨床問題形成的 PICO-2

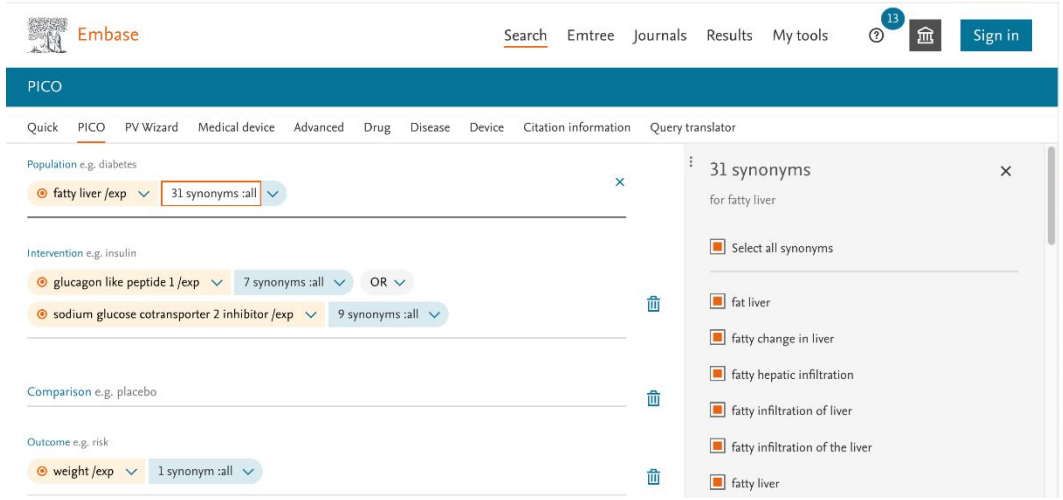
	PICO / 關鍵字	MeSH 同義詞	中文關鍵字
P	Fatty liver Adult		脂肪肝OR成人
I	GLP-1 RAs SGLT-2 inhibitors		
C			
O	Weight		

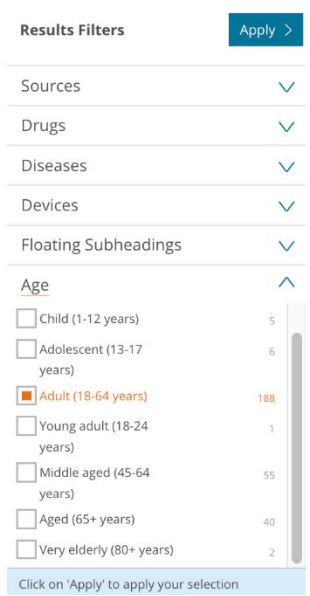
依病人情境選擇**PICO-2**

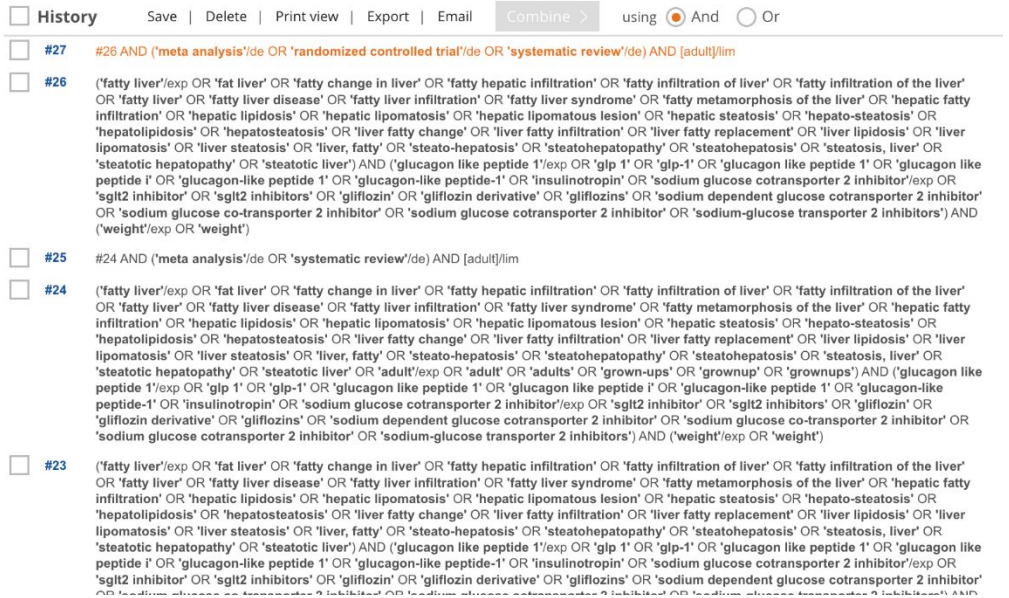
- ✔ 影響後續醫療決策
- ✔ 影響治療意願
- ✔ 是患者目前最在意的問題

■治療/預防型問題　□診斷型問題　□預後型問題　□傷害/病因型問題

搜尋Ovid Embase





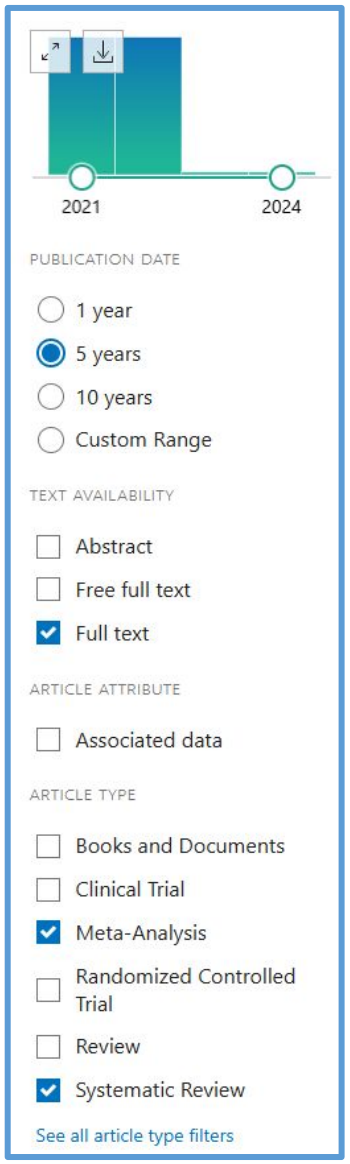


輸入關鍵字、適當使用布林邏輯以及 Emtree term

"Fatty liver“ AND ("Glucagon-Like Peptide-1 Receptor Agonists"OR "Sodium-Glucose Transporter 2 Inhibitors"AND Weight

