SUPPLEMENTAL MATERIAL TABLE OF CONTENTS

Supplemental Table 1. Electronic search terms

CENTRAL	Embase	MEDLINE
1. exp Antihypertensive Agents/	1. exp Antihypertensive Agents/	1. exp Antihypertensive Agents/
2. (antihypertensive$ adj (agent$ or drug)).tw.	2. (antihypertensive$ adj (agent$ or drug)).tw.	2. (antihypertensive$ adj (agent$ or drug)).tw.
3. exp Adrenergic alpha-Antagonists/	3. exp Adrenergic alpha-Antagonists/	3. exp Adrenergic alpha-Antagonists/
4. Doxazosin.tw.	4. Doxazosin.tw.	4. Doxazosin.tw.
5. Prazosin.tw.	5. Prazosin.tw.	5. Prazosin.tw.
6. Terazosin.tw.	6. Terazosin.tw.	6. Terazosin.tw.
7. exp Adrenergic alpha-2 Receptor Agonists/	7. exp Adrenergic alpha-2 Receptor Agonists/	7. exp Adrenergic alpha-2 Receptor Agonists/
8. Clonidine.tw.	8. Clonidine.tw.	8. Clonidine.tw.
9. Guanabenz.tw.	9. Guanabenz.tw.	9. Guanabenz.tw.
10. Guanfacine.tw.	10. Guanfacine.tw.	10. Guanfacine.tw.
11. Methyldopa.tw.	11. Methyldopa.tw.	11. Methyldopa.tw.
12. Lofexidine.tw.	12. Lofexidine.tw.	12. Lofexidine.tw.
13. exp Diuretics, Potassium Sparing/	13. exp Diuretics, Potassium Sparing/	13. exp Diuretics, Potassium Sparing/
14. Eplerenone.tw.	14. Eplerenone.tw.	14. Eplerenone.tw.
15. Amiloride.tw.	15. Amiloride.tw.	15. Amiloride.tw.
16. Spironolactone.tw.	16. Spironolactone.tw.	16. Spironolactone.tw.
17. Triamterene.tw.	17. Triamterene.tw.	17. Triamterene.tw.
18. exp Angiotensin Receptor Antagonists/	18. exp Angiotensin Receptor Antagonists/	18. exp Angiotensin Receptor Antagonists/
19. Azilsartan.tw.	19. Azilsartan.tw.	19. Azilsartan.tw.
20. Candesartan.tw.	20. Candesartan.tw.	20. Candesartan.tw.
21. Eprosartan.tw.	21. Eprosartan.tw.	21. Eprosartan.tw.
22. Irbesartan.tw.	22. Irbesartan.tw.	22. Irbesartan.tw.
23. Losartan.tw.	23. Losartan.tw.	23. Losartan.tw.
24. Olmesartan.tw.	24. Olmesartan.tw.	24. Olmesartan.tw.
25. Telmisartan.tw.	25. Telmisartan.tw.	25. Telmisartan.tw.
26. Valsartan.tw.	26. Valsartan.tw.	26. Valsartan.tw.
27. exp Angiotensin-Converting Enzyme Inhibitors/	27. exp Angiotensin-Converting Enzyme Inhibitors/	27. exp Angiotensin-Converting Enzyme Inhibitors/
28. Benazepril.tw.	28. Benazepril.tw.	28. Benazepril.tw.
29. Captopril.tw.	29. Captopril.tw.	29. Captopril.tw.
30. Cilazapril.tw.	30. Cilazapril.tw.	30. Cilazapril.tw.
31. Enalapril.tw.	31. Enalapril.tw.	31. Enalapril.tw.
32. Fosinopril.tw.	32. Fosinopril.tw.	32. Fosinopril.tw.
33. Lisinopril.tw.	33. Lisinopril.tw.	33. Lisinopril.tw.
34. Moexipril.tw.	34. Moexipril.tw.	34. Moexipril.tw.
35. Perindopril.tw.	35. Perindopril.tw.	35. Perindopril.tw.
36. Quinapril.tw.	36. Quinapril.tw.	36. Quinapril.tw.
37. Ramipril.tw.	37. Ramipril.tw.	37. Ramipril.tw.
38. Trandolapril.tw.	38. Trandolapril.tw.	38. Trandolapril.tw.
39. exp Adrenergic beta-Antagonists/	39. exp Adrenergic beta-Antagonists/	39. exp Adrenergic beta-Antagonists/
40. Carvedilol.tw.	40. Carvedilol.tw.	40. Carvedilol.tw.
41. Labetalol.tw.	41. Labetalol.tw.	41. Labetalol.tw.
42. Acebutolol.tw.	42. Acebutolol.tw.	42. Acebutolol.tw.
43. Pindolol.tw.	43. Pindolol.tw.	43. Pindolol.tw.
44. Penbutolol.tw.	44. Penbutolol.tw.	44. Penbutolol.tw.
45. Atenolol.tw.		45. Atenolol.tw.

