臨床上，肥胖患者適合使用Lorcaserin(Belviq®)來預防第二型糖尿病嗎?

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2019/06/25 Journal Club

萬芳醫院藥劑部

Outline

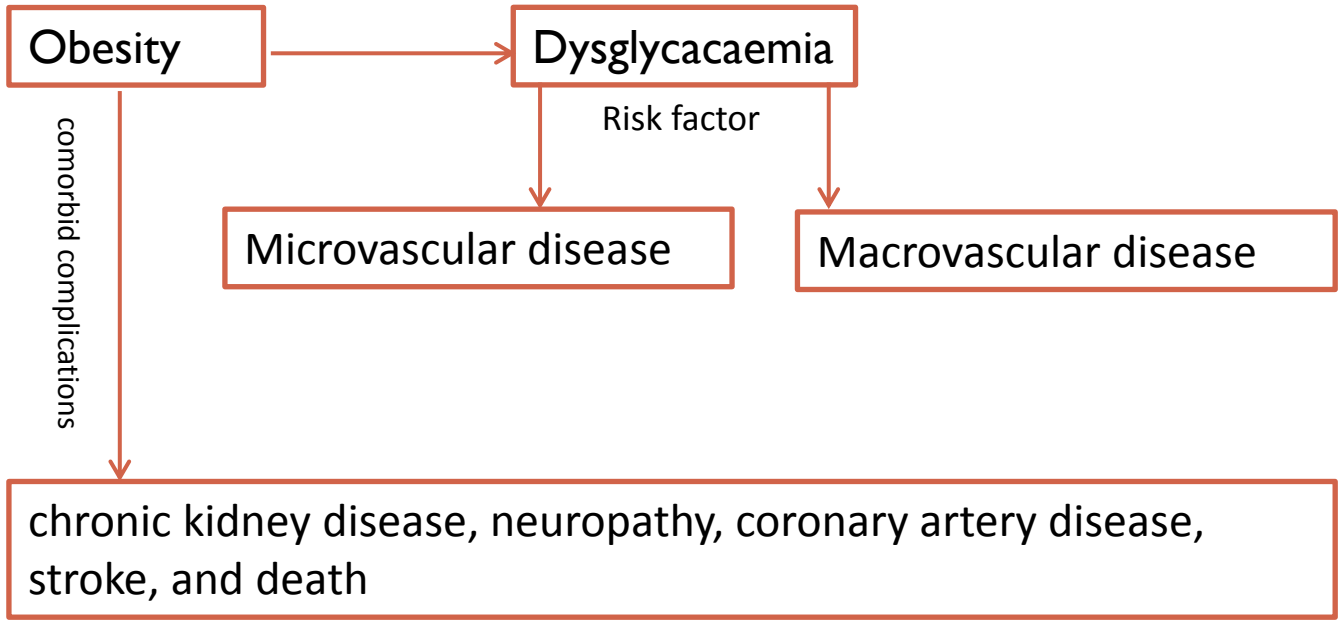
- Step 0: Background
- Step1: 提出問題(Question Formulation)-Ask
- Step2: 搜尋證據(Evidence Search)-Acquire
- Step3: 嚴格評讀(Critical Appraisal)-Appraisal

STEP 0: BACKGROUND

臨床問題與背景資料

Obesity

- The global prevalence of obesity has nearly tripled over the past 40 years
  - 13% of adults were obese (BMI ≥30 kg/m^2)
  - 39% were overweight (BMI 25–29 kg/m^2)
- Impaired glucose tolerance



Weight loss strategies

- Lifestyle
- Pharmacological agents
  - adjuncts to lifestyle modification
  - prevention of prediabetes and diabetes
- Bariatric surgery

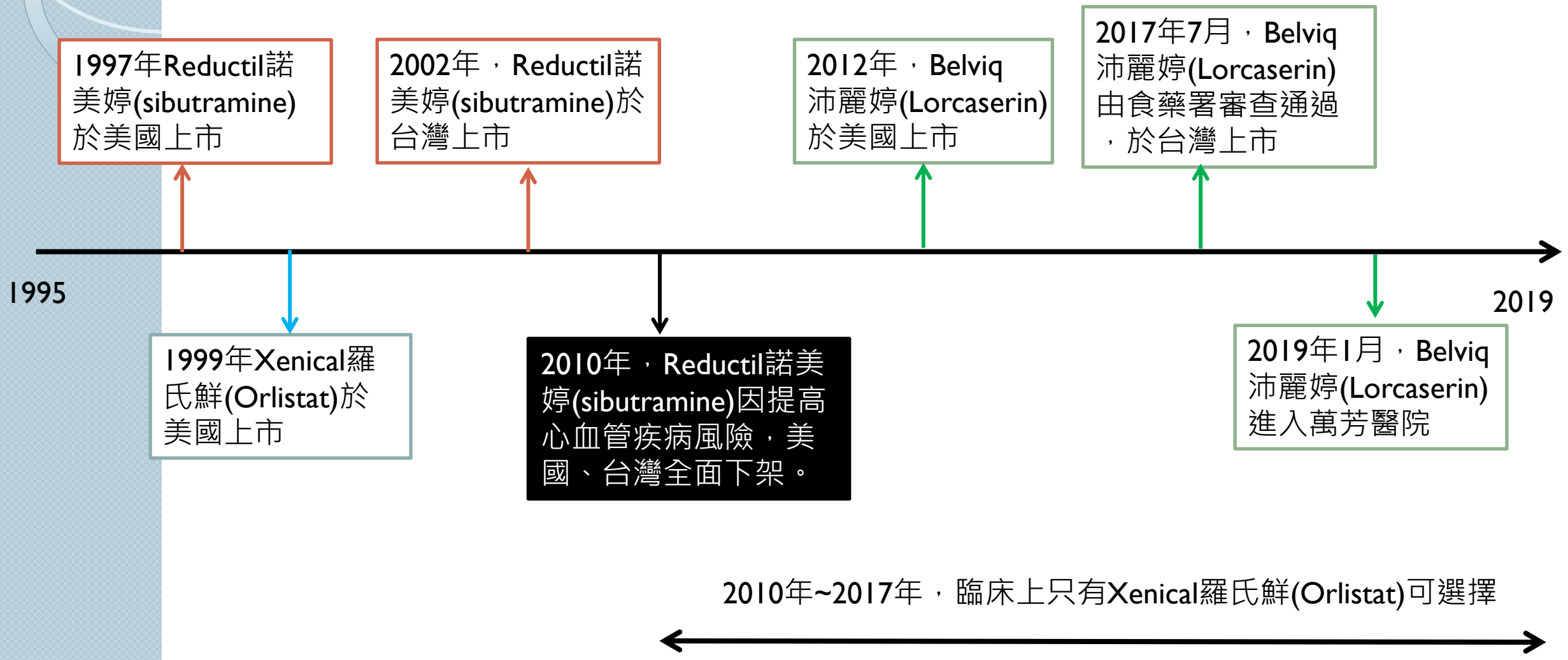
美國FDA核准上市，長期減重藥物

台灣

✓依照臨床療效及副作用選擇
✓對象: BMI>=30或BMI>=27合併有相關疾病者(高血壓、高血脂、第二型糖尿病)

名稱	機轉	副作用
Orlistat(Xenical®)	腸胃道內**脂肪分解酶抑制劑**，減少脂肪吸收	油便、腹痛、腹脹、腹瀉
Lorcaserin(Belviq®)	高選擇性的 **5HT2c 受體作用劑**，產生飽足感、抑制食慾	頭痛、低血糖、上呼吸道感染
Liraglutide(Victoza®)	Acylated human glucagonlike peptide 1 receptor, (GLP1) agonist，**抑制食慾**	心跳加快、頭痛、低血糖、噁心嘔吐
Phentermine **Phentermine-Topiramate (Qsymian®)**	中樞神經興奮劑	增加血壓、心跳加快(類似安非他命興奮劑)、頭痛、感覺異常、失眠、便秘與口乾。
Naltrexone+bupropion (Contrave ®)	鴨片拮抗劑 / 氨基酮抗抑鬱藥組合 (Opioid antagonist/aminoketone antidepressant combination	

口服減肥藥的歷史進程


1997年Reductil諾美婷(sibutramine)於美國上市
2002年，Reductil諾美婷(sibutramine)於台灣上市
2012年，Belviq沛麗婷(Lorcaserin)於美國上市
2017年7月，Belviq沛麗婷(Lorcaserin)由食藥署審查通過，於台灣上市
1995
2019
1999年Xenical羅氏鮮(Orlistat)於美國上市
2010年，Reductil諾美婷(sibutramine)因提高心血管疾病風險，美國、台灣全面下架。
2019年1月，Belviq沛麗婷(Lorcaserin)進入萬芳醫院
2010年~2017年，臨床上只有Xenical羅氏鮮(Orlistat)可選擇

病人/族群、介入/暴露因子、比較因子、結果

STEP1: 提出問題 (QUESTION FORMULATION)-ASK

PICO

臨床問題-Objective	**肥胖患者適合使用Lorcaserin(Belviq®)來預防第二型糖尿病嗎?**
問題/研究族群 Problem/Patient	Pre-diabetes or No diabetes AND obesity or overweight
給予的措施 Intervention	Lorcaserin
對照 Comparison	placebo
結果 Outcome	Prevention, Glycaemic control, Weight loss, remission of hyperglyceaemia,

這是一個 ●治療 ●診斷 ●傷害 ●預後 型問題

運用合適的關鍵字與檢索策略，提昇搜尋效率

STEP2: 搜尋證據 (EVIDENCE SEARCH)-ACQUIRE

關鍵字與搜尋策略

PICO	可能的檢索詞
問題/研究族群 **Problem/Patient**	Type 2 diabetes mellitus or Pre-diabetes or No diabetes AND obesity or overweight
給予的措施 **Intervention**	Lorcaserin
對照 **Comparison**	placebo
結果 **Outcome**	Prevention, Glycaemic control, Weight loss, remission of hyperglyceaemia, remission

搜尋歷程: Pubmed Search Builder

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PubMed.gov — US National Library of Medicine, National Institutes of Health

PubMed | (prediabetes) AND obese overweight | Search

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Article types
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Review
Customize ...

Text availability
Abstract
Free full text
Full text

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

Clear all

Format: Summary Sort by: Most Recent Per page: 20 Send to

Best matches for (prediabetes) AND obese overweight:

Implementation of a **prediabetes** identification algorithm for **overweight** and **obese** Veterans.
Moin T et al. J Rehabil Res Dev. (2016)

Metformin Use in Children and Adolescents with **Prediabetes**.
Khokhar A et al. Pediatr Clin North Am. (2017)

Effect of Liraglutide Treatment on **Prediabetes** and **Overweight** or **Obesity** in Clozapine- or Olanzapine-Treated Patients With Schizophrenia Spectrum Disorder: A Randomized Clinical Trial.
Larsen JR et al. JAMA Psychiatry. (2017)

Switch to our new best match sort order

Search results

Items: 1 to 20 of 1426

<< First < Prev Page 1 of 72 Next > Last >>

Filter your results:

All (1426)
English (1227)
Free Full Text (524)
Humans (1243)
Published in the last 5 years (660)
meta analysis (12)
Randomized Controlled Trial (159)
Systematic Reviews (11)

Manage Filters

Sort by:

Best match | Most recent

先分別population &intervention 搜尋

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PubMed | lorcaserin | Search

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Article types
Clinical Trial
Meta-Analysis
Randomized Controlled Trial
Systematic Reviews
Customize ...