- 限定適當限定適當文章類型『 Systematic Reviews 』
- 限定適當搜尋範圍
- 限定『5年』內之文章

搜尋PubMed



輸入關鍵字、適當使用布林邏輯以及 Mesh term

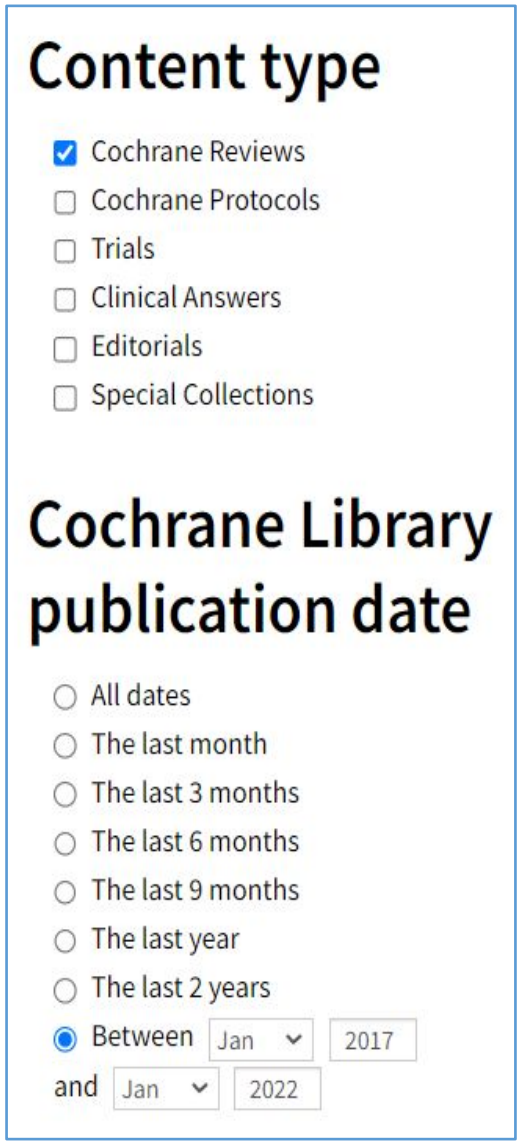
"Fatty liver"[Mesh] AND "Adult"[Mesh]) AND ("Glucagon-Like Peptide-1 Receptor Agonists"[Mesh] OR "Sodium-Glucose Transporter 2 Inhibitors"[Mesh]) AND Weight

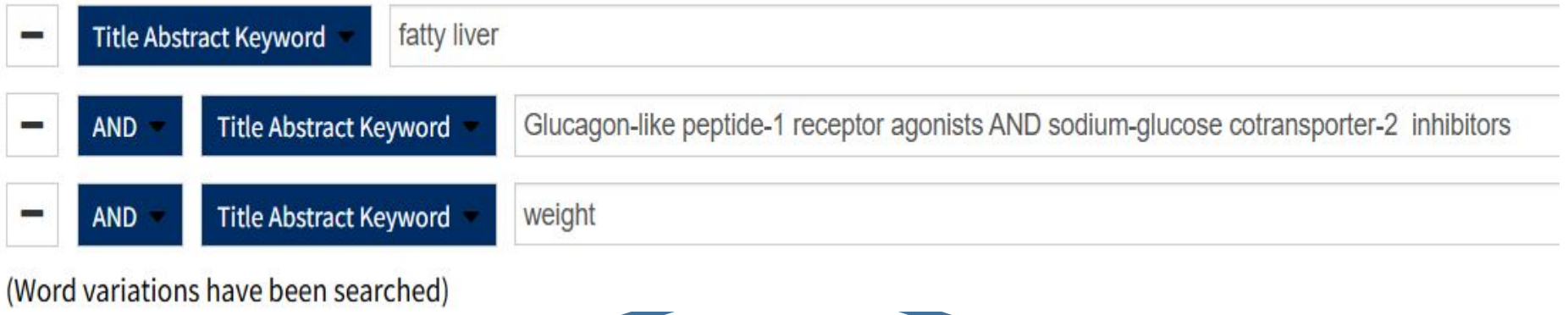
限定適當文章類型『 Systematic Reviews、Meta-Analysis』

限定『Full text』有全文可供評讀

限定『5年』內之文章

搜尋Cochrane Library





輸入關鍵字、適當使用布林邏輯『 AND』、『OR』

woman OR thyroid nodules people AND Calcitonin testing

OR Calcitonin AND thyroid cancer OR Thyroid Neoplasms

限定適當限定適當文章類型 『 Cochrane Reviews 』

限定適當搜尋範圍

限定『5年』內之文章(2020~2024)

airiti Library
華藝線上圖書館

搜尋華藝線上圖書館

輸入關鍵字、適當使用布林邏輯『 AND』『OR』

脂肪肝OR成人AND類升糖素 胜肽-1 AND SGLT2抑制劑

AND體重

限定適當搜尋範圍
限定『5年』內之文章(2020~2024)


Embase
ELSEVIER
Cochrane Library
PubMed
airiti Library
華藝線上圖書館
輸入『P』、『I』、『O』及適當同義詞，並搭配各資料庫限定或 filter之功能
1837 results
0 results
21 results
0 results
選擇『Systematic Review、Meta-Analysis』之文章
479 results
0 results
2 results
0 results
選擇『5年內』之文章
188 results
0 results
2 results
0 results
選擇『符合臨床問題』之文章
1 results
0 results
1 results
0 results

搜尋結果

來源	標題	年份
PubMed	GLP-1 RAs and SGLT-2 Inhibitors for Insulin Resistance in Nonalcoholic Fatty Liver Disease: Systematic Review and Network Meta-Analysis	2022
Embase ELSEVIER	GLP-1 RAs and SGLT-2 Inhibitors for Insulin Resistance in Nonalcoholic Fatty Liver Disease: Systematic Review and Network Meta-Analysis	2022