CENTRAL	Embase	MEDLINE
46. Betaxolol.tw.	45. Atenolol.tw.	46. Betaxolol.tw.
47. Bisoprolol.tw.	46. Betaxolol.tw.	47. Bisoprolol.tw.
48. Celiprolol.tw.	47. Bisoprolol.tw.	48. Celiprolol.tw.
49. Metoprolol.tw.	48. Celiprolol.tw.	49. Metoprolol.tw.
50. Nebivolol.tw.	49. Metoprolol.tw.	50. Nebivolol.tw.
51. Sotalol.tw.	50. Nebivolol.tw.	51. Sotalol.tw.
52. Nadolol.tw.	51. Sotalol.tw.	52. Nadolol.tw.
53. Propranolol.tw.	52. Nadolol.tw.	53. Propranolol.tw.
54. Timolol.tw.	53. Propranolol.tw.	54. Timolol.tw.
55. exp Calcium Channel Blockers/	54. Timolol.tw.	55. exp Calcium Channel Blockers/
56. Amlodipine.tw.	55. exp Calcium Channel Blockers/	56. Amlodipine.tw.
57. Bepridil.tw.	56. Amlodipine.tw.	57. Bepridil.tw.
58. Clevidipine.tw.	57. Bepridil.tw.	58. Clevidipine.tw.
59. Diltiazem.tw.	58. Clevidipine.tw.	59. Diltiazem.tw.
60. Felodipine.tw.	59. Diltiazem.tw.	60. Felodipine.tw.
61. Lacidipine.tw.	60. Felodipine.tw.	61. Lacidipine.tw.
62. Lercanidipine.tw.	61. Lacidipine.tw.	62. Lercanidipine.tw.
63. Levamlodipine.tw.	62. Lercanidipine.tw.	63. Levamlodipine.tw.
64. Isradipine.tw.	63. Levamlodipine.tw.	64. Isradipine.tw.
65. Nicardipine.tw.	64. Isradipine.tw.	65. Nicardipine.tw.
66. Nifedipine.tw.	65. Nicardipine.tw.	66. Nifedipine.tw.
67. Nimodipine.tw.	66. Nifedipine.tw.	67. Nimodipine.tw.
68. Nisoldipine.tw.	67. Nimodipine.tw.	68. Nisoldipine.tw.
69. Verapamil.tw.	68. Nisoldipine.tw.	69. Verapamil.tw.
70. exp Diuretics/	69. Verapamil.tw.	70. exp Diuretics/
71. Bumetanide.tw.	70. exp Diuretics/	71. Bumetanide.tw.
72. Ethacrynic acid.tw.	71. Bumetanide.tw.	72. Ethacrynic acid.tw.
73. Furosemide.tw.	72. Ethacrynic acid.tw.	73. Furosemide.tw.
74. Piretanide.tw.	73. Furosemide.tw.	74. Piretanide.tw.
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76. Bendroflumethiazide.tw.	75. Torsemide.tw.	76. Bendroflumethiazide.tw.
77. Chlorothiazide.tw.	76. Bendroflumethiazide.tw.	77. Chlorothiazide.tw.
78. Chlorthalidone.tw.	77. Chlorothiazide.tw.	78. Chlorthalidone.tw.
79. Indapamide.tw.	78. Chlorthalidone.tw.	79. Indapamide.tw.
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81. Methyclothiazide.tw.	80. Hydrochlorothiazide.tw.	81. Methyclothiazide.tw.
82. Metolazone.tw.	81. Methyclothiazide.tw.	82. Metolazone.tw.
83. Guanadrel.tw.	82. Metolazone.tw.	83. Guanadrel.tw.
84. Guanethidine.tw.	83. Guanadrel.tw.	84. Guanethidine.tw.
85. Reserpine.tw.	84. Guanethidine.tw.	85. Reserpine.tw.
86. Aliskiren.tw.	85. Reserpine.tw.	86. Aliskiren.tw.
87. exp Vasodilator Agents/	86. Aliskiren.tw.	87. exp Vasodilator Agents/
88. Diazoxide.tw.	87. exp Vasodilator Agents/	88. Diazoxide.tw.
89. Hydralazine.tw.	88. Diazoxide.tw.	89. Hydralazine.tw.
90. Minoxidil.tw.	89. Hydralazine.tw.	90. Minoxidil.tw.
91. Nitroprusside.tw.	90. Minoxidil.tw.	91. Nitroprusside.tw.
92. (ace adj2 inhibitor$).tw.	91. Nitroprusside.tw.	92. (ace adj2 inhibitor$).tw.
93. (angiotensin adj2 receptor antagonist$).tw.	92. (ace adj2 inhibitor$).tw.	93. (angiotensin adj2 receptor antagonist$).tw.
94. beta block$.tw.	93. (angiotensin adj2 receptor antagonist$).tw.	94. beta block$.tw.
95. zofenopril.tw.	94. beta block$.tw.	95. zofenopril.tw.
96. imidapril.tw.	95. zofenopril.tw.	96. imidapril.tw.
97. alprenolol.tw.	96. imidapril.tw.	97. alprenolol.tw.
98. bucindolol.tw.	97. alprenolol.tw.	98. bucindolol.tw.