Text availability
Abstract
Free full text
Full text

Publication dates
5 years
10 years
Custom range...

Species clear
✓ Humans
Other Animals

Clear all

Show additional filters

Format: Summary Sort by: Most Recent Per page: 20

Best matches for lorcaserin:

Lorcaserin improves glycemic control via a melanocortin neurocircuit.
Burke LK et al. Mol Metab. (2017)

Network meta-analysis of **lorcaserin** and oral hypoglycaemics for patients with type 2 diabetes mellitus and obesity.
Neff LM et al. Clin Obes. (2017)

Safety and tolerability review of **lorcaserin** in clinical trials.
Greenway FL et al. Clin Obes. (2016)

Switch to our new best match sort order

Search results

Items: 1 to 20 of 253

<< First < Prev Page 1 of 13 Next > Last >>

ur results:

All (253)
English (247)
Free Full Text (59)
Humans (253)
Published in the last 5 years (142)
meta analysis (9)
Randomized Controlled Trial (43)
Systematic Reviews (8)

Manage Filters

Sort by:

Best match | Most recent

Filters activated: Humans. Clear all to show 369 items.

1. Acclaimed anti-obesity drug fails to impress scouts for clinically important research.
Kmietowicz Z.
BMJ. 2019 Jan 30;364:l464. doi: 10.1136/bmj.l464. No abstract available.
PMID: 30700410
Similar articles

Results by year

搜尋歷程: Pubmed Search Builder

PubMed Advanced Search Builder

YouTube Tutorial

Filters activated: published in the last 5 years. Clear all

((Lorcaserin AND "last 5 years"[PDat])) AND (((Prediabetes) AND obese overweight) AND "last 5 years"[PDat])

Edit Clear

Builder

	All Fields	Lorcaserin AND "last 5 years"[PDat]	Show index list
AND	All Fields	((Prediabetes) AND obese overweight) AND "last 5 years"[PDat]	Show index list
AND	All Fields		Show index list

Search or Add to history

聯集兩個搜尋結果

History Download history Clear history

Search	Add to builder	Query	Items found	Time
#3	Add	Search **Lorcaserin** Filters: **published in the last 5 years**	239	09:53:14
#2	Add	Search **((Prediabetes) AND obese overweight)** Filters: **published in the last 5 years**	660	09:52:34
#1	Add	Search **((Prediabetes) AND obese overweight)**	1426	09:52:28

搜尋歷程: Pubmed Search Builder

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Full text

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

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Show additional filters

Format: Summary **Sort by**: Most Recent **Send to**

Search results

Items: 5

1. Behavioral and Pharmacotherapy Weight Loss Interventions to Prevent **Obesity**-Related Morbidity and Mortality in Adults: An Updated Systematic Review for the U.S. Preventive Services Task Force [Internet].
LeBlanc EL, Patnode CD, Webber EM, Redmond N, Rushkin M, O'Connor EA.
Rockville (MD): Agency for Healthcare Research and Quality (US); 2018 Sep.
PMID: 30354042 **Free Books & Documents**
Similar articles

2. Effect of **lorcaserin** on prevention and remission of type 2 diabetes in **overweight** and **obese** patients (CAMELLIA-TIMI 61): a randomised, placebo-controlled trial.
Bohula EA, Scirica BM, Inzucchi SE, McGuire DK, Keech AC, Smith SR, Kanevsky E, Murphy SA, Leiter LA, Dwyer JP, Corbalan R, Hamm C, Kaplan L, Nicolau JC, Ophuis TO, Ray KK, Ruda M, Spinar J, Patel T, Miao W, Perdomo C, Francis B, Dhadda S, Bonaca MP, Ruff CT, Sabatine MS, Wiviott SD; CAMELLIA-TIMI 61 Steering Committee Investigators.
Lancet. 2018 Nov 24;392(10161):2269-2279. doi: 10.1016/S0140-6736(18)32328-6. Epub 2018 Oct 4.
PMID: 30293771 **Free Article**
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meta analysis (1)
Randomized Controlled Trial (3)
Systematic Reviews (0)
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Sort by:
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Find related data
Database: Select
Find items

(1) 先尋找較佳的研究設計-Meta analysis、Randomized Controlled Trial
(2) 以肉眼評讀有無符合PICO的研究

選用文獻

Lancet 2018; 392: 2269–79

Effect of lorcaserin on prevention and remission of type 2 diabetes in overweight and obese patients (CAMELLIA-TIMI 61): a randomised, placebo-controlled trial

Erin A Bohula, Benjamin M Scirica*, Silvio E Inzucchi, Darren K McGuire, Anthony C Keech, Steven R Smith, Estella Kanevsky, Sabina A Murphy, Lawrence A Leiter, Jamie P Dwyer, Ramon Corbalan, Christian Hamm, Lee Kaplan, Jose Carlos Nicolau, Ton Oude Ophuis, Kausik K Ray, Mikhail Ruda, Jindrich Spinar, Tushar Patel, Wenfeng Miao, Carlos Perdomo, Bruce Francis, Shobha Dhadda, Marc P Bonaca, Christian T Ruff, Marc S Sabatine†, and Stephen D Wiviott†, for the CAMELLIA-TIMI 61 Steering Committee and Investigators‡*

此篇文章納入理由：
最符合臨床問題(包含病人條件)，發表年份最新，有全文可評讀，較佳研究設計

STEP3: 嚴格評讀
(CRITICAL APPRAISAL)-APPRAISAL

Aim

- To evaluate the long-term effects of lorcaserin on diabetes prevention and remission.

- Short-term studies (typically 1 year)
- Few long-term data from large randomised trials

Patients and trial design

Between Feb 7, 2014, and Nov 20, 2015, 12 000 patients.

Randomized, double-blind, placebo-controlled, multinational clinical trial

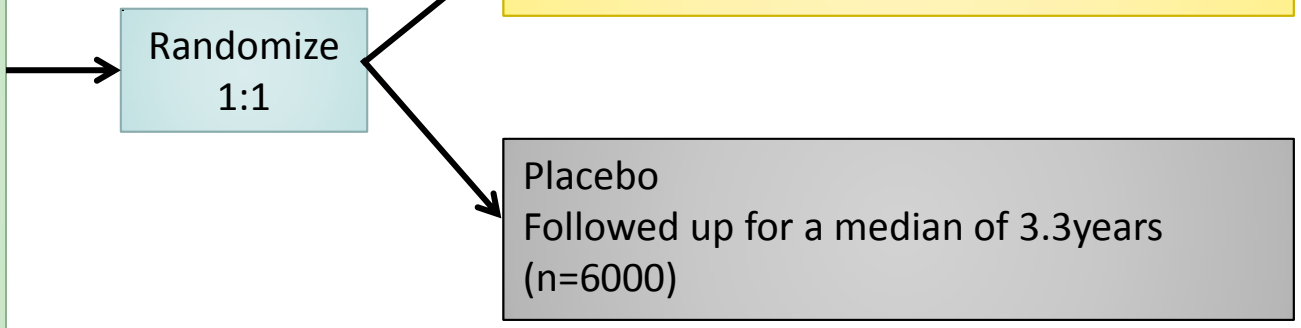
1. BMI ≥27 kg/m2
2. Reduced-calorie diet and an increased physical activity program.
3. Age ≥40 yr with **established atherosclerotic cardiovascular disease**.

Or

3. Age ≥55 yr for women or ≥50 yr for men who have T2DM without established CV disease plus **at least 1 CV risk factors**

- **No** moderate to severe pulmonary hypertension, heart failure, or hepatic dysfunction, severe valvular disease or renal dysfunction, planned bariatric surgery,
- **No** use of pharmacological weight loss therapy.

(n=12000)



Definition for glycaemic subgroup

- **Diabetes (prior to or at baseline)**
  - History of diabetes
  - Use of any treatment for diabetes
  - Biochemical value in the diabetic range (e.g. HbA1c ≥ 6.5%, fasting plasma glucose ≥ 126mg/dL, 2-hour plasma glucose ≥ 200 mg/dL on an oral glucose tolerance test **or** a report of a random plasma glucose ≥ 200 mg/dL with associated symptoms of hyperglycemia

- **Pre-diabetes**
  - Did not meet criteria for diabetes
  - At least one of the following: Hb A1c ≥ 5.7-<6.5% **or** a fasting plasma glucose of 100-125 mg/dL

- **Normoglycemia**
  - Did not meet criteria for diabetes or pre-diabetes

Outcomes

- **Primary metabolic efficacy**
  ① Time to incident type 2 diabetes among patients with prediabetes at baseline.
- **Secondary metabolic efficacy**
  ① Incidence of type 2 diabetes in the full non-diabetic population
  ② Prediabetes, achievement of normoglycaemia
  ③ Diabetes, change in HbA1c

- **Safety**
  ① Hypoglycaemia
- **Exploratory metabolic efficacy**
  ① Microvascular complications: retinopathy, neuropathy, and albuminuria.
  ② Diabetes → shift to prediabetes / normoglycaemia
  (achievement of normoglycaemia, remission of hyperglycaemia)