收納文獻比較 -選出最佳文獻

GLP-1 RAs and SGLT-2 Inhibitors for Insulin Resistance in Nonalcoholic Fatty Liver Disease: Systematic Review and Network Meta-Analysis		
M	Systematic Review	●
P	NAFLD Patients with or without T2DM, age ≥ 18	●
I	Antidiabetic drugs (include GLP-1 RAs, SGLT-2 inhibitor)	●
C	Placebo, standard care or another antidiabetic mentioned in interventions	●
O	HOMO-IR, adipose tissue, weight and body mass index (BMI), and adipokines	●
T	2022	●

收納文獻比較 -選出最佳文獻

GLP-1 RAs and SGLT-2 Inhibitors for Insulin Resistance in Nonalcoholic Fatty Liver Disease: Systematic Review and Network Meta-Analysis		
M	Systematic Review	●
P		●
I	An	●
C		●
O		●
T	2022	●

 # 納入嚴格評讀理由

- **較新的發表年份**
- **有全文可供評讀**
- **符合臨床情境**
- **最佳研究設計 (SR of RCTs)**

文章簡介

GLP-1 RAs and SGLT-2 Inhibitors for Insulin Resistance in Nonalcoholic Fatty Liver Disease: Systematic Review and Network Meta-Analysis

Hongle Yan[1,2] Chunyi Huang[1,2] Xuejun Shen[1,2] Jufang Li[1,2]

Shuyi Zhou[1,2] Weiping Li[1*]

[1] Department of Endocrinology, The First Affiliated Hospital of Shantou University Medical College, Shantou, China
[2] Department of Clinical Medicine, Shantou University Medical College, Shantou, China

frontiers | Endocrinology

- **Frontiers in Endocrinology**
- **IF: 3.9 (2023), 5.2 (2022)**
- **Publication year: 2022**

選擇適合的評毒工具

Validity (效度)
研究設計和研究方法的探討

Importance (重要性)
研究結果的分析

Practice (應用性)
研究結果的應用

評讀工具

CASP

文獻類型

SR

 # 評讀工具選擇考量

- **使用熟悉度**
- **國際普遍使用**
- **有為此文獻類型設計評讀流程**
- **評讀重點包含臨床應用**

Validity

1. Did the review address a clearly focused question ?
   此回顧是否問了一個清楚、明確的臨床問題？

I

GLP-1 RAs and SGLT-2 Inhibitors for Insulin Resistance in Nonalcoholic Fatty Liver Disease: Systematic Review and Network Meta-Analysis

P

Hongle Yan [1,2], Chunyi Huang [1,2], Xuejun Shen [1,2], Jufang Li [1,2], Shuyi Zhou [1,2] and Weiping Li [1]*

[1] Department of Endocrinology, The First Affiliated Hospital of Shantou University Medical College, Shantou, China,
[2] Department of Clinical Medicine, Shantou University Medical College, Shantou, China

O

Objective: Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) and sodium-glucose cotransporter-2 (SGLT-2) inhibitors reduce glycaemia and weight and improve insulin resistance (IR) *via* different mechanisms. We aim to evaluate and compare the ability of GLP-1 RAs and SGLT-2 inhibitors to ameliorate the IR of nonalcoholic fatty liver disease (NAFLD) patients.

Data Synthesis: Three electronic databases (Medline, Embase, PubMed) were searched from inception until March 2021. We selected randomized controlled trials comparing GLP-1 RAs and SGLT-2 inhibitors with control in adult NAFLD patients with or without T2DM. Network meta-analyses were performed using fixed and random effect models, and the mean difference (MD) with corresponding 95% confidence intervals (CI) were determined. The within-study risk of bias was assessed with the Cochrane collaborative risk assessment tool RoB.

Results: 25 studies with 1595 patients were included in this network meta-analysis. Among them, there were 448 patients, in 6 studies, who were not comorbid with T2DM. Following a mean treatment duration of 28.86 weeks, compared with the control group, GLP-1 RAs decreased the HOMA-IR (MD [95%CI]; -1.573[-2.523 to -0.495]), visceral fat (-0.637[-0.992 to -0.284]), weight (-2.394[-4.625 to -0.164]), fasting blood sugar (-0.662 [-1.377 to -0.021]) and triglyceride (- 0.610[-1.056 to -0.188]). On the basis of existing studies, SGLT-2 inhibitors showed no statistically significant improvement in the above indicators. Compared with SGLT-2 inhibitors, GLP-1 RAs decreased visceral fat (-0.560 [-0.961 to -0.131]) and triglyceride (-0.607[-1.095 to -0.117]) significantly.

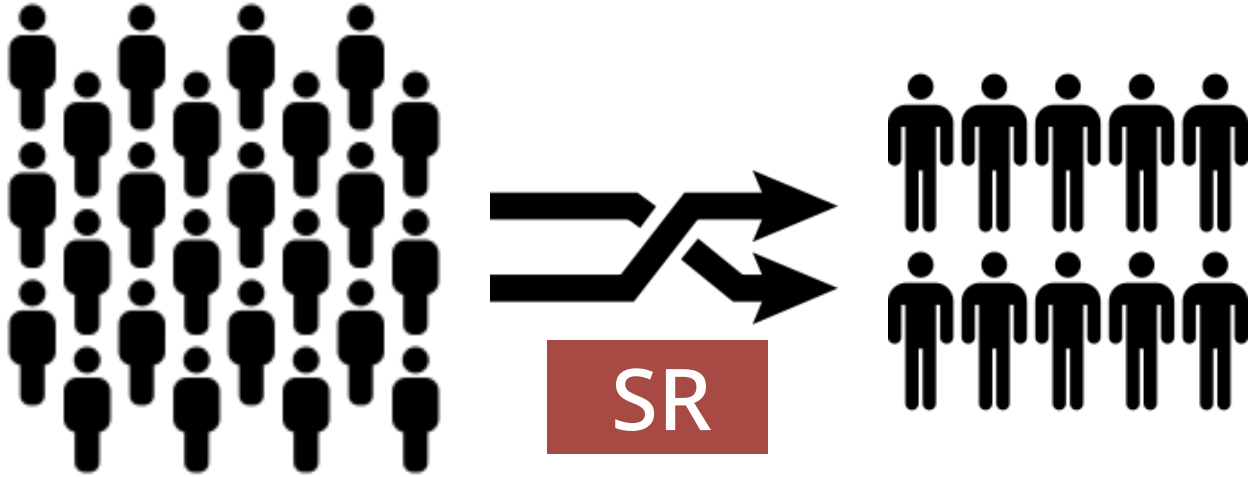
Conclusions: GLP-1 RAs effectively improve IR in NAFLD, whereas SGLT-2 inhibitors show no apparent effect.