CENTRAL	Embase	MEDLINE
99. carteolol.tw. 100. oxprenolol.tw. 101. aranidipine.tw. 102. azelnidipine.tw. 103. barnidipine.tw. 104. benidipine.tw. 105. cilnidipine.tw. 106. efonidipine.tw. 107. nilvadipine.tw. 108. nitrendipine.tw. 109. pranidipine.tw. 110. calcium channel blocker*.tw. 111. angiotensin receptor blocker*.tw. 112. angiotensin converting enzyme inhibitor*.tw. 113. Renin Inhibitor*.tw. 114. endothelin receptor antagonist$.tw. 115. endothelin receptor blocker$.tw. 116. endothelin inhibitor$.tw. 117. or/1-116 118. exp Renal Dialysis/ 119. exp Kidney Failure, Chronic/ 120. dialysis.tw. 121. $dialysis.tw. 122. Renal Insufficiency, Chronic/ 123. (end-stage kidney or end-stage renal or endstage kidney or endstage renal).tw. 124. (ESKD or ESKF or ESRD or ESRF).tw. 125. (chronic kidney adj3 (stage 5 or stage V)).tw. 126. exp continuous ambulatory peritoneal dialysis/ 127. hemodialysis.tw. 128. exp hemodialysis/ 129. (CAPD or CCPD or APD).tw. 130. h?emodialysis.tw. 131. exp end stage renal disease/ 132. or/118-131 133. 117 and 132	98. bucindolol.tw. 99. carteolol.tw. 100. oxprenolol.tw. 101. aranidipine.tw. 102. azelnidipine.tw. 103. barnidipine.tw. 104. benidipine.tw. 105. cilnidipine.tw. 106. efonidipine.tw. 107. nilvadipine.tw. 108. nitrendipine.tw. 109. pranidipine.tw. 110. calcium channel blocker*.tw. 111. angiotensin receptor blocker*.tw. 112. angiotensin converting enzyme inhibitor*.tw. 113. Renin Inhibitor*.tw. 114. endothelin receptor antagonist$.tw. 115. endothelin receptor blocker$.tw. 116. endothelin inhibitor$.tw. 117. or/1-116 118. exp Renal Dialysis/ 119. exp Kidney Failure, Chronic/ 120. dialysis.tw. 121. $dialysis.tw. 122. Renal Insufficiency, Chronic/ 123. (end-stage kidney or end-stage renal or endstage kidney or endstage renal).tw. 124. (ESKD or ESKF or ESRD or ESRF).tw. 125. (chronic kidney adj3 (stage 5 or stage V)).tw. 126. exp continuous ambulatory peritoneal dialysis/ 127. hemodialysis.tw. 128. exp hemodialysis/ 129. (CAPD or CCPD or APD).tw. 130. h?emodialysis.tw. 131. exp end stage renal disease/ 132. or/118-131 133. random:.tw. 134. double-blind:.tw. 135. placebo:.mp. 136. or/133-135 137. 117 and 132 and 136	99. carteolol.tw. 100. oxprenolol.tw. 101. aranidipine.tw. 102. azelnidipine.tw. 103. barnidipine.tw. 104. benidipine.tw. 105. cilnidipine.tw. 106. efonidipine.tw. 107. nilvadipine.tw. 108. nitrendipine.tw. 109. pranidipine.tw. 110. calcium channel blocker*.tw. 111. angiotensin receptor blocker*.tw. 112. angiotensin converting enzyme inhibitor*.tw. 113. Renin Inhibitor*.tw. 114. endothelin receptor antagonist$.tw. 115. endothelin receptor blocker$.tw. 116. endothelin inhibitor$.tw. 117. or/1-116 118. exp Renal Dialysis/ 119. exp Kidney Failure, Chronic/ 120. dialysis.tw. 121. $dialysis.tw. 122. Renal Insufficiency, Chronic/ 123. (end-stage kidney or end-stage renal or endstage kidney or endstage renal).tw. 124. (ESKD or ESKF or ESRD or ESRF).tw. 125. (chronic kidney adj3 (stage 5 or stage V)).tw. 126. or/118-125 127. randomized controlled trial.pt. 128. controlled clinical trial.pt. 129. randomized.ab. 130. placebo.ab. 131. clinical trials as topic/ 132. trial.ti. 133. randomly.ab. 134. or/127-133 135. animals/ not (humans/ and animals/) 136. 134 not 135 137. 117 and 126 and 136

Supplemental Table 2. Characteristics of included studies

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
London et al (1994) (1)	France	parallel	52	HD	24	58	54	perindopril 2-4 mg weekly		nitrendipine 20-40 mg od	177	ABPM
Perfect (1997)(2)	New Zealand	Factorial	24	mixed	107	68	49	enalapril 2.5-5 mg OD		Placebo	138	clinic
Nakamoto et al (2004) (3)	Japan	parallel	12	PD	36		58	benzapril or enalapril 2.5-10 mg/day	valsartan or candesartan 20-80 mg/day or 4-12 mg/day	amlodipine 2.5-10 mg/day	154	pre-dialysis
Suzuki et al (2004) (4)	Japan	parallel	52	HD	33	61	65	enalapril 10mg/day	losartan 100mg/day	losartan + enalapril losartan 100mg/day + enalapril 10mg/day	170	clinic

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
Matsumoto et al (2006) (5)	Japan	parallel	24	HD	27	56	54	imidapril 2.5mg/day		Placebo	150	pre-dialysis
Yu et al (2006) (6)	Taiwan	parallel	52	HD	46	65	47	ramipril 1.25-2.5mg 3 times/week on nonD day		Placebo	123	clinic
FOSIDIAL (2006) (7)	France	parallel	104	HD	397	52	67	fosinopril 20 mg/day (13.2(5.5) mg/day)		Placebo	148	pre-dialysis
Ordaz-Medina et al (2010) (8)	Mexico	parallel	12	HD	25	52	41	enalapril 10 mg BD		Placebo	152	clinic
Yilmaz et al (2010) (9)	Turkey	parallel	52	HD	92	57	52	ramipril 5-10mg/day		amlodipine 5-10mg/day	156	ABPM