Statistical analysis

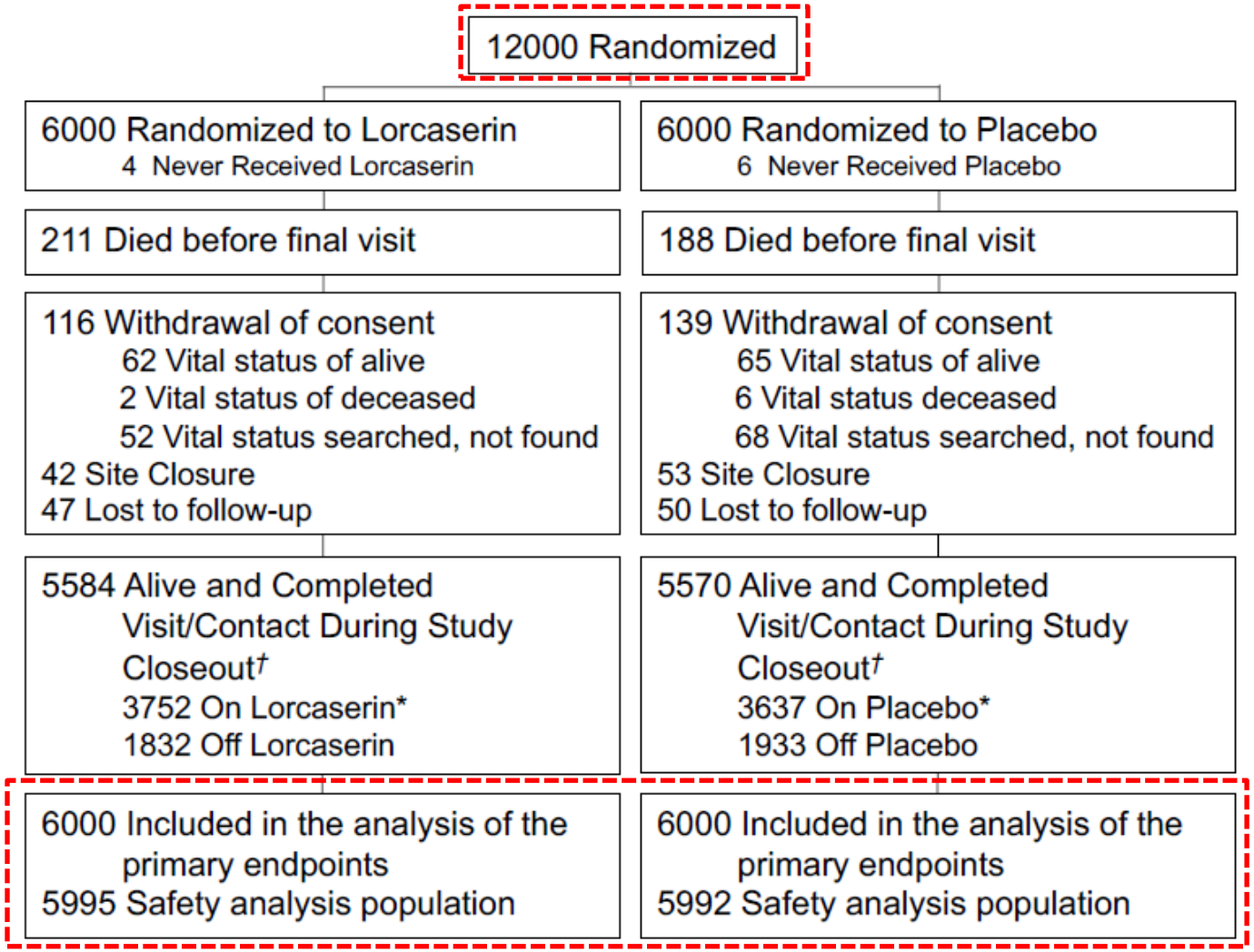
- **Two-sided α level: 0.005**
  - With enrollment of incident diabetes events (n=808)
  - 90% power to detect a 25% risk reduction in incident diabetes

- **Time-to-event analysis:**
  - Cox proportional hazards model, Hazard ratios (HRs), 95% CIs, and p values

- **Efficacy analyses:**
  - Incident diabetes, intention to treat(ITT), on-treatment sensitivity analyses.

- **Safety analyses:**
  - Hypoglycaemic events, on-treatment group.

Patient disposition and treatment



*†On or after 1/3/2018; *On study drug on or after 1/2/2018*

Between Feb 7, 2014, and Nov 20, 2015

Randomize 1:1

Followed up for a median of 3.3years

Baseline characteristics- I

	Diabetes		Prediabetes		Normoglycaemia	
	Lorcaserin (n=3385)	Placebo (n=3431)	Lorcaserin (n=2015)	Placebo (n=1976)	Lorcaserin (n=600)	Placebo (n=593)
Demographics						
Age, years	64 (59–69)	64 (59–70)	64 (58–70)	64 (58–70)	62 (55–68)	63 (56–68)
Sex						
Female	1349 (39·9%)	1398 (40·7%)	541 (26·8%)	585 (29·6%)	222 (37·0%)	203 (34·2%)
Male	2036 (60·1%)	2033 (59·3%)	1474 (73·2%)	1391 (70·4%)	378 (63·0%)	390 (65·8%)
Race						
White	2864 (84·6%)	2936 (85·6%)	1881 (93·3%)	1837 (93·0%)	564 (94·0%)	558 (94·1%)
Other	521 (15·4%)	495 (14·4%)	134 (6·7%)	139 (7·0%)	36 (6·0%)	35 (5·9%)
Weight, kg	105 (92–120)	105 (93–120)	100 (89–113)*	99 (88–111)*	97 (86–109)	95 (86–105)
BMI, kg/m²	36 (32–41)	36 (33–41)	34 (31–37)	34 (31–37)	33 (30–37)	33 (30–36)
Comorbidities						
Hypertension	3151 (93·1%)*	3238 (94·4%)*	1772 (87·9%)	1705 (86·3%)	491 (81·8%)	491 (82·8%)
Hyperlipidemia	3191 (94·3%)	3237 (94·3%)	1882 (93·4%)	1840 (93·1%)	543 (90·5%)	536 (90·4%)
eGFR <60	756 (22·3%)	809 (23·6%)	305 (15·1%)	309 (15·6%)	88 (14·7%)	90 (15·2%)
ACR ≤30 mg/dL	836 (24·7%)	849 (24·7%)	228 (11·3%)	262 (13·3%)	39 (6·5%)*	64 (10·8%)*
Median HbA_{1c}, mmol/mol (95% CI)	51 (51–52)	51 (50–51)	40 (39–40)	39 (39–40)	36 (34–36)	36 (34–36)
Median HbA_{1c}, % (95% CI)	6·8% (6·8–6·9)	6·8% (6·7–6·8)	5·8% (5·7–5·8)	5·7% (5·7–5·8)	5·4% (5·3–5·4)	5·4% (5·3–5·4)
Duration of diabetes, years	9 (4–15)	9 (4–15)	..	..	..	..

Baseline characteristics-2

	Diabetes		Prediabetes		Normoglycaemia	
	Lorcaserin (n=3385)	Placebo (n=3431)	Lorcaserin (n=2015)	Placebo (n=1976)	Lorcaserin (n=600)	Placebo (n=593)
Demographics						
Cardiovascular strata						
Multiple cardiovascular risk factors	1511 (44·6%)	1528 (44·5%)	1 (<0·1%)	1 (0·1%)	0	1 (0·2%)
Established cardiovascular disease	1874 (55·4%)	1903 (55·5%)	2014 (>99·9%)	1975 (99·9%)	600 (100%)	592 (99·8%)
Coronary artery disease	1713 (50·6%)	1722 (50·2%)	1860 (92·3%)	1806 (91·4%)	523 (87·2%)	529 (89·2%)
Peripheral arterial disease	176 (5·2%)	151 (4·4%)	119 (5·9%)	123 (6·2%)	44 (7·3%)	44 (7·4%)
Cerebrovascular disease	280 (8·3%)	306 (8·9%)	198 (9·8%)	217 (11·0%)	69 (11·5%)	60 (10·1%)
Baseline medications						
Any diabetes medication	2815 (83·2%)	2855 (83·2%)	..	..	..	..
Insulin	981 (29·0%)	979 (28·5%)	..	..	..	..
GLP-1 receptor agonist	314 (9·3%)	293 (8·5%)	..	..	..	..
SGLT-2 inhibitor	103 (3·0%)	124 (3·6%)	..	..	..	..
Metformin	2024 (59·8%)	2091 (60·9%)	..	..	..	..
DPP4 inhibitor	332 (9·8%)	330 (9·6%)	..	..	..	..
Sulfonylurea	871 (25·7%)	860 (25·1%)	..	..	..	..
Thiazolidinediones	157 (4·6%)	158 (4·6%)	..	..	..	..
Aspirin	2276 (67·2%)	2308 (67·3%)	1740 (86·4%)	1708 (86·4%)	513 (85·5%)	502 (84·7%)
Statin	2794 (82·5%)	2863 (83·4%)	1824 (90·5%)	1763 (89·2%)	505 (84·2%)	503 (84·8%)
ACEi/ARB	2706 (79·9%)	2756 (80·3%)	1411 (70·0%)	1383 (70·0%)	360 (60·0%)*	390 (65·8%)*

Primary metabolic Efficacy

- Time to incident type 2 diabetes among patients with prediabetes at baseline
- Number needed to treat(NNT) of 56 to prevent one event of diabetes over 3 years.