Systematic Review Registration: PROSPERO https://www.crd.york.ac.uk/PROSPERO/, CRD42021251704

Keywords: GLP-1 RAs, SGLT-2 inhibitors, nonalcoholic fatty liver disease, insulin resistance, network meta-analysis

評讀結果	
P	Fatty liver
I	GLP-1 SGLTs
C	
O	weight

■ Yes □ No □ Unclear



Validity

2. Did the authors look for the right type of papers?
   作者是否收納適當的研究類型？

Results: 25 studies with 1595 patients were included in this network meta-analysis. Among them, there were 448 patients, in 6 studies, who were not comorbid with T2DM. Following a mean treatment duration of 28.86 weeks, compared with the control group, GLP-1 RAs decreased the HOMA-IR (MD [95%CI]; -1.573[-2.523 to -0.495]), visceral fat (-0.637[-0.992 to -0.284]), weight (-2.394[-4.625 to -0.164]), fasting blood sugar (-0.662 [-1.377 to -0.021]) and triglyceride (- 0.610[-1.056 to -0.188]). On the basis of existing studies, SGLT-2 inhibitors showed no statistically significant improvement in the above indicators. Compared with SGLT-2 inhibitors, GLP-1 RAs decreased visceral fat (-0.560 [-0.961 to -0.131]) and triglyceride (-0.607[-1.095 to -0.117]) significantly.

2.3.2 Other Limitation

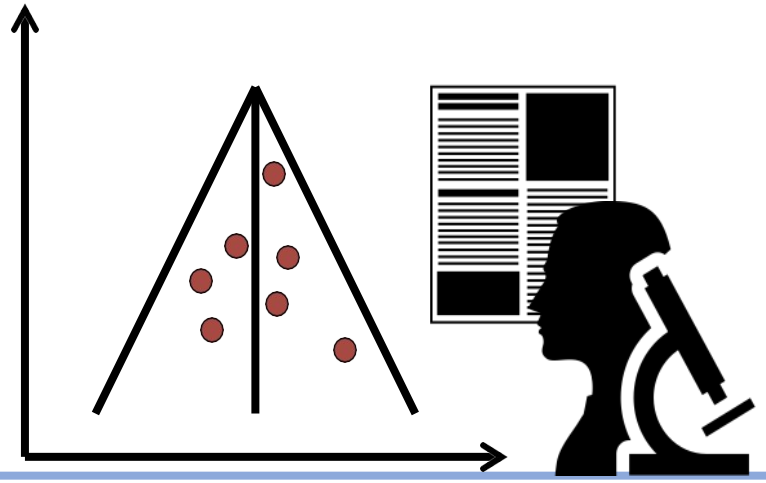
First, the language of the publications was limited to English. Second, for studies whose results were reported in multiple publications, we excluded publications presenting duplicate data and included the publications reporting the most complete data from any study. Third, studies under the risk of low-quality (retracted, terminated and impact factor less than 1 point) were excluded. Finally, studies were excluded if the data could not be extracted.

評讀結果

優點:

1. 收錄符合問題的 cohort studies文章
2. 清楚定義了納入條件
3. 清楚定義了排除條件

■ Yes □ No □ Unclear



Validity

3. Do you think the important, relevant studies were included?
重要、相關的研究是否皆被納入？

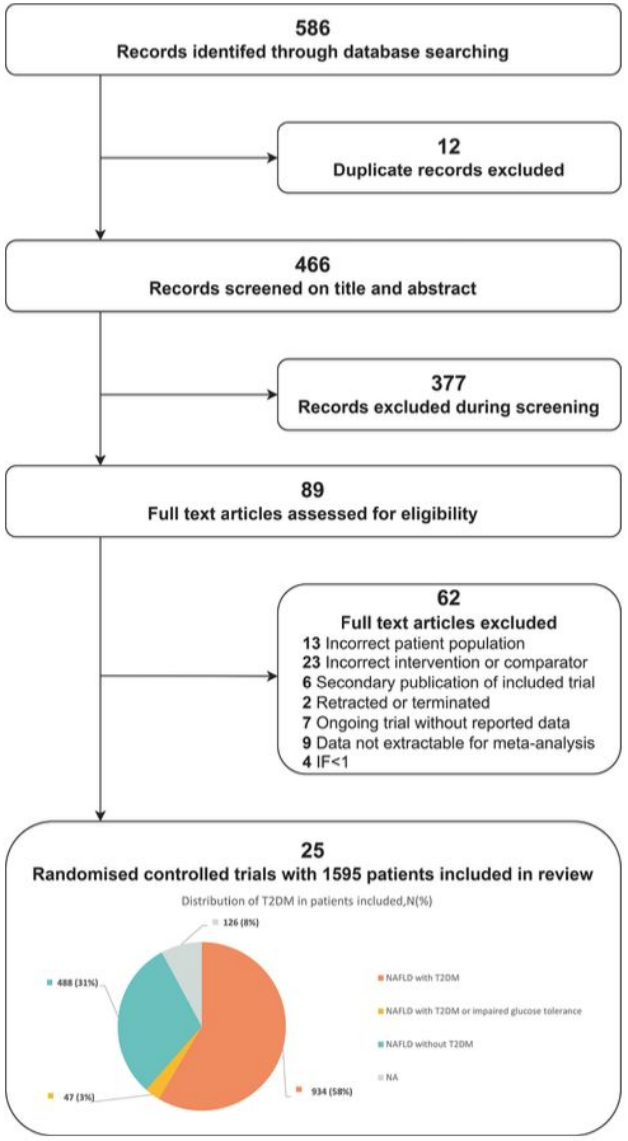


FIGURE 1 | Flow diagram for the study selection.