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
Reyes-Marin et al (2012) (10)	Mexico	parallel	52	PD	60	60	46	enalapril 10 mg/day		losartan 50mg/day	133	
Ottosson et al (2003) (11)	Sweden	parallel	6	HD	20	90	67	candesartan 4-16 mg		Placebo	149	pre-dialysis
Suzuki et al (2008) (12)	Japan	parallel	156	HD	360	59	60	losartan 50-150 mg/day candesartan 8-12 mg/day valsartan 80-160mg/day		Standard of care	155	pre-dialysis
Cice et al (2010) (13)	Italy	parallel	156	HD	332	54	63	telmisartan 80mg/day		Placebo	125	pre-dialysis
OCTOPUS (2013) (14)	Japan	parallel	182	HD	469	62	60	olmesartan 10-40mg/day		Standard of care	159	pre-dialysis

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
SAFIR (2014) (15)	Denmark	parallel	52	HD	82	68	62	irbesartan 150-300mg/day		Placebo	147	pre-dialysis
Satirapoj et al (2014) (16)	Thailand	parallel	12	HD	33	61	55	valsartan 80-320 mg/day, average 136 mg/day		Standard of care	147	pre-dialysis
Sun et al (2016) (17)	China	parallel	52	HD	65	48	58	losartan 50mg/day		bisoprolol 5mg/day	153	home
Meltzer et al (1984) (18)	USA	parallel	12	HD	20	45	50	prazosin 8.3±2.2 mg/day in two divided doses		propranolol 123 ± 39 mg/day in two divided doses	162	pre-dialysis
Cice et al (1997) (19)	Italy	Crossover	2	HD	60	70	52	bisoprolol 10 mg/day		nifedipine 20 mg BD	146	pre-dialysis
Cice et al (1998) (20)	Italy	parallel	6	HD	46		54	carvedilol 50 mg/day		Placebo	158	pre-dialysis

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
Cice et al (2001) (21)	Italy	parallel	52	HD	114	61	55	carvedilol 25 mg BD		Placebo	134	pre-dialysis
HDPAL (2014) (22)	USA	parallel	52	HD	200	66	53	atenolol 25mg-100mg TIW after dialysis		lisinopril 10mg-40mg TIW after dialysis	152	home
BLOCADE (2016) (23)	ANZ	parallel	52	mixed	49	63	59	carvedilol 6.25-25mg BD		Placebo	136	post-dialysis
London et al (1990) (24)	France	parallel	16	HD	39	49	57	nitrendipine 20 mg od-bid		Placebo	189	pre-dialysis
Cice et al (1999) (25)	Italy	parallel	12	HD	48	60	46	diltiazem 60 mg BD		Placebo	127	pre-dialysis
Tepel et al (2008) (26)	Germany	parallel	76	HD	251	63	61	amlodipine 10 mg/day		Placebo	140	pre-dialysis
Hausberg et al (2010) (27)	Germany	parallel	26	HD	23	70	47	moxonidine 0.3 mg/day		Placebo		

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
Gross et al (2005) (28)	USA	Crossover	2	HD	8	38	53	spironolactone 50mg BD		Placebo	143	pre-dialysis
Taheri et al (2009) (29)	Iran	parallel	26	HD	16	69	58	spironolactone 25mg/day		Placebo		
Vukusich et al (2010) (30)	Chile	parallel	104	HD	53	64	58	spironolactone 50 mg thrice weekly on non-dialysis days		Placebo	149	pre-dialysis
Taheri et al (2012) (31)	Iran	parallel	24	PD	18	56	54	spironolactone 25 mg every other day		Placebo		
Zaripova et al (2011) (32)	Russia	parallel	24	HD	71			spironolactone 25 mg/day		Standard of care		
DOHAS (2014) (33)	Japan	parallel	156	HD	309	66	68	spironolactone 25mg/day		Standard of care	150	

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
Ni et al (2014) (34)	China	parallel	12	mixed	76	59	55	spironolactone 25-50 mg/day		Placebo	146	clinic
Feniman-De-Stefano et al (2015) (35)	Brazil	parallel	24	HD	17	53	54	spironolactone 12.5-25 mg/day		Placebo	137	ABPM
Ito et al (2015) (36)	Japan	parallel	104	PD	158	72	57	spironolactone 25 mg/day		Standard of care	136	clinic
PHASE (2015) (37)	Canada	parallel	13	HD	154	62	63	eplerenone 25-50 mg/day		Placebo	146	
Lin et al (2016) (38)	China	parallel	104	mixed	253	60	71	spironolactone 25 mg/day		Placebo	143	

Study	Country	Design	Duration (weeks)	Population	No of patients	Male (%)	Mean age (years)	Intervention 1	Intervention 2	Control	Baseline SBP (mmHg)	BP measurement
Ito et al (2014) (39)	Japan	parallel	12	HD	18	67	59	aliskiren 150 mg/day		ARB (valsartan 80mg n=12 or telmisartan 40 mg n=5 or olmesartan 20 mg n=1)	142	pre-dialysis
Kuriyama et al (2014) (40)	Japan	parallel	24	HD	74	88	61	aliskiren 150mg/day		amlodipine 5 mg/day	164	home

ABPM= ambulatory blood pressure monitoring. ANZ= Australia and New Zealand. BP= blood pressure. HD= haemodialysis. PD= peritoneal dialysis. SBP= systolic blood pressure.