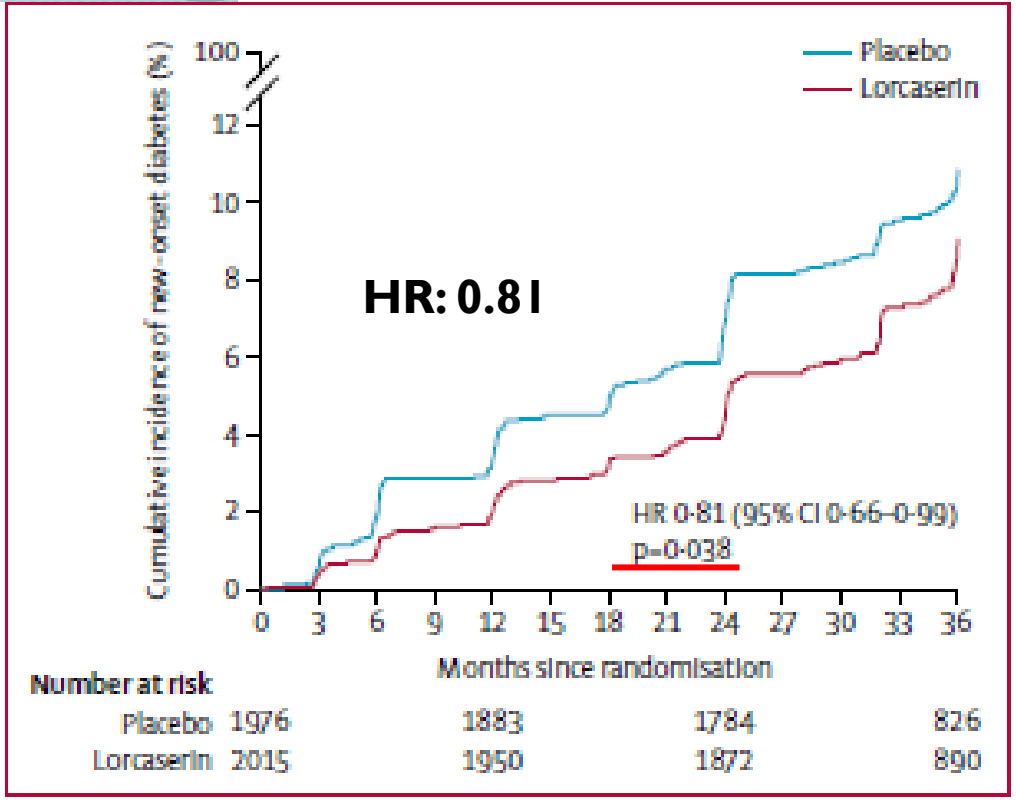
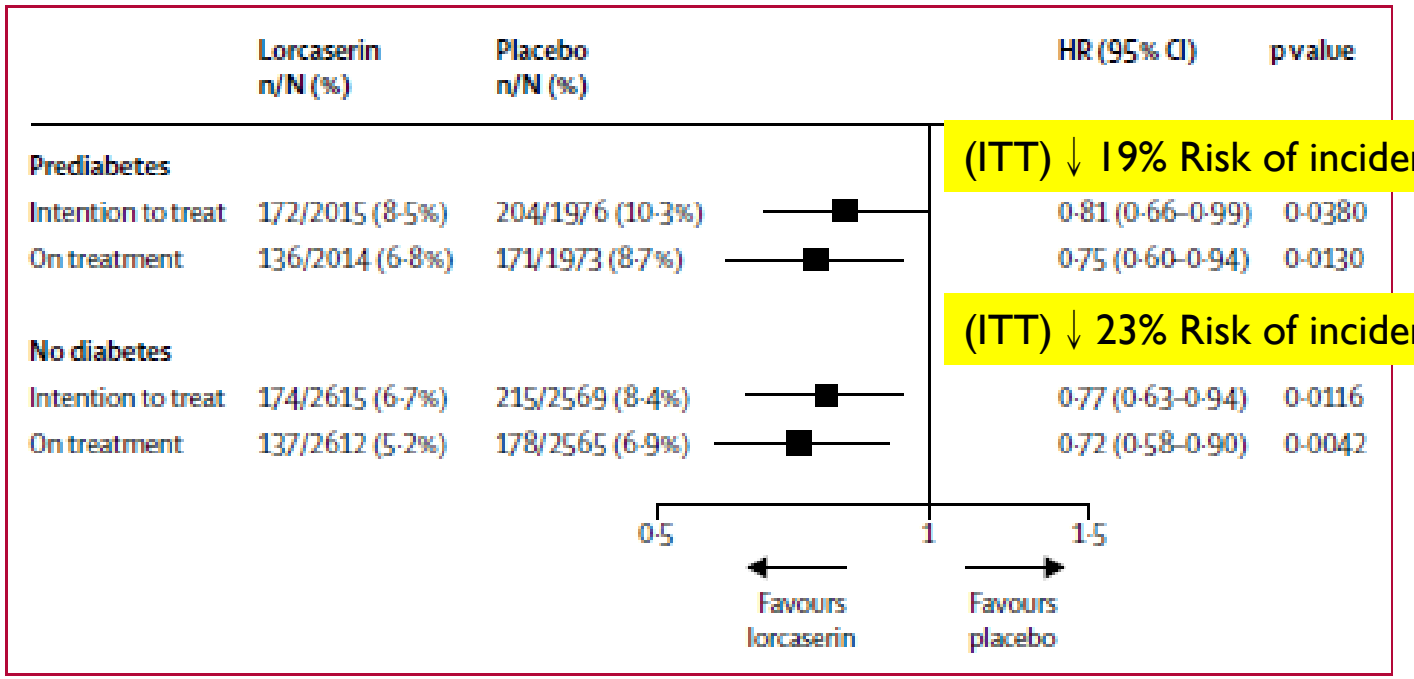


Figure 2: Cumulative incidence of incident diabetes
Incidence is assessed in patients with prediabetes at baseline according to the intention-to-treat method. HR=hazard ratio.



(ITT) ↓ 19% Risk of incident

(ITT) ↓ 23% Risk of incident

On treatment: ↓ 25% Risk of incident

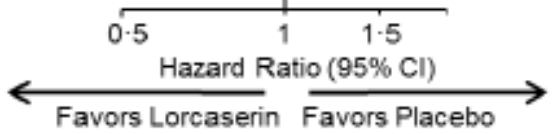
On treatment: ↓ 28% Risk of incident

Sensitivity definitions - Incident diabetes

consecutive→

consecutive, non-consecutive→

	Lorcaserin n (%)	Placebo n (%)	HR (95%CI)	P-value
Pre-Diabetes	**N=2015**	**N=1976**		
Primary Sensitivity (1ª Definition, Not Refuted)				
Intention-to-treat	220 (10·9)	291 (14·7)	0·71 (0·60, 0·85)	0·0001
On-treatment	159 (7·9)	223 (11·3)	0·67 (0·54, 0·82)	0·0001
Secondary Sensitivity (Confirmed at Any Time)				
Intention-to-treat	247 (12·3)	324 (16·4)	0·72 (0·61, 0·85)	<0·0001
On-treatment	194 (9·6)	268 (13·6)	0·68 (0·56, 0·82)	<0·0001
Tertiary (Any Abnormal)				
Intention-to-treat	398 (19·8)	508 (25·7)	0·73 (0·64, 0·83)	<0·0001
On-treatment	316 (15·7)	411 (20·8)	0·71 (0·62, 0·83)	<0·0001
No DM	**N=2615**	**N=2569**		
Primary Sensitivity (1ª Definition, Not Refuted)				
Intention-to-treat	226 (8·6)	306 (11·9)	0·69 (0·59, 0·83)	<0·0001
On-treatment	162 (6·2)	233 (9·1)	0·65 (0·53, 0·79)	<0·0001
Secondary Sensitivity (Confirmed at Any Time)				
Intention-to-treat	256 (9·8)	343 (13·4)	0·71 (0·60, 0·83)	<0·0001
On-treatment	199 (7·6)	283 (11·0)	0·66 (0·55, 0·79)	<0·0001
Tertiary Sensitivity (Any Abnormal)				
Intention-to-treat	424 (16·2)	546 (21·3)	0·73 (0·64, 0·83)	<0·0001
On-treatment	334 (12·8)	438 (17·1)	0·71 (0·61, 0·81)	<0·0001



- Random plasma glucose (RPG)≥200mg/dL with symptoms of hyperglycemia
- or abnormal value (ie HbA1c≥6 ·5%, FPG≥126 mg/dL or 2hr OGTT≥200mg/dL)
- or initiation of medication for the purpose of diabetes control

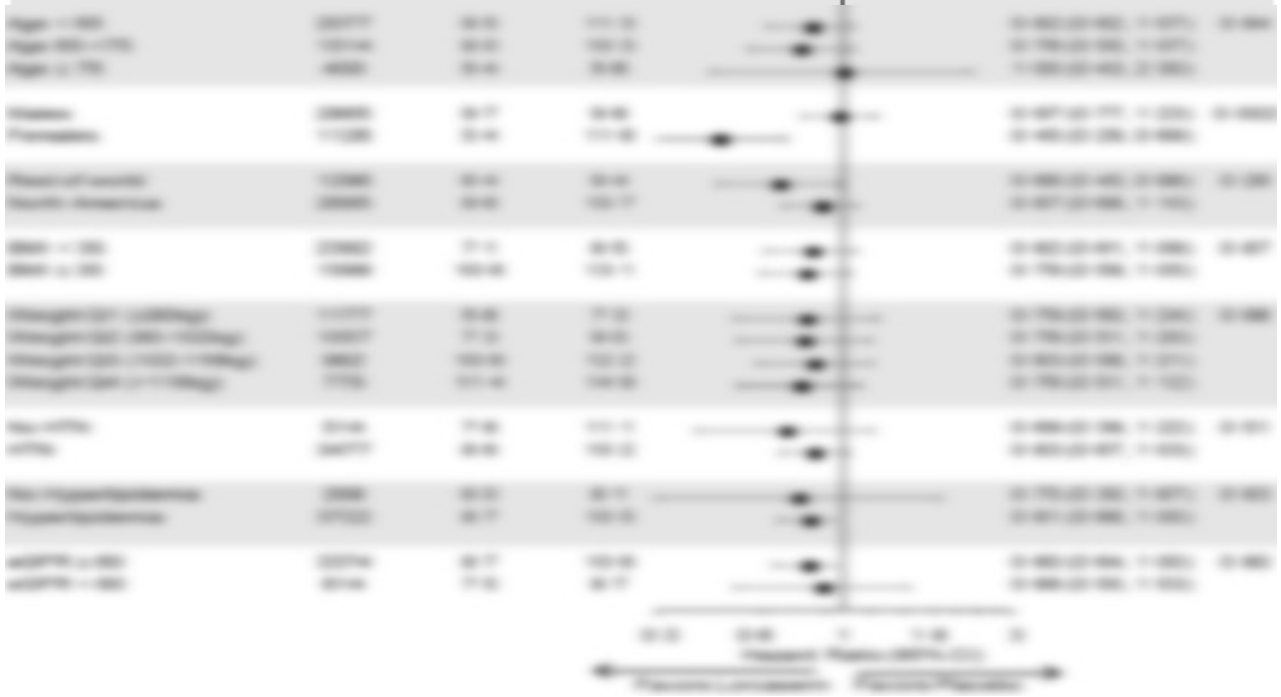
Subgroup with pre-DM - Incident diabetes

Subgroup	Total Patients	Lorcaserin (%)	Placebo (%)	HR (95%CI)	p-int
Overall	3991	8·5	10·3	0·81 (0·66, 0·99)	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Event rate (%) represents n/N.

Subgroup with pre-DM - Incident diabetes

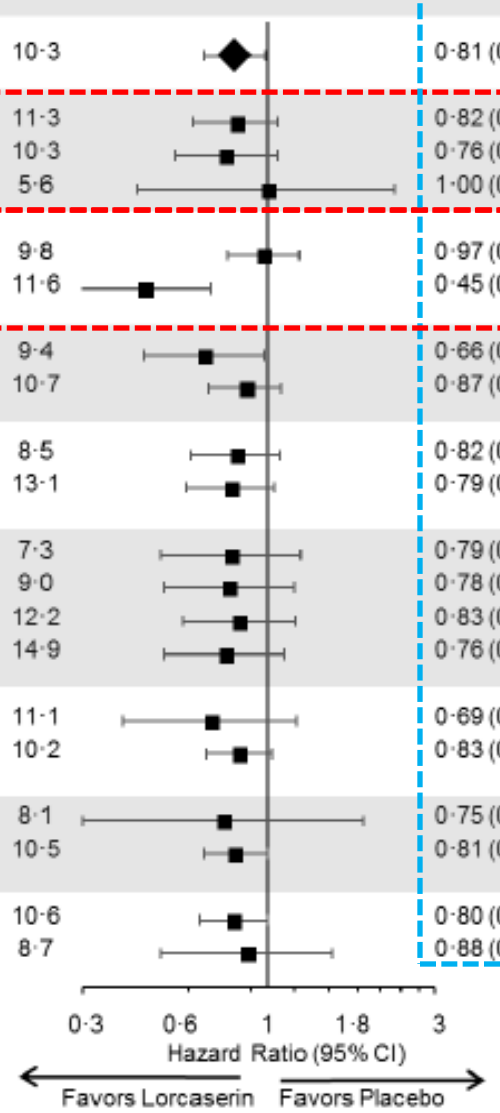
Subgroup	Total Patients	Lorcaserin (%)	Placebo (%)	HR (95%CI)	p-int
Overall	3991	8·5	10·3	0·81 (0·66, 0·99)	-
Age < 65	2077	9·5	11·3	0·82 (0·62, 1·07)	0·84
Age 65-<75	1514	8·0	10·3	0·76 (0·55, 1·07)	
Age ≥ 75	400	5·4	5·6	1·00 (0·43, 2·30)	
Males	2865	9·7	9·8	0·97 (0·77, 1·23)	0·002
Females	1126	5·4	11·6	0·45 (0·29, 0·69)	
Rest of world	1296	6·4	9·4	0·66 (0·45, 0·98)	0·26
North America	2695	9·6	10·7	0·87 (0·68, 1·10)	



Event rate (%) represents n/N.