2.2 Search Strategy

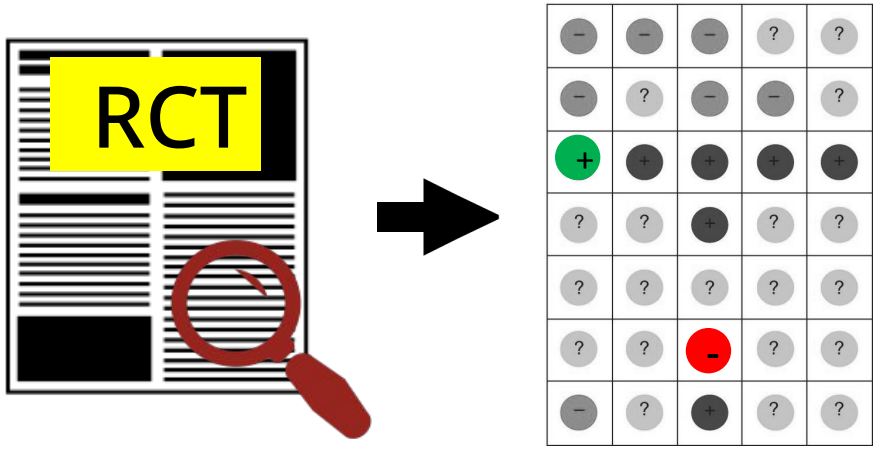
The study team co-designed a literature search strategy to search for randomized controlled trials (RCTs) published up to March 01, 2021, in Embase, Medline, and PubMed with language limited to English (**Appendix 1**). In addition, we screened references in the included articles to look for other potential studies.

評讀結果

優點:

1. 作者盡可能搜尋各種一級和二級資料庫, 包含Embase, Medline, PubMed
2. 列出 flow chart 清楚說明納入、排除理由

■ Yes □ No □ Unclear



Validity

4. Did the review's authors do enough to assess the quality of the included studies?
作者是否有評估收納研究的品質？

2.4 Data Extraction

For each eligible study, two reviewers independently extracted the following: study characteristics (study registration number, year of publication, country or countries, funding, duration), population (setting, sample size, patient demographics, whether subjects had coexisting T2DM), intervention description (drug class, name, dose, presence or absence of lifestyle intervention, and specific type of lifestyle intervention) and results. For outcome indicators, the mean and standard deviation after intervention of each study were extracted. Reviewers resolved disagreements by discussion or, if necessary, consultation with a third reviewer.

評讀結果

優點:

1. 由兩位作者獨立評讀
2. 不確定者由第三位作者判定

評讀結果

優點:

1. Risk of bias 使用 Cochrane collaborative risk assessment tool 進行評估

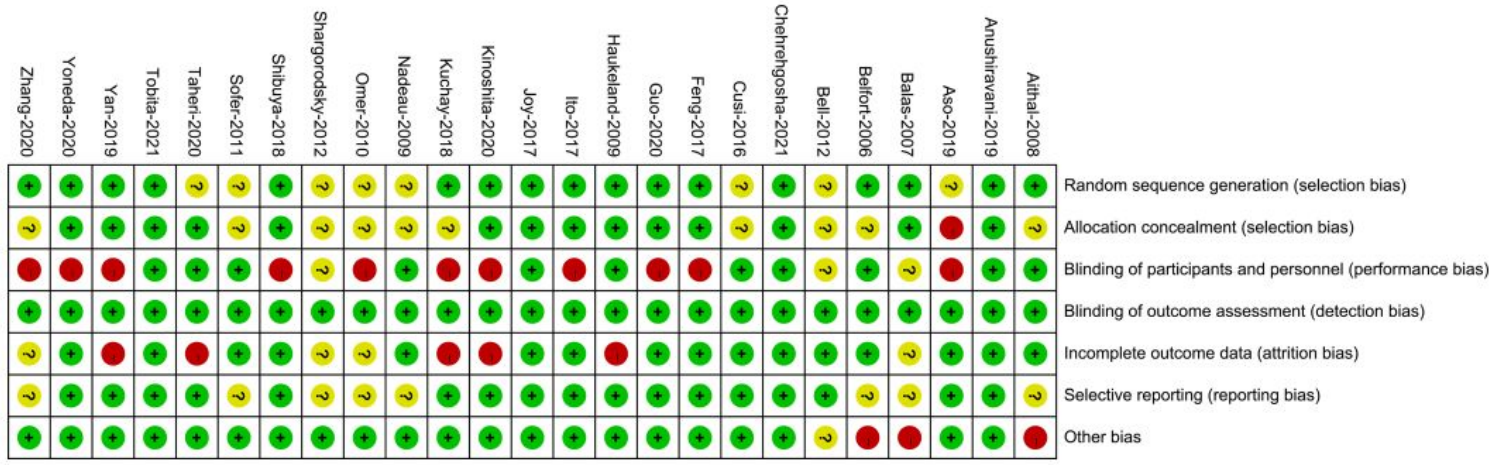


FIGURE 4 | Risk of bias summary. Review of authors' judgements about each risk of bias for each included study.

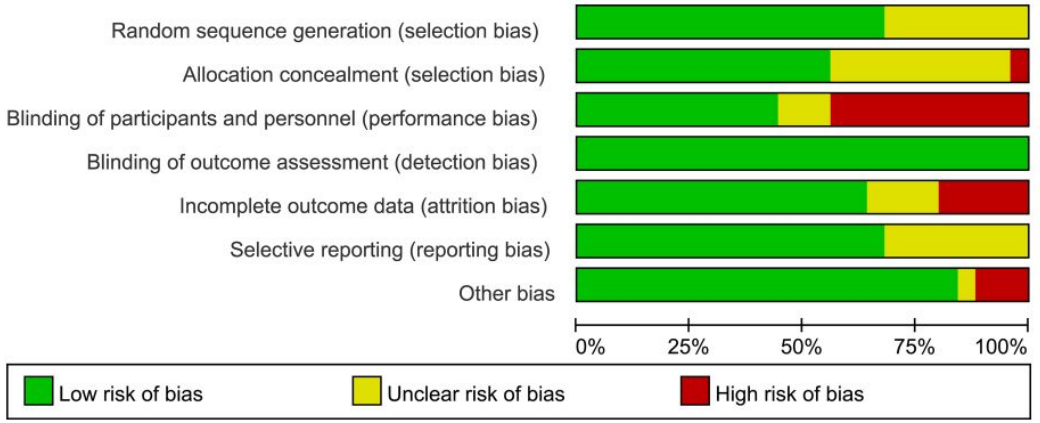
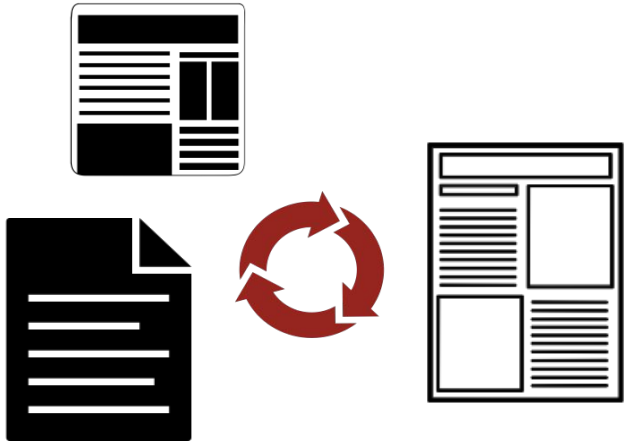


FIGURE 3 | Risk of bias graph. Review of authors' judgements about each risk of bias presented as percentages across all included studies.