Supplemental Table 3. Risk of bias assessments of all included trials

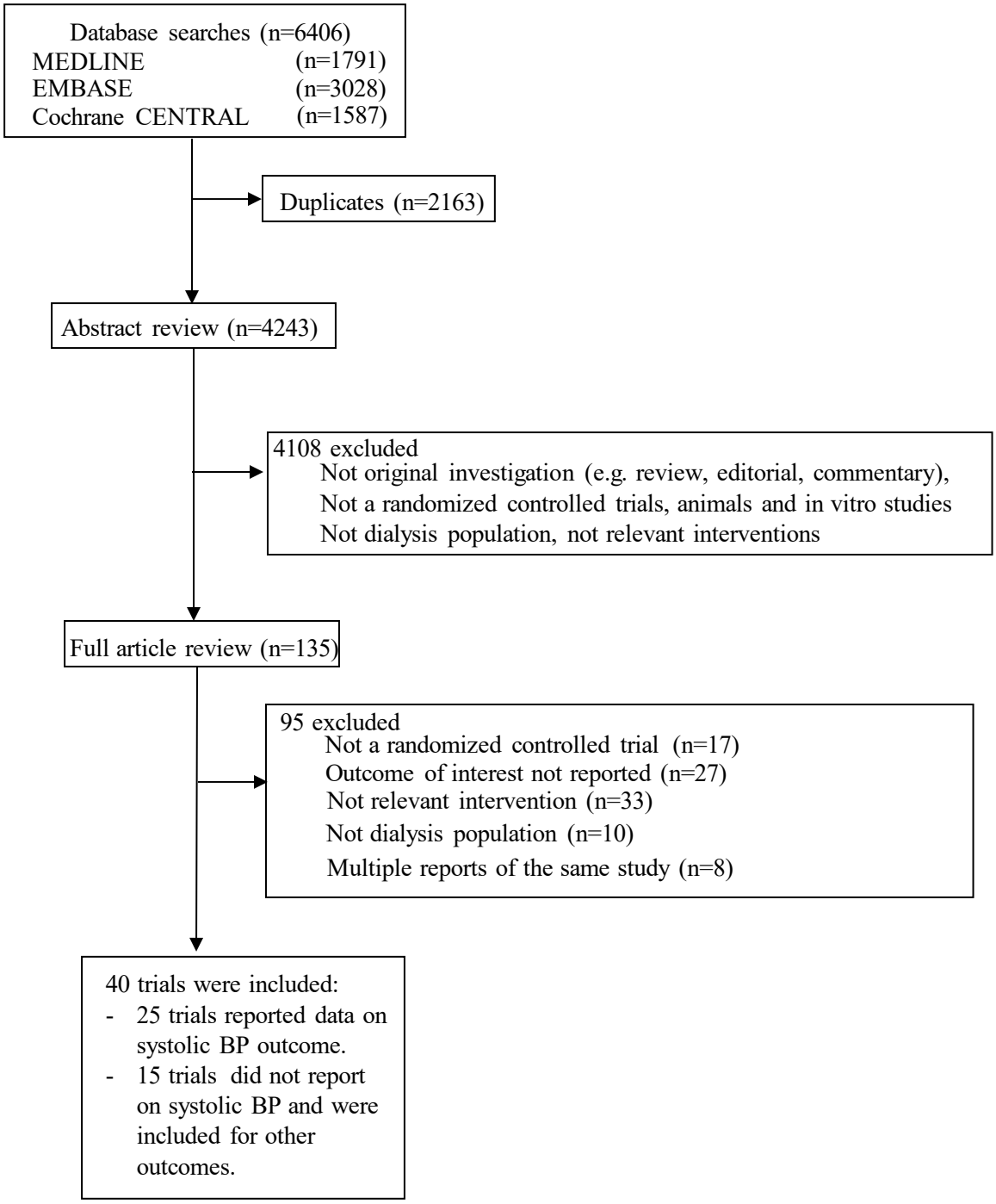
Study	Random sequence generation	Allocation concealment	Blinding (patients)	Blinding (investigators)	Blinding (outcome assessment)	Double-blind?	Incomplete outcome	ITT	Selective reporting	Baseline imbalance	Summary quality
London et al (1994)	Low risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	Unclear risk	Yes	Low risk	Low risk	Low risk of bias
Perfect (1997)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Unclear risk	Yes	Low risk	Unclear risk	Low risk of bias
Nakamoto et al (2004)	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Not specified	Low risk	Yes	Low risk	Low risk	Unclear risk of bias
Suzuki et al (2004)	Unclear risk	Low risk	High risk	High risk	High risk	Open-label	High risk	No	Unclear risk	Low risk	High risk of bias
Matsumoto et al (2006)	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Not specified	High risk	No	Unclear risk	Low risk	High risk of bias
Yu et al (2006)	Unclear risk	Unclear risk	Low risk	Low risk	Unclear risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Unclear risk of bias
FOSIDIAL (2006)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Unclear risk	Yes	Low risk	High risk	High risk of bias
Ordaz-Medina et al (2010)	Low risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
Yilmaz et al (2010)	Unclear risk	Unclear risk	High risk	High risk	High risk	Open-label	Unclear risk	No	Low risk	Low risk	High risk of bias
Reyes-Marin et al (2012)	Low risk	Unclear risk	High risk	High risk	High risk	Open-label	Low risk	Yes	Low risk	Low risk	High risk of bias