Subgroup with pre-DM - Incident diabetes

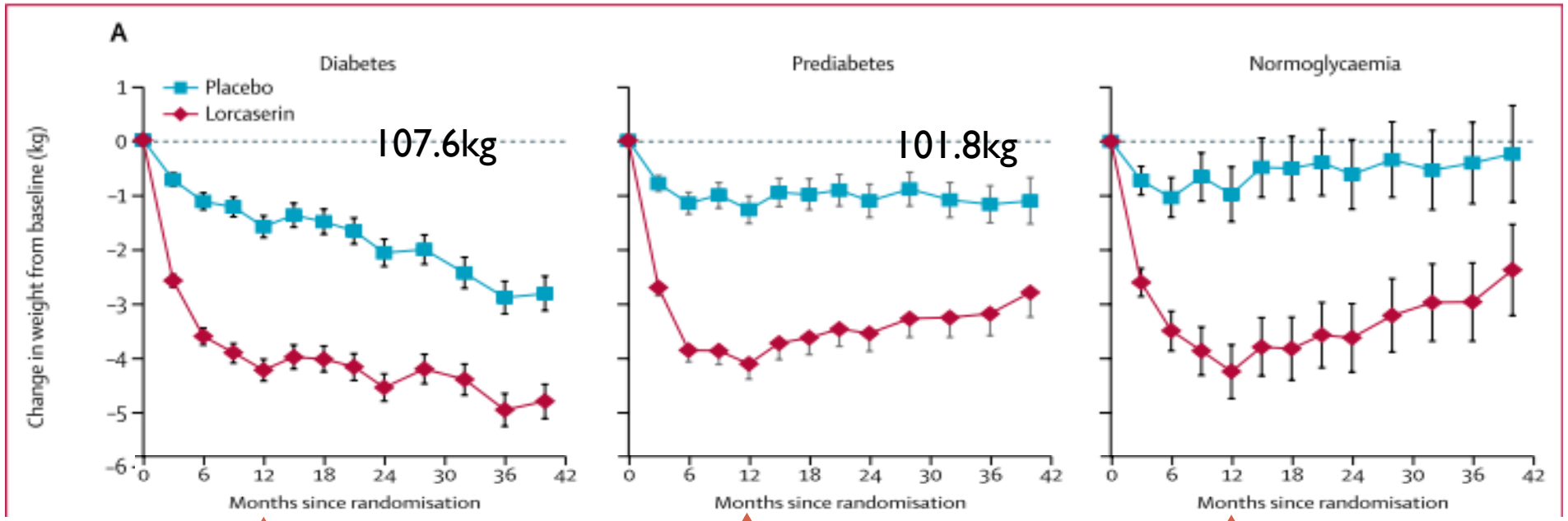
Subgroup	Total Patients	Lorcaserin (%)	Placebo (%)	HR (95%CI)	p-int
Overall	3991	8·5	10·3	0·81 (0·66, 0·99)	-
Age < 65	2077	9·5	11·3	0·82 (0·62, 1·07)	0·84
Age 65-<75	1514	8·0	10·3	0·76 (0·55, 1·07)	
Age ≥ 75	400	5·4	5·6	1·00 (0·43, 2·30)	
Males	2865	9·7	9·8	0·97 (0·77, 1·23)	0·002
Females	1126	5·4	11·6	0·45 (0·29, 0·69)	
Rest of world	1296	6·4	9·4	0·66 (0·45, 0·98)	0·26
North America	2695	9·6	10·7	0·87 (0·68, 1·10)	
BMI < 35	2392	7·1	8·5	0·82 (0·61, 1·09)	0·87
BMI ≥ 35	1599	10·6	13·1	0·79 (0·59, 1·05)	
Weight Q1 (≤90kg)	1177	5·8	7·3	0·79 (0·50, 1·24)	0·98
Weight Q2 (90-102kg)	1057	7·3	9·0	0·78 (0·51, 1·20)	
Weight Q3 (102-116kg)	982	10·6	12·2	0·83 (0·58, 1·21)	
Weight Q4 (>116kg)	775	11·4	14·9	0·76 (0·51, 1·12)	
No HTN	514	7·8	11·1	0·69 (0·39, 1·22)	0·51
HTN	3477	8·6	10·2	0·83 (0·67, 1·03)	
No Hyperlipidemia	268	6·0	8·1	0·75 (0·30, 1·87)	0·83
Hyperlipidemia	3722	8·7	10·5	0·81 (0·66, 1·00)	
eGFR ≥ 60	3374	8·7	10·6	0·80 (0·64, 1·00)	0·80
eGFR < 60	614	7·5	8·7	0·88 (0·50, 1·53)	



Event rate (%) represents n/N.

Secondary Efficacy-change in weight

- Standard: Dietary、Exercise 、Telephonic access to a registered dietician.
- At 1 year, the net weight loss was significantly greater with lorcaserin compared with placebo.



−2.6 kg ,95% CI −2.9 to −2.3 (p<0.0001)

−2.8 kg, 95% CI −3.2 to −2.5 (p<0.0001)

−3.3 kg, 95% CI −4.0 to −2.6 (p<0.0001)

Weight Parameter - subgroup

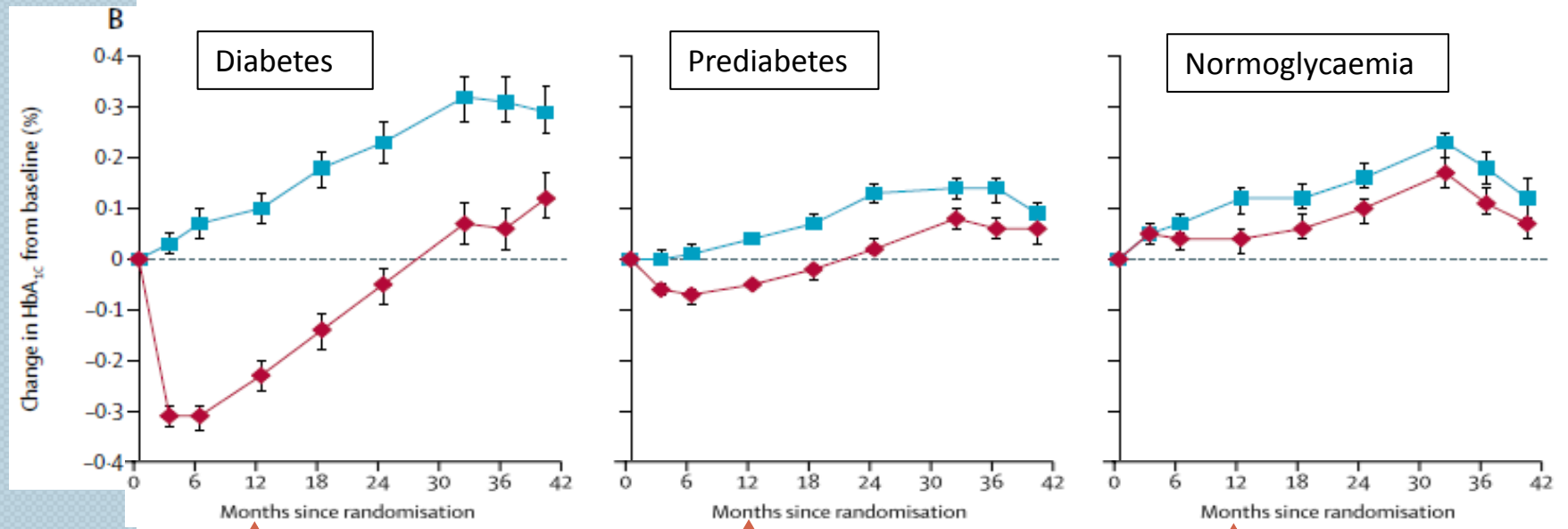
Placebo

Lorcaserin

	Baseline Mean (SD)	1 Year Mean (SD)	LS Mean Change From Baseline (95% CI) p-value	Baseline Mean (SD)	1 Year Mean (SD)	LS Mean Change From Baseline (95% CI) p-value	Difference at 1 Yr (95% CI) P-value
Weight(kg)							
DM	107·9 (21·5)	105·9 (21·6)	-1·6 (-1·8, -1·4) <0·0001	107·2 (21·2)	102·8 (21·5)	-4·2 (-4·4, -4·0) <0·0001	-2·6 (-2·9, -2·3) <0·0001
Pre-DM	101·2 (19·3)	99·8 (19·2)	-1·27 (-1·5, -1·0) <0·0001	102·4 (19·2)	98·2 (19·7)	-4·10 (-4·4 -3·8) <0·0001	-2·8 (-3·2, -2·5) <0·0001
Normoglycemia	97·0 (16·4)	95·3 (16·6)	-1·0 (-1·5, -0·5) <0·0001	98·6 (17·5)	93·5 (17·8)	-4·2 (-4·8, -3·7) <0·0001	-3·3 (-4·0, -2·6) <0·0001
Waist Circumference(cm)							
DM	119·8 (14·8)	118·1 (14·9)	-1·5 (-1·7, -1·2) <0·0001	119·4 (14·4)	116·0 (14·9)	-3·3 (-3·5, -3·1) <0·0001	-1·8 (-2·2, -1·5) <0·0001
Pre-DM	114·1 (13·3)	112·7 (13·5)	-1·5 (-1·8, -1·2) <0·0001	114·8 (13·5)	111·0 (13·8)	-3·7 (-4·0, 3·3) <0·0001	-2·2 (-2·6, -1·7) <0·0001
Normoglycemia	110·5 (12·6)	109·1 (12·7)	-1·1 (-1·7, -0·5) 0·0002	112·2 (13·2)	107·9 (13·5)	-3·8 (-4·5, -3·1) <0·0001	-2·7 (-3·6, -1·8) <0·0001
BMI(kg/m2)							
DM	37·4 (6·6)	36·7 (6·6)	-0·6 (-0·6, -0·5) <0·0001	37·2 (6·5)	35·7 (6·6)	-1·5 (-1·6, -1·4) <0·0001	-0·9 (-1·0, -0·8) <0·0001
Pre-DM	34·7 (5·4)	34·2 (5·4)	-0·4 (-0·5, -0·4) <0·0001	34·8 (5·5)	33·4 (5·6)	-1·4 (-1·5, -1·3) <0·0001	-1·0 (-1·1, -0·9) <0·0001
Normoglycemia	33·8 (5·1)	332·3 (5·1)	-0·3 (-0·5, -0·2) <0·0001	34·1 (5·1)	32·3 (5·2)	-1·5 (-1·7, -1·3) <0·0001	-1·2, (-1·4, -0·9) <0·0001
Waist-hip ratio							
DM	98·2 (8·1)	98·4 (8·5)	0·1 (-0·1, 0·3) 0·35	98·2 (8·0)	97·6 (7·7)	-0·6 (-0·8, -0·4) <0·0001	-0·7 (-1·0, -0·5) <0·0001
Pre-DM	98·6 (7·9)	98·2 (7·9)	-0·5 (-0·8, -0·2) 0·0003	98·8 (7·8)	97·7 (7·7)	-1·1 (-1·3, -0·9) <0·0001	-0·6 (-1·0, -0·2) 0·0010
Normoglycemia	96·3 (8·1)	96·4 (8·4)	-0·3 (-0·7, 0·2) 0·30	97·3 (8·5)	96·2 (8·3)	-1·0 (-1·6, -0·5) 0·0002	-0·8 (-1·5, -0·1) 0·0358

Secondary Efficacy-Change in HbA1c

- At 1 year, reduced HbA1c in patients was significantly greater **with lorcaserin compared with placebo**.