■ Yes □ No □ Unclear



Validity

5. If the results of the review have been combined, was it reasonable to do so?
作者是否有把各個研究的結果合併起來？ 這樣的合併是合理的嗎？

Appendix 5 Model fit statistics for all outcomes

Outcome	Model	DIC	Dbar	pD	ratio	I^2	Used in base case analyses
HOMA-IR	FE	52.73121	31.6716	21.05961	0.9897	2.000%	NO
	RAN	54.04235	30.27051	23.77185	0.946	0.000%	YES
VAT	FE	33.96985	19.9436	14.02625	1.108	15.000%	NO
	RAN	34.21679	17.83497	16.38182	0.9908	4.000%	YES
SAT	FE	15.96671	7.98354	7.983172	0.9979	12.000%	YES
	RAN	15.93458	7.967794	7.966786	0.996	12.000%	NO
BMI	FE	72.01006	49.01922	22.99084	1.362	29.000%	NO
	RAN	64.04594	34.14233	29.90361	0.9484	0.000%	YES
Weight	FE	57.0633	34.01555	23.04775	0.9193	0.000%	YES
	RAN	58.50517	33.19511	25.31006	0.8972	0.000%	NO
LEPTIN	FE	18.88895	9.904476	8.984473	0.9904	9.000%	NO
	RAN	19.18426	9.805453	9.378808	0.9805	8.000%	YES
Adiponectin	FE	39.13536	25.13102	14.00434	1.478	36.000%	NO
	RAN	34.30251	17.46657	16.83595	1.027	8.000%	YES
FBS	FE	166.9528	135.8877	31.06513	2.954	67.000%	NO
	RAN	86.67001	47.8542	38.8158	1.04	6.000%	YES
HbA1C	FE	247.296	225.2899	22.00612	6.258	84.000%	NO
	RAN	70.73826	35.97271	34.76556	0.9992	3.000%	YES
TG	FE	66.65405	43.67948	22.97457	1.181	18.000%	NO
	RAN	67.03778	39.29897	27.73882	1.062	8.000%	YES
TC	FE	42.74546	25.65956	17.0859	0.9869	3.000%	YES
	RAN	43.94261	24.55648	19.38612	0.9445	0.000%	NO
HDL	FE	103.712	78.61189	25.10011	1.872	48.000%	NO
	RAN	78.66469	42.69077	35.97392	1.016	4.000%	YES
LDL	FE	105.3713	80.12119	25.25012	1.908	49.000%	NO
	RAN	82.38497	44.89084	37.49412	1.069	9.000%	YES
AST	FE	87.57976	62.17176	25.408	1.48	34.000%	NO
	RAN	74.98211	41.78366	33.19845	0.9948	2.000%	YES
ALT	FE	149.0912	121.6897	27.40147	2.645	63.000%	NO
	RAN	84.07908	44.58658	39.4925	0.9693	0.000%	YES
SBP	FE	39.39381	23.38299	16.01082	1.063	10.000%	NO
	RAN	39.99386	21.51153	18.48233	0.9778	2.000%	YES
RBP	FE	39.85949	23.79597	16.06352	1.082	12.000%	NO
	RAN	40.35654	21.57362	18.78292	0.9806	3.000%	YES

- 所有結果均使用一致性模型進行分析和不一致模型，整體異質性為根據偏差資訊的差異進行比較標準和 I2。
- 固定效應 (FE) 模型與隨機效應 (RE)針對每個結果運行模型，並選擇更合適的模型基於偏差資訊標準。

Appendix 5 Model fit statistics for all outcomes

Outcome	Model	DIC	Dbar	pD	ratio	I^2	Used in base case analyses
HOMA-IR	FE	52.73121	31.6716	21.05961	0.9897	2.000%	NO
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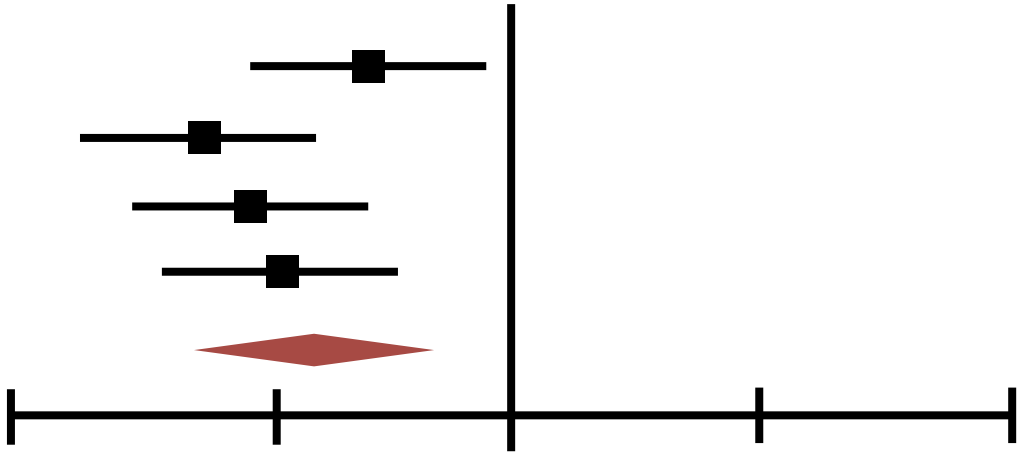
- 所有結果均使用一致性模型進行分析和不一致模型，整體異質性為根據偏差資訊的差異進行比較標準和 I2。
- 固定效應 (FE) 模型與隨機效應 (RE)針對每個結果運行模型，並