Study	Random sequence generation	Allocation concealment	Blinding (patients)	Blinding (investigators)	Blinding (outcome assessment)	Double-blind?	Incomplete outcome	ITT	Selective reporting	Baseline imbalance	Summary quality
Ottosson et al (2003)	Low risk	Unclear risk	Low risk	Low risk	Unclear risk	Double-blinded	High risk	No	Low risk	High risk	High risk of bias
Suzuki et al (2008)	Low risk	Unclear risk	High risk	High risk	High risk	Open-label	Low risk	No	Low risk	Low risk	High risk of bias
Cice et al (2010)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
OCTOPUS (2013)	Unclear risk	Unclear risk	High risk	High risk	Low risk	Open-label	Low risk	Yes	Low risk	Low risk	Unclear risk of bias
SAFIR (2014)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
Satirapoj et al (2014)	Low risk	Unclear risk	High risk	High risk	High risk	Open-label	Low risk	Yes	Low risk	Unclear risk	High risk of bias
Sun et al (2016)	Low risk	Low risk	High risk	High risk	Low risk	Open-label	Unclear risk	No	Low risk	Low risk	High risk of bias
Meltzer et al (1984)	Unclear risk	Unclear risk	High risk	High risk	High risk	Open-label	Unclear risk	Unclear	Unclear risk	Unclear risk	High risk of bias
Cice et al (1997)	Unclear risk	Unclear risk	High risk	High risk	High risk	Open-label	Low risk	Yes	Low risk	Low risk	High risk of bias
Cice et al (1998)	Unclear risk	Unclear risk	Low risk	Low risk	Unclear risk	Double-blinded	Unclear risk	No	Unclear risk	Low risk	Unclear risk of bias
Cice et al (2001,2003)	Low risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias

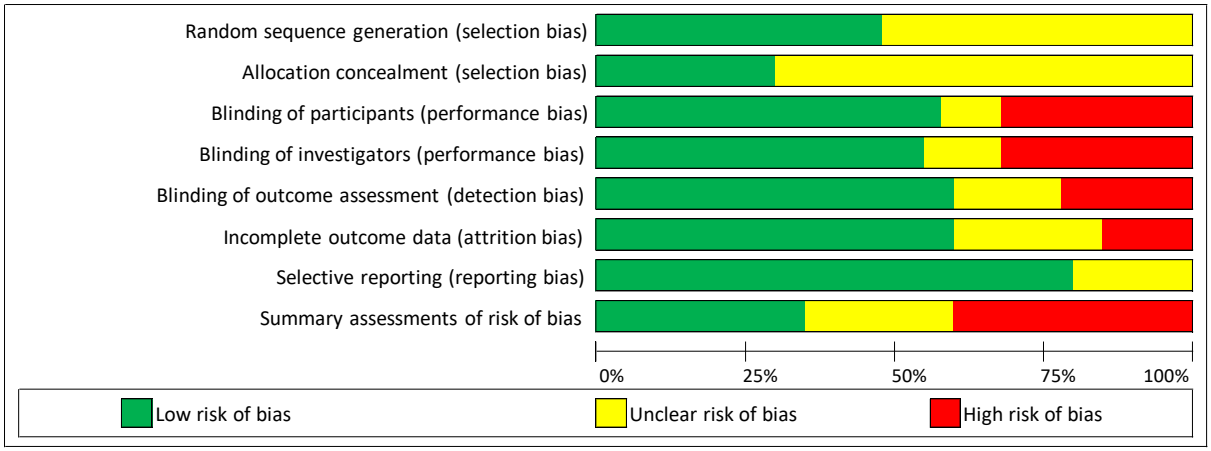
Study	Random sequence generation	Allocation concealment	Blinding (patients)	Blinding (investigators)	Blinding (outcome assessment)	Double-blind?	Incomplete outcome	ITT	Selective reporting	Baseline imbalance	Summary quality
HDPAL (2014)	Low risk	Low risk	Unclear risk	Unclear risk	Low risk	Open-label	Low risk	Yes	Low risk	Low risk	Low risk of bias
BLOCADE (2016)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
London et al (1990)	Low risk	Unclear risk	Low risk	Low risk	Unclear risk	Double-blinded	Low risk	Yes	Unclear risk	Low risk	Low risk of bias
Cice et al (1999)	Unclear risk	Unclear risk	Low risk	Unclear risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Unclear risk of bias
Tepel et al (2008)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Unclear risk	Low risk of bias
Hausberg et al (2010)	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Not specified	Low risk	Yes	Unclear risk	Unclear risk	Unclear risk of bias
Gross et al (2005)	Low risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
Taheri et al (2009)	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	High risk	No	Low risk	Unclear risk	High risk of bias
Vukusich et al (2010)	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	High risk	No	Low risk	Low risk	Unclear risk of bias
Taheri et al (2012)	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	Unclear risk	No	Unclear risk	Low risk	Unclear risk of bias
Zaripova et al (2012)	Unclear risk	Unclear risk	High risk	High risk	High risk	Open-label	Unclear risk	Unclear	Unclear risk	Unclear risk	High risk of bias