Mean baseline of 53 mmol/mol (7%)

−0.33%, 95% CI −0.38 to−0.29 (p<0.0001)

−0.09%, −0.11 to −0.08 (p<0.0001)

−0.08%,−0.11to−0.04 (p<0.0001)

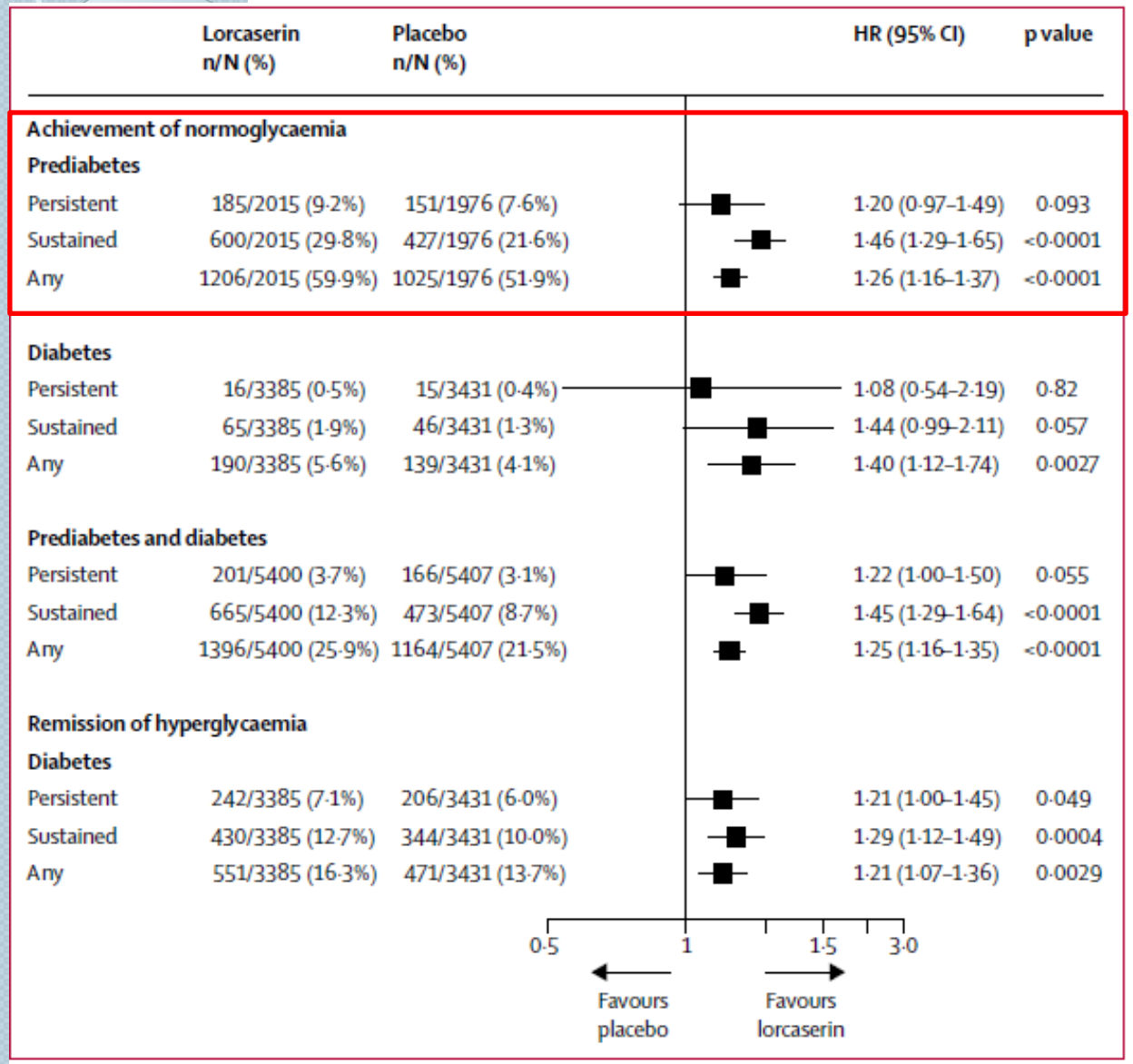
- 1166 patients with diabetes, baseline HbA1c greater than 8%,
- Lorcaserin: 0.87% (95% CI 0.76−0.97) ;Placebo: 0.35% (0.23−0.46); net reduction of 0.52% (0.37−0.68; p<0.0001

Glycemic parameters - subgroup

	Lorcaserin			Placebo			
	Baseline Mean (SD)	1 Year Mean (SD)	LS Mean Change From Baseline, p-value	Baseline Mean (SD)	1 Year Mean (SD)	LS Mean Change From Baseline, p-value	Difference at 1 Yr P-value
Hemoglobin A1c (%)							
DM	7·0 (1·1)	6·8 (1·1)	-0·2 (-0·3, -0·2) <0·0001	7·0 (1·1)	7·1 (1·2)	0·1 (0·1, 0·1) <0·0001	-0·3 (-0·4, -0·3) <0·0001
HbA1c <6% (N=991, 15%)	5·6 (0·3)	5·7 (0·5)	0·1 (0·1, 0·1) <0·0001	5·6 (0·3)	5·9 (0·6)	0·3 (0·2, 0·3) <0·0001	-0·2 (-0·2, -0·1) <0·0001
HbA1c 6-8% (N=4659, 68%)	6·8 (0·6)	6·7 (0·9)	-0·2 (-0·2, -0·1) <0·0001	6·8 (0·6)	7·0 (1·0)	0·2 (0·1, 0·2) <0·0001	-0·3 (-0·4, -0·3) <0·0001
HbA1c >8% (N=1166, 17%)	8·9 (0·6)	8·0 (1·3)	-0·9 (-1·0, -0·8) <0·0001	8·8 (0·6)	8·5 (1·4)	-0·4 (-0·5, -0·2) <0·0001	-0·5 (-0·7, -0·4) <0·0001
Pre-DM	5·8 (0·3)	5·7 (0·3)	-0·05 (-0·06, -0·04) <0·0001	5·7 (0·3)	5·8 (0·4)	0·04 (0·03, 0·05) <0·0001	-0·1 (-0·11, -0·08) <0·0001
Normoglycemia	5·3 (0·2)	5·3 (0·4)	0·0 (0·0, 0·1) 0·0056	5·3 (0·2)	5·4 (0·3)	0·1 (0·1, 0·1) <0·0001	-0·1 (-0·1, -0·04) <0·0001
Fasting plasma glucose (mmol/L)							
DM	7·7 (2·4)	7·2 (2·3)	-0·4 (-0·5, -0·3) <0·0001	7·7 (2·4)	7·7 (2·6)	0·0 (-0·1, 0·1) 0·69	-0·4 (-0·5, -0·3) <0·0001
Pre-DM	5·6 (0·5)	5·7 (0·6)	0·0 (-0·0, 0·0) 0·24	5·6 (0·6)	5·8 (0·7)	0·1 (0·1, 0·2) <0·0001	-0·1 (-0·1, -0·1) <0·0001
Normoglycemia	5·0 (0·3)	5·2 (0·6)	0·1 (0·1, 0·2) <0·0001	5·0 (0·3)	5·2 (0·6)	0·2 (0·2, 0·3) <0·0001	-0·10 (-0·17, -0·03) 0·0033
HOMA-IR							
DM	11·0 (16·9)	8·0 (13·5)	-2·5 (-3·0, -2·0) <0·0001	10·8 (18·9)	8·6 (10·0)	-1·5 (-2·0, -1·1) <0·0001	-1·0 (-1·6, -0·3) 0·0041
Pre-DM	6·2 (5·2)	5·6 (6·6)	-0·6 (-0·9, -0·3) 0·0004	6·1 (4·8)	6·3 (7·0)	0·2 (-0·1, 0·5) 0·19	-0·8 (-1·2, -0·3) 0·0007
Normoglycemia	4·0 (2·9)	4·6 (18·2)	0·7 (-1·0, 2·3) 0·42	4·1 (3·6)	5·1 (7·6)	1·0 (0·4, 1·7) 0·0015	-0·4 (-2·1, 1·4) 0·68
HOMA-Beta (mIU/Lx mmol/L)							
DM	193·3 (187·4)	172·4 (172·5)	-17·4 (-24·8, -10·1) <0·0001	192·6 (225·2)	162·9 (141·8)	-23·9 (-30·3, -17·4) <0·0001	6·4 (-3·4, 16·3) 0·20
Pre-DM	237·9 (203·7)	202·2 (164·3)	-37·7 (-45·1, -30·3) <0·0001	244·4 (303·1)	236·0 (801·9)	-4·5 (-43·4, 34·5) 0·82	-33·2 (-72·8, 6·4) 0·10
Normoglycemia	247·7 (188·7)	216·5 (304·1)	-29·7 (-56·1, -3·2) 0·028	258·8 (214·1)	238·0 (227·5)	-12·7 (-28·6, 3·2) 0·12	-17·0 (-47·8, 13·9) 0·28

**The homeostatic model assessment of insulin-resistance and beta-cell function (HOMA-IR & HOMA-Beta) are presented only for patients not on insulin or a*