5. If the results of the review have been combined, was it reasonable to do so?

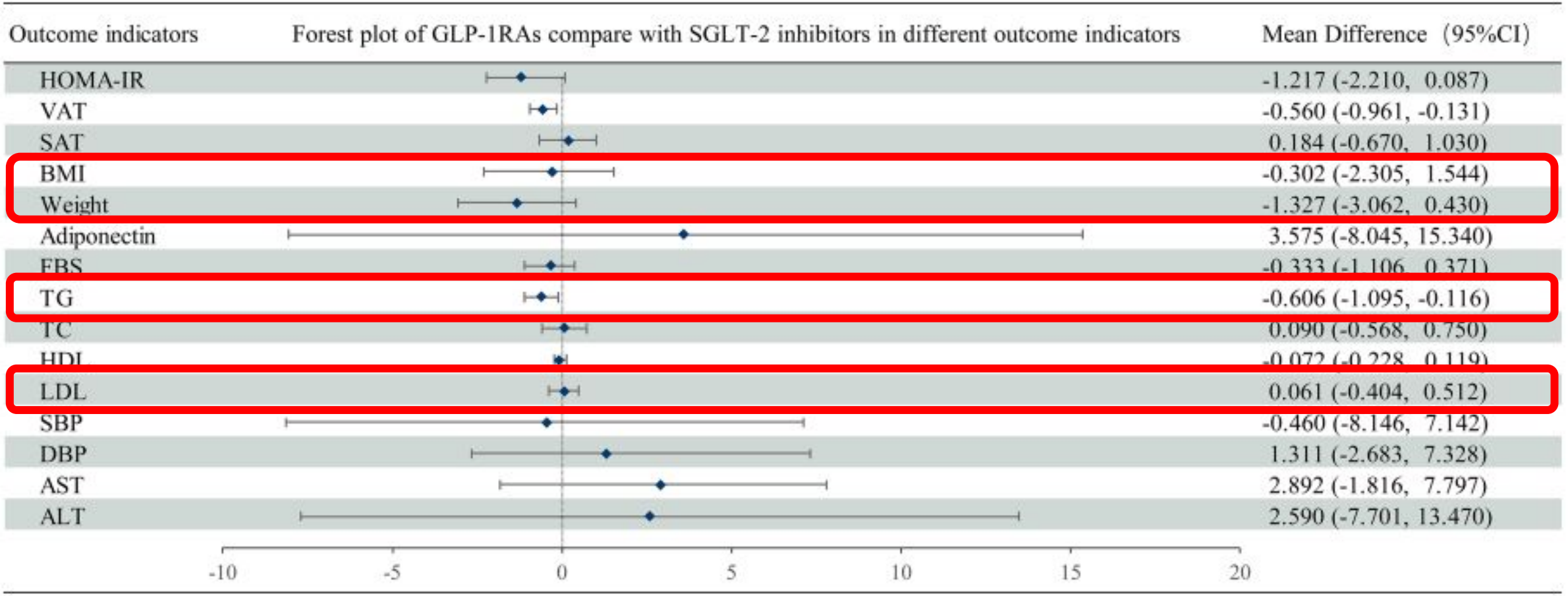
作者是否有把各個研究的結果合併起來？ 這樣的合併是合理的嗎？

■ Yes □ No □ Unclear



Importance

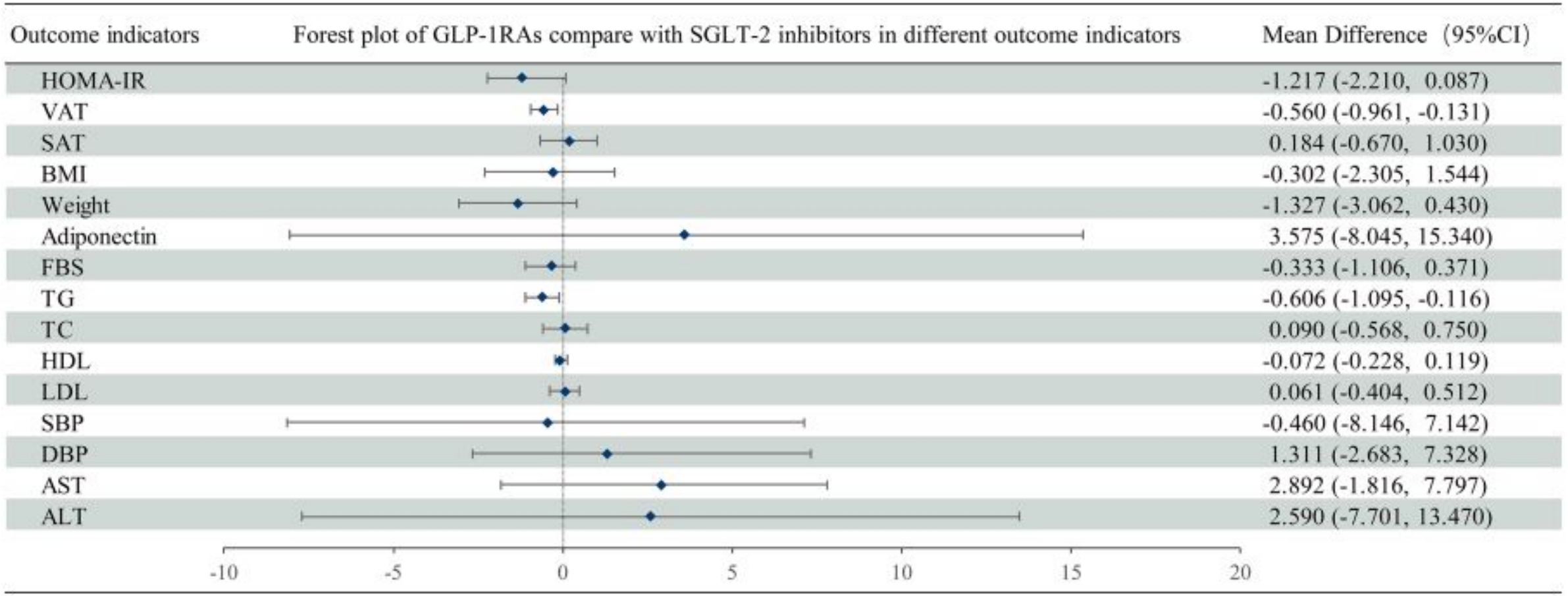
6. What are the overall results of the review?
   這篇回顧呈現了什麼結果？