Study	Random sequence generation	Allocation concealment	Blinding (patients)	Blinding (investigators)	Blinding (outcome assessment)	Double-blind?	Incomplete outcome	ITT	Selective reporting	Baseline imbalance	Summary quality
DOHAS (2014)	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Open-label	Low risk	Yes	Low risk	Unclear risk	Unclear risk of bias
Ni et al (2014)	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
Feniman-De-Stefano et al (2015)	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Double-blinded	Unclear risk	No	Low risk	Unclear risk	Unclear risk of bias
Ito et al (2015)	Unclear risk	Unclear risk	High risk	High risk	Low risk	Open-label	Low risk	Yes	Low risk	Low risk	High risk of bias
PHASE (2015)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
Lin et al (2016)	Low risk	Low risk	Low risk	Low risk	Low risk	Double-blinded	Low risk	Yes	Low risk	Low risk	Low risk of bias
Ito et al (2014)	Unclear risk	Low risk	High risk	High risk	High risk	Open-label	Low risk	Yes	Low risk	Unclear risk	High risk of bias
Kuriyama et al (2014)	Unclear risk	Unclear risk	High risk	High risk	Low risk	Open-label	High risk	No	Low risk	Low risk	High risk of bias

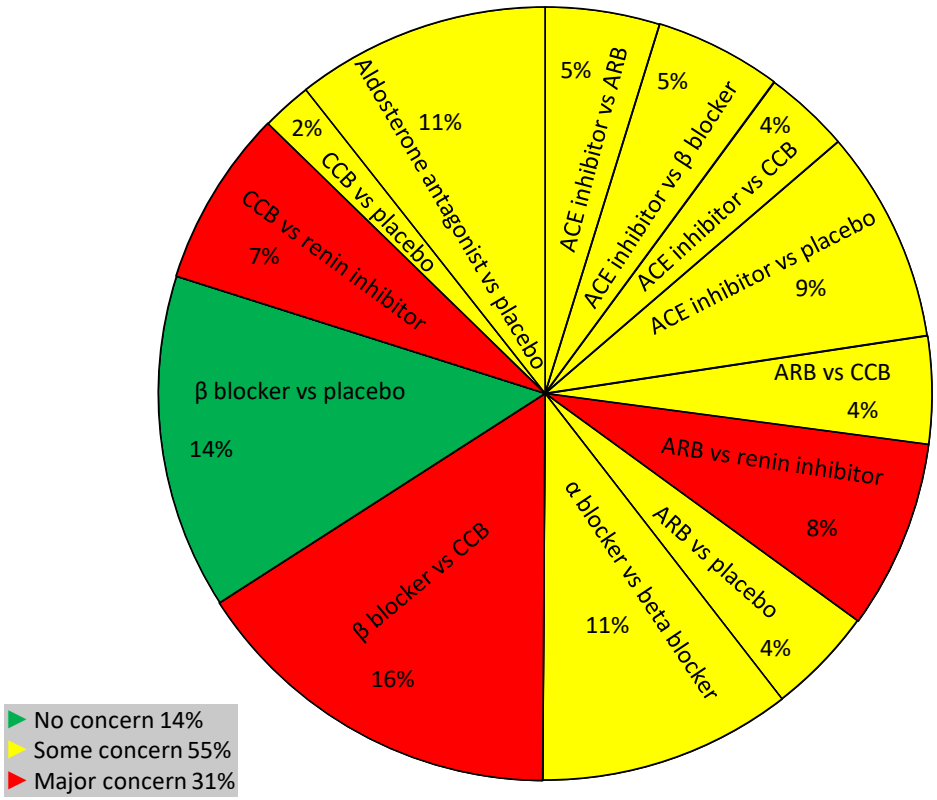
ITT=intention-to-treat analysis.



Supplemental Figure 1. Electronic searches in MEDLINE, Embase, and the Cochrane Central Register of Randomised Trials for trials on blood pressure lowering drugs in adults with end-stage kidney disease requiring dialysis.



Supplemental Figure 2. Domain-specific risk of bias assessment summary of included studies.



Supplemental Figure 3. Study limitations weighted by contribution of direct estimates to the network of blood pressure lowering drugs for systolic blood pressure outcome.

ACE=angiotensin-converting enzyme. ARB=angiotensin-receptor blockers. CCB= calcium-channel blockers.

Supplemental Table 4. Assessment of loop-specific (in closed loops of evidence) and overall inconsistency and heterogeneity.

Outcome	Closed loop of evidence	Inconsistency factor (95% CI)	Loop heterogeneity ($tau^{2)}$	P for global inconsistency test	Network heterogeneity (tau^2)
Systolic blood pressure	ARB-CCB-Placebo	9.23 (0.00,35.39)	28.58		0.00 (low heterogeneity)
	ACEI-ARB-Placebo	3.75 (0.00,18.02)	0.00	0.96	
	ACEI-CCB-Placebo	3.09 (0.00,13.11)	4.77		
	BB-CCB-Placebo	2.62 (0.00,17.35)	15.73		
	ARB-CCB- Renin inhibitors	2.3 (0.00,16.53)	0.00		
	ACEI-BB-CCB	2.15 (0.00,10.65)	0.00		
	ACEI-ARB-CCB	1.59 (0.00,17.61)	0.00		
	ACEI-BB-Placebo	0.14 (0.00,7.09)	0.00		
Diastolic blood pressure	ACEI-BB-Placebo	2.82(0.00,8.54)	2.16		3.9 (high heterogeneity)
	ARB-CCB-Renin inhibitors	2.4(0.00,14.72)	0.00	1.0	
	ACEI-ARB-CCB	2.05(0.00,16.72)	0.00		
	ARB-CCB-Placebo	1.84(0.00,32.80)	101.53		
	ACEI-CCB-Placebo	1.39(0.00,13.05)	18.54		
	ACEI-ARB-Placebo	0.32(0.00,14.21)	7.56		
Heart rate	ACEI-ARB-Placebo	7.23(0.21,14.24)	0.00	0.72	3.7 (high heterogeneity)
	ACEI-CCB-Placebo	6.26(0.00,14.96)	0.00		
	ACEI-ARB-CCBs	3(0.00,12.32)	0.00		
	BB-CCB-Placebo	0.49 (0.00,13.97)	0.00		
	ARB-CCB-Placebo	0.26(0.00,8.47)	0.00		
Discontinuation due to	ACEI-ARB-Control	1.94 (0.00,4.87)	0.00	0.20	0.0 (low heterogeneity)