Secondary Efficacy- Achievement of normoglycaemia



	Lorcaserin n/N (%)	Placebo n/N (%)	HR (95% CI)	p value
Achievement of normoglycaemia				
Prediabetes				
Persistent	185/2015 (9·2%)	151/1976 (7·6%)	1·20 (0·97–1·49)	0·093
Sustained	600/2015 (29·8%)	427/1976 (21·6%)	1·46 (1·29–1·65)	<0·0001
Any	1206/2015 (59·9%)	1025/1976 (51·9%)	1·26 (1·16–1·37)	<0·0001
Diabetes				
Persistent	16/3385 (0·5%)	15/3431 (0·4%)	1·08 (0·54–2·19)	0·82
Sustained	65/3385 (1·9%)	46/3431 (1·3%)	1·44 (0·99–2·11)	0·057
Any	190/3385 (5·6%)	139/3431 (4·1%)	1·40 (1·12–1·74)	0·0027
Prediabetes and diabetes				
Persistent	201/5400 (3·7%)	166/5407 (3·1%)	1·22 (1·00–1·50)	0·055
Sustained	665/5400 (12·3%)	473/5407 (8·7%)	1·45 (1·29–1·64)	<0·0001
Any	1396/5400 (25·9%)	1164/5407 (21·5%)	1·25 (1·16–1·35)	<0·0001
Remission of hyperglycaemia				
Diabetes				
Persistent	242/3385 (7·1%)	206/3431 (6·0%)	1·21 (1·00–1·45)	0·049
Sustained	430/3385 (12·7%)	344/3431 (10·0%)	1·29 (1·12–1·49)	0·0004
Any	551/3385 (16·3%)	471/3431 (13·7%)	1·21 (1·07–1·36)	0·0029

Figure 5: Remission of diabetes or prediabetes

(X anti-hyperglycaemia medication)

- **Achievement of normoglycaemia:**
  - HbA1c of ≤38 mmol/mol (5.6%) and fasting plasma glucose <100 mg/dL (<5.5 mmol/L.
- **Remission of hyperglycaemia:**
  - HbA1c <48 mmol/mol (6.5%) and fasting plasma glucose <126 mg/dL

- **"Persistent"持久性**
  - Criteria to be achieved, confirmed, and maintained through the duration of the study.
- **"Sustained"維持性**
  - Criteria to be achieved, confirmed, and maintained for **two** consecutive measurements separated by 30 days or more.
- **"Any"**
  - achievement of **at least one criteria** at one or more timepoints during the study.

Safety

Table 3. Adverse Events.*

Adverse Events	Lorcaserin (N=5995)	Placebo (N=5992)	Absolute Risk Difference (95% CI)†
			percentage points
Any adverse event — no. (%)			
Serious adverse event	1882 (31.39)	1931 (32.23)	−0.84 (−2.50 to 0.83)
Adverse event possibly caused by trial agent and leading to discontinuation‡	433 (7.22)	220 (3.67)	3.55 (2.75 to 4.37)
Dizziness	80 (1.33)	16 (0.27)	1.06 (0.76 to 1.32)
Fatigue	67 (1.12)	6 (0.10)	1.02 (0.76 to 1.32)
Headache	37 (0.62)	15 (0.25)	0.37 (0.14 to 0.62)
Nausea	36 (0.60)	19 (0.32)	0.28 (0.04 to 0.54)
Diarrhea	27 (0.45)	17 (0.28)	0.17 (−0.05 to 0.40)
Adverse event of special interest — no. (%)			
Any cancer	215 (3.59)	210 (3.50)	0.09 (−0.58 to 0.75)
Ductal carcinoma in situ	3 (0.05)	2 (0.03)	0.02 (−0.08 to 0.12)
Fibroadenoma	4 (0.07)	1 (0.02)	0.05 (−0.03 to 0.16)
Euphoria	5 (0.08)	1 (0.02)	0.06 (−0.02 to 0.18)
Psychosis	16 (0.27)	12 (0.20)	0.07 (−0.11 to 0.25)
Suicidal ideation or behavior	21 (0.35)	11 (0.18)	0.17 (−0.02 to 0.37)
Death by suicide	0	0	NA
Serotonin syndrome	3 (0.05)	3 (0.05)	0.00 (−0.10 to 0.10)
Priapism	1 (0.02)	3 (0.05)	−0.03 (−0.13 to 0.05)
Other adverse event — no. (%)			
Any hypoglycemia§	232 (3.87)	202 (3.37)	0.50 (−0.17 to 1.17)
Mild	97 (1.62)	90 (1.50)	0.12 (−0.33 to 0.57)
Moderate	100 (1.67)	93 (1.55)	0.12 (−0.34 to 0.57)
Severe	22 (0.37)	15 (0.25)	0.12 (−0.09 to 0.33)
Severe with serious complications¶	13 (0.22)	4 (0.07)	0.15 (0.02 to 0.31)
Requiring hospitalization	11 (0.18)	2 (0.03)	
Life-threatening or disabling	2 (0.03)	2 (0.03)	
Leading to death	0	0	
Echocardiographic substudy — no./total no. (%)‖			
New or worsening FDA-defined valvulopathy at 1 yr	30/1624 (1.85)	22/1646 (1.34)	0.51 (−0.36 to 1.42)
New or worsening pulmonary hypertension at 1 yr	13/813 (1.60)	8/825 (0.97)	0.63 (−0.50 to 1.86)

	Lorcaserin (N=5995)	Placebo (N=5992)	Absolute Risk Difference (95% CI)†
			percentage points
Adverse event of special interest — no. (%)			
Any cancer	215 (3.59)	210 (3.50)	0.09 (−0.58 to 0.75)
Ductal carcinoma in situ	3 (0.05)	2 (0.03)	0.02 (−0.08 to 0.12)
Fibroadenoma	4 (0.07)	1 (0.02)	0.05 (−0.03 to 0.16)
Euphoria	5 (0.08)	1 (0.02)	0.06 (−0.02 to 0.18)
Psychosis	16 (0.27)	12 (0.20)	0.07 (−0.11 to 0.25)
Suicidal ideation or behavior	21 (0.35)	11 (0.18)	0.17 (−0.02 to 0.37)
Death by suicide	0	0	NA
Serotonin syndrome	3 (0.05)	3 (0.05)	0.00 (−0.10 to 0.10)
Priapism	1 (0.02)	3 (0.05)	−0.03 (−0.13 to 0.05)
Any hypoglycemia§	232 (3.87)	202 (3.37)	0.50 (−0.17 to 1.17)
Mild	97 (1.62)	90 (1.50)	0.12 (−0.33 to 0.57)
Moderate	100 (1.67)	93 (1.55)	0.12 (−0.34 to 0.57)
Severe	22 (0.37)	15 (0.25)	0.12 (−0.09 to 0.33)
Severe with serious complications¶	13 (0.22)	4 (0.07)	0.15 (0.02 to 0.31)
Requiring hospitalization	11 (0.18)	2 (0.03)	
Life-threatening or disabling	2 (0.03)	2 (0.03)	
Leading to death	0	0	
Echocardiographic substudy — no./total no. (%)‖			
New or worsening FDA-defined valvulopathy at 1 yr	30/1624 (1.85)	22/1646 (1.34)	0.51 (−0.36 to 1.42)
New or worsening pulmonary hypertension at 1 yr	13/813 (1.60)	8/825 (0.97)	0.63 (−0.50 to 1.86)

Efficacy comparison

		Follow(ys)	Weight loss	↓ incidence of Diabetes (Pre-DM or No-DM)	others
N Engl J Med 2002; 346: 393–403	lifestyle interventions	2.8	5.6kg	58%	
	Metformin (850 mg BID)	2.8	2.1kg	31%	
Diabetes Care 2004; **27:** 155–61.	Orlistat	4	3kg	37%	
N Engl J Med 2016; **374:** 1321–31.	Pioglitazone (target dose, 45 mg daily)	4.8	↑ ↑ 4.5kg		↓ HOMA-IR ↓ Fasting Insulin ↓ Fasting Glucose
Lancet 2017; **389:** 1399–409.	Liraglutide (3 mg QD)	3	4.3 %	79%	
N Engl J Med 2012; **366:** 1567–76.	Bariatric surgery			60–80%	↓ 1.5–3.0% HbA1c

Limitation of the study

- Microvascular composite test
  - Neuropathy and retinopathy were investigator reported. (No protocol-specified screening procedures)
  - Few data are available link weight loss to a benefit in microvascular complication
- Head to head
- Asians account for a small proportion(7%)
- Diabetes subgroup
  - 17% diabetes patients, In absence of any diabetes medication(Why?)

CASP 系統性文獻回顧檢核表

1. Did the trial address a clearly focused issue?

問題/研究族群 **Problem/Patient**	Pre-diabetes or No diabetes in overweight and obese patients
給予的措施 **Intervention**	Lorcaserin 10mg twice daily
對照 **Comparison**	Placebo
結果 **Outcome**	(Primary efficacy) ➢ Time to incident type 2 diabetes among patients with **prediabetes** ➢ Safety (Secondary efficacy) ➢ Incident diabetes in all patients without **diabetes** ➢ Change in glycated haemoglobin (HbA1c) in patients with **diabetes** ➢ Achievement of normoglycaemia in patients with **prediabetes**

Hint: An issue can be 'focused' In terms of

- the population studied
- the intervention given
- the comparator given
- the outcomes considered

評讀結果 ✔ □ Can't tell □ No

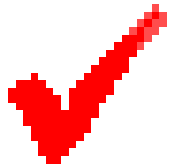
2. 受試者是否確實被隨機分派到不同組別?
3.是否所有進入試驗的受試者在研究結論當中均被適當的考量過?

2. Was the assignment of patients to treatments randomised?

- Eligible patients were randomly assigned (1:1) in a double-blind fashion to receive either lorcaserin or matched placebo.
- Randomisation was based on a computer-generated randomisation scheme.

2.Hint: Consider

•如何進行隨機分派?
•研究者是否被隱匿分組訊息?

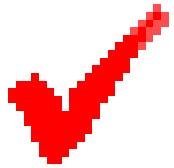
評讀結果  □ Can't tell □ No

3. Were all of the patients who entered the trial properly accounted for at its conclusion?

- Efficacy was assessed in the intention-to-treat population.
- Hypoglycaemic events, on-treatment group.

3.Hint: Consider

•試驗有提早結束嗎?
•受試者是否一經隨機分派，均納入最後的分析?

評讀結果  □ Can't tell □ No

4. 受試者、健康相關工作人員及研究人員是否盲化？
5.各組研究對象在一開始進入試驗時的基本特性是否相似?

4. Were patients, health workers and study personnel 'blind' to treatment?

- Randomized, double-blind, placebo-controlled trial

評讀結果 ✓ □ Can't tell □ No

5. Were the groups similar at the start of the trial ?

- Eligible patients were randomly assigned (1:1) in a double-blind fashion to receive either lorcaserin or **matched placebo.**
- Baseline demographics and disease characteristics were balanced between the groups.

評讀結果 ✓ □ Can't tell □ No

Hint: Consider

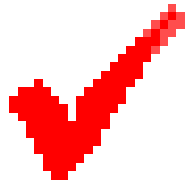
• other factors that might affect the outcome, such as; age, sex, social class

6. 除了實驗的介入措施之外，各組的所有對待是否相同?

6. Aside from the experimental intervention, were the groups treated equally?

Hint: Consider

- other factors that might affect the outcome, such as; age, sex, social class

評讀結果：□Y  't tell □ No

7. 介入措施的效果有多大？
8. 介入措施的效果估計有多精確?