- 這項研究表明 GLP-1 RA 可以改善NAFLD的代謝
- SGLT-2 抑制劑仍需要使用嚴格的方法來確定長期和大規模的隨機對照試驗。

Importance

7. How precise are the results?
   結果精準嗎？



- 此篇研究包含了 25篇RCT, 共1595位患者
- 所有outcome結果均通過中線

評定證據等級 -OCEBM Level of Evidence, 2011

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	andomized trial r observational study with ramatic 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) obs study with dramatic e	Non-randomized controlled cohort/follow-up	Case-series, case-control,	Mechanism-based
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or *n*-of-1 trial	Randomized trial or (exceptionally) obs study with dramatic e			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial			

【治療型問題】

包含隨機對照試驗之系統性回顧文章

證據等級為

Level 1

■ Yes □ No □ Unclear

Practice

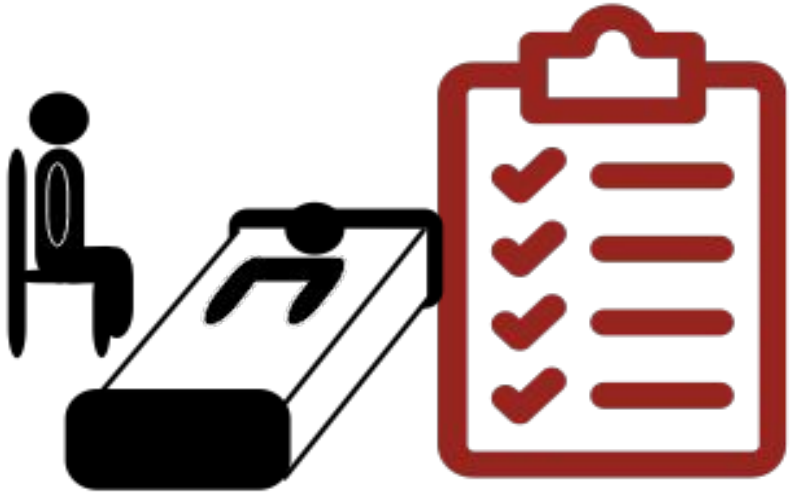
8. Can the results be applied to the local population?
   此研究是否可應用到你的病患？

評估適用性

	評讀文獻	臨床情境
P	**Nonalcoholic fatty liver disease Patients with or without T2DM, age ≥ 18**	Obesity and overweight , fatty liver Adults
I	**Antidiabetic drugs, including GLP-1 RAs, SGLT-2 inhibitors, thiazolidinediones (TZDs), dipeptidyl peptidase (DPP-4),**	GLP-1 receptor agonists and SGLT-2 inhibitors
O	**insulin resistance (IR) -related indicators(HOMAIR、BMI), laboratory measurements(TG、HDL、LDL…)**	weight loss

2. 這項檢查在台灣是否可行？ 可

■ Yes □ No □ Unclear



Practice

9. Were all important outcomes considered?
   是否所有重要的臨床結果都被考量到？

2.3.1.4 Outcomes

The main results of this review are based on IR-related indicators that show the degree of IR (direct indicators of IR) or influence IR (indirect indicators of IR): 1) the direct indicator of IR was the homoeostasis model assessment of insulin resistance (HOMA-IR) index; 2) the indirect indicators were adipose tissue, such as subcutaneous fat (SAT), visceral fat (VAT), weight and body mass index (BMI), and adipokines, including leptin and adiponectin. Secondary outcomes were IR-related laboratory measurements, including: 1) glycolipid metabolism, such as fasting blood sugar (FBS), total cholesterol (TC), TG, high-density lipoprotein cholesterol (HDL), low-density lipoprotein cholesterol (LDL); 2) systolic blood pressure (SBP) and diastolic blood pressure (DBP); and 3) liver enzymes aspartate aminotransferase (AST) and alanine transaminase (ALT).

- ✔ 主要結果:**胰島素抗性 直接、間接指標**(HOMA- IR指數; 皮下脂肪(SAT)、內臟脂肪(VAT)、體重和體重指數(BMI)。
- ✔ 次要結果:**空腹血糖** (FBS)、TC、**TG、HDL、LDL**、AST、ALT…。

■ Yes □ No □ Unclear

Practice

10. Are the benefits worth the harms and costs?

這些好處隨之而來的傷害和花費是否值得？

5 Conclusion

In conclusion, this network meta-analysis provides evidence for the effect of GLP-1 RAs and SGLT-2 inhibitors on reducing IR in patients with NAFLD. This study suggests that GLP-1 RAs can improve the metabolism of NAFLD, and in this regard, the effect of SGLT-2 inhibitors still needs to be determined using rigorous long-term and large-scale RCTs.

6 Prospects

As one of the most prevalent chronic diseases in the world, the public health and economic impact of NAFLD has been gradually given increasing attention by patients, regulatory agencies, and biopharmaceutical

- ✔ 本篇未提及傷害
- ✔ 在本次審查中，沒有進行正式的成本效益分析，因此無法做出經過驗證的陳述。
- ✔ 非酒精性脂肪肝病為常見的慢性病之一，對公共衛生和經濟的影響逐漸受到關注。

□ Yes ■ No □ Unclear

風險利益

	降血糖藥物	運動/飲控
效果	□ 控制血糖、減重	依是否維持習慣而有所不同
花費	GLP-1 RA(針劑)自費:3,300-4000元/針 SGLT2抑制劑(口服)自費:200-400元	依選擇運動方式、飲食花費不等
健保是否給付	否	否
優點	初期可能效果較佳	花費可能較低，無藥物副作用
風險/注意事項	GLP-1 RA(針劑)長期使用會抗拒打針，末期腎病不建議使用	無

醫病共享決策

實證醫學	患者期待
• 證據等級:CEBM(level 1)	• 希望可以減重
利弊分析	**費用成本**
• 降血糖藥物需自費使用, 留意末期腎病不建議使用	• GLP-1 RA(針劑)自費:3,300-4000元/針 • SGLT2抑制劑(口服)自費:200-400元 • 運動/飲控:花費不等

臨床應用-回覆病人問題

小莊您好，根據您的問題醫療團隊進行了進一步的查證，**使用降血糖藥物GLP-1 RA可以改善NAFLD的代謝，但末期腎病不建議使用。**所以，建議您可以**改善飲食及運動習慣**，與醫師討論是否搭配使用**降血糖藥物**。

感謝各位評審聆聽

2024/12/06