7. How large was the treatment effect?
8. How precise was the estimate of the treatment effect?

	(Lorcaserin v.s placebo)	95%CI(p<0.0001)
➢ **Primary metabolic Efficacy**		
Time to incident type 2 diabetes among patients with prediabetes	HR=0.81 number needed to treat(NNT) of 56 to prevent one event of diabetes over 3 years.	0.66-0.99 ↓19% Risk of incident
Safey (Hypoglycaemia) (At 1 year)	232(3.87%)/202(3.37%) Absolute Risk Difference: 0.5	0.17 to1.17
➢ **Secondary Efficacy (At 1 year)**		
Change in weight	Diabetes: −2.6 kg Prediabetes: -2. 8kg Normoglycaemia: −3.3 kg	−2.9 to −2.3 −3.2 to −2.5 −4.0 to −2.6
Change in HbA1c	Diabetes: −0.33%, Prediabetes: −0.09% Normoglycaemia:−0.08%,	−0.38 to−0.29 −0.11 to −0.08 −0.11to−0.04
Fasting plasma glucose	Treatment difference: -5.3(mg/L)	-6.6 to 4.1

Hint: Consider

•測量那些結果?
主要結果是否有清楚界定?
每個研究結果有哪些發現?
是否有證據顯示有選擇性報告研究結果的情形?

7. 介入措施的效果有多大？
8. 介入措施的效果估計有多精確?

7. How large was the treatment effect?
8. How precise was the estimate of the treatment effect?

	(Lorcaserin v.s placebo)	95%CI(p<0.0001)
➢ **Secondary Efficacy(At 1 year)**		
Achievement of normoglycaemia	**Prediabetes** Sustained : HR=1.46 Any : HR=1.26	 1.29–1.65 1.16–1.37
Remission of hyperglycaemia	**Diabetes** Sustained : HR=1.29 Any : HR=1.21	 1.12–1.49 p=0.0004 1.07–1.36 p=0.0029
Microvascular composite		
Persistent microalbuminuria	0.77	0.66-0.9 p=0.0015

評讀結果 ✓ □ Can't tell □ No

9. Can the results be applied to the local population, or in your context?

- Duration of diabetes, years
- Cardiovascular strata
- Duration to treat (3.3 year)
- Patients from diverse regions: (473 sites in eight countries)
  - Region — no. (%)
  - North America 4882 (81.4),Europe 498 (8.3), Central or South America 182 (3.0), Asia Pacific 438 (7.3)
- Subgroup analysis

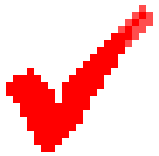
評讀結果 ✔ □ Can't tell □ No

Hint: Consider whether

• 你有理由相信你照顧的對象跟研究的受試者不同嗎? 如果是的話，在哪些方面不同?

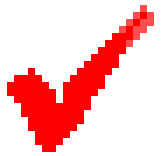
10. Were all clinically important outcomes considered?

- **Outcome of the study**
  - ✓ Incident to type 2 DM
  - ✓ Change in glycemic parameters
  - ✓ Change in weight parameters
- **Adverse event**

評讀結果  □ Can't tell □ No

11. Are the benefits worth the harms and costs?

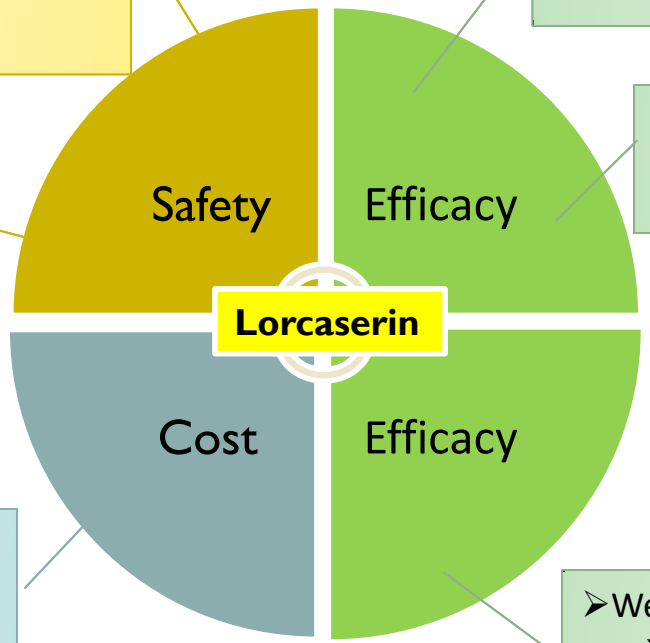
- **Effectiveness**
  - ✓ Hazard Ratio: Reduced the risk of incident diabetes by 19% in patients with prediabetes compared with placebo.
  - ✓ Number needed to treat(NNT) : 56 to prevent one event of diabetes over 3 years.
- **Cost**
  - ✓ Not discussed in the study.
- **Safety**
  - ✓ No significant difference in reported adverse events between the compared groups.

評讀結果  □ Can't tell □ No

Conclusion

➢ **To doctor:**
- Monitor depression and/or suicidal thoughts/behavior; SS/NMS-like reaction。
- Monitor valvular heart disease (dyspnea, dependent edema)，常規進行心臟超音波檢查。

➢ **To patient:**
- 一天兩次，可與或不與食物併服。
- 若併用它類Serotonin agonist/dopamine antagonist，須提醒醫師及藥師。
- 常見的不良反應為頭痛、頭暈、乏力、噁心、口乾、便秘等。



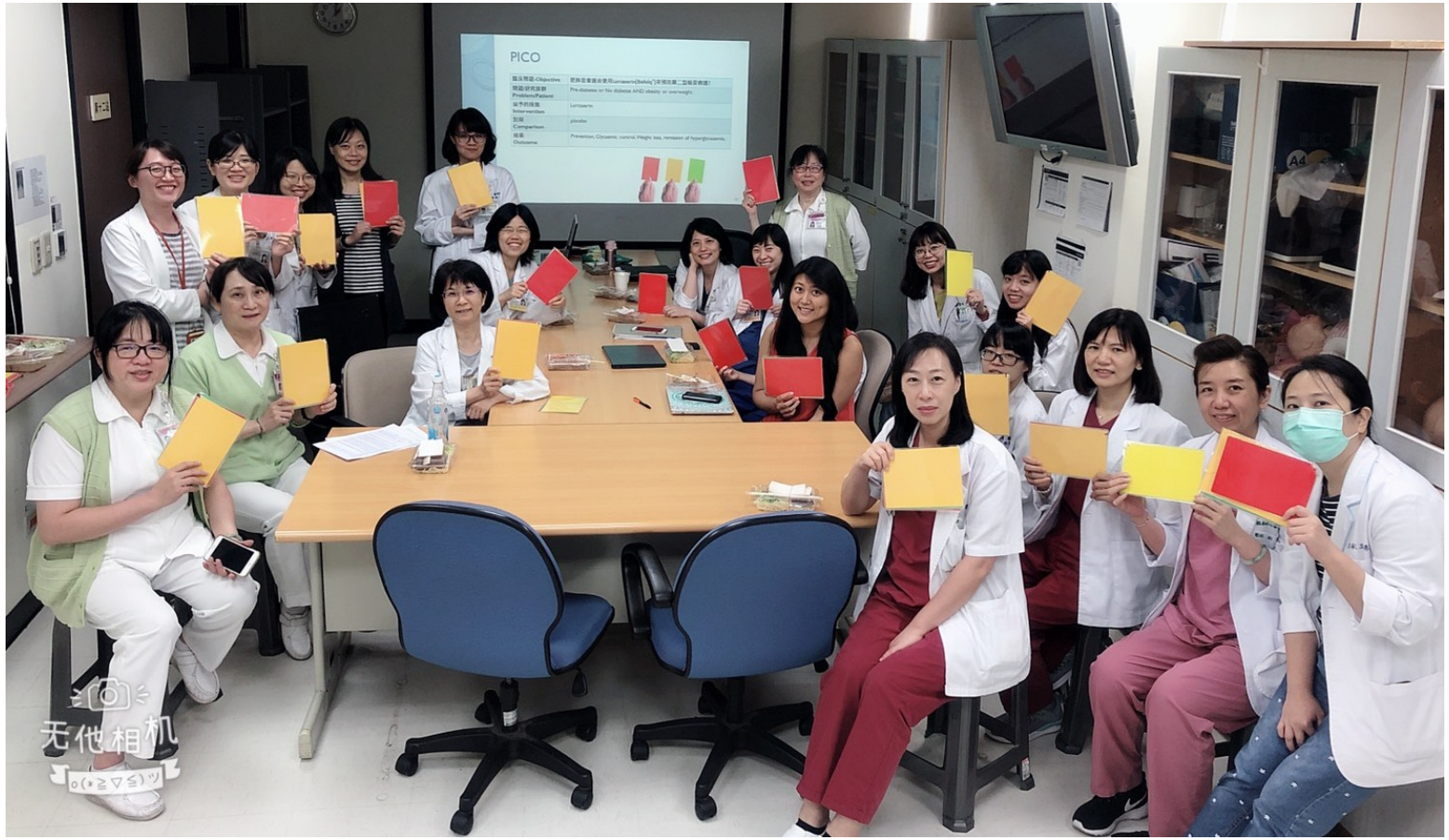
- 尚無健保給付，60元/顆，每日藥費120元。
- 與另外兩種FDA核准藥物相比；每日極量比較: Victoza>Belviq>Xenical

➢Prevent diabetes incident:
- 本篇RCT研究(追蹤3.3年): 使用Lorcaserin的組別可↓19%風險。

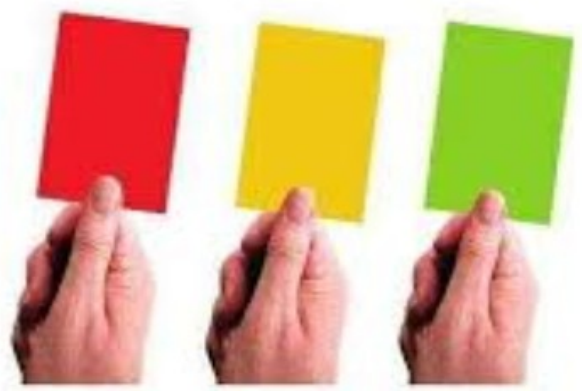
➢Glycaemic parameters:
- 連續用藥三個月時，達到降低血糖數值最佳化，效果延續至用藥後一年。

➢Weight:
- 過去研究: 第 12 週未減去 5%初始體重者，在第 52 週則無法減去5%體重，建議使用達12 週時，需進行療效的評估，若體重減少未超過5%，則建議停止服用。
- 本篇RCT研究: 用藥後一年可降低體重-2.6~-3.3kg。

肥胖病人適合使用Lorcaserin(Belviq®)來預防第二型糖尿病嗎?



- 同意(綠牌)：0票
- 需要更多文獻支持(黃牌)：12票
- 不同意(紅牌)：9票



感謝聆聽

Have a nice day