adverse event	ACEI-ARB-ACEI+ARB	.	0.00		
Hypotension	no closed loops	-	-	0.64	0.0 (low heterogeneity)
Hyperkalaemia	no closed loops	-	-	0.22	0.0 (low heterogeneity)
Potassium concentration	no closed loops	-	-	<0.001	0.0 (low heterogeneity)

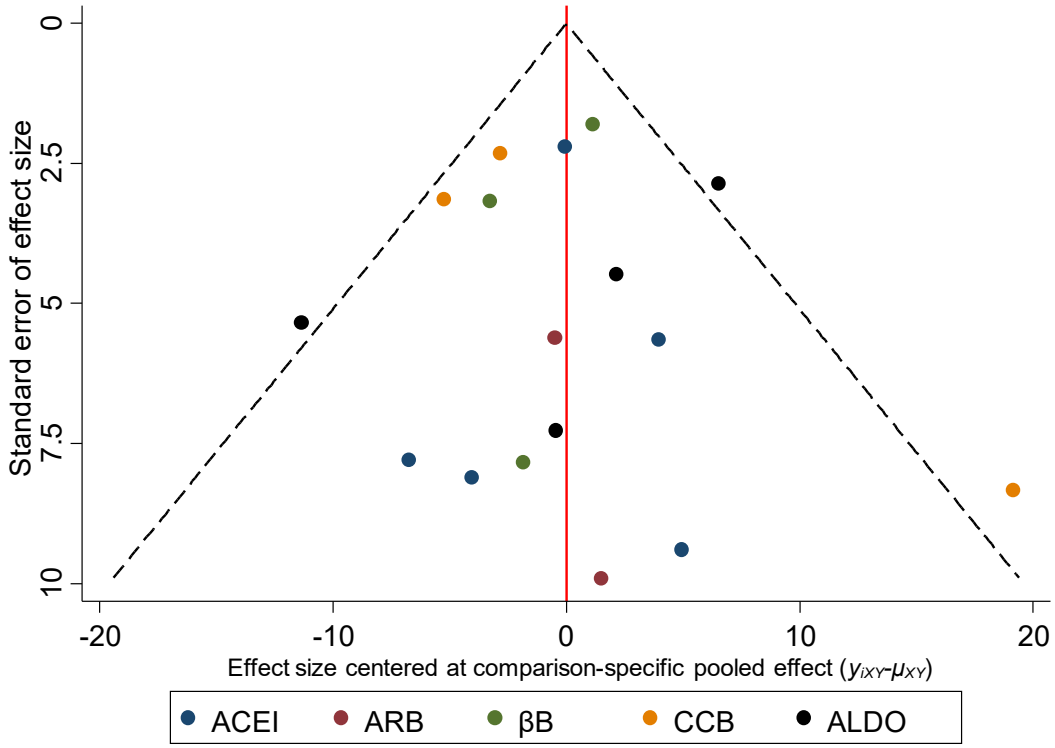
Aldosterone antagonists vs. placebo comparison did not form a closed loop of evidence and all the evidence for this comparison come from aldosterone antagonists vs. placebo trials, i.e. no indirect evidence was calculated for this comparison. ACEI = angiotensin-converting enzyme inhibitors. ARB = angiotensin receptor blockers. BB = β blockers. CCB = calcium channel blockers.

Supplemental Table 5. Assessment of agreement between direct and indirect evidence using side-splitting approach for all outcomes.

Outcome	Side	Direct estimates	Standard error	Indirect estimates	Standard error.	Difference	Standard error.	P value
Systolic blood pressure	ACEI-Placebo	4.01186	1.887974	4.748869	2.286428	-0.73701	2.965164	0.80
	ACEI-ARB	1.894487	4.820632	0.89501	3.818895	0.999477	6.149051	0.87
	ACEI-β blockers	-4.70139	2.58363	-4.18304	1.923293	-0.51835	3.220966	0.87
	ACEI-CCB	1.343631	3.290392	-0.82741	1.836203	2.17104	3.768251	0.57
	ARB-Placebo	-1.63793	5.115792	5.187827	3.477899	-6.82575	6.186041	0.27
	ARB-CCB	0.300003	4.822033	-2.60319	3.524782	2.903196	5.972946	0.63
	ARB-Renin inhibitors	10.59749	3.362012	4.824083	5.417452	5.773405	6.375496	0.37
	α blockers-β blockers *	-2	3.609678	-15.3588	200.0456	13.35879	200.1433	0.95
	β blockers-Placebo	8.852225	1.53188	8.457964	1.726304	0.394261	2.307983	0.86
	β blockers-CCB	3.89945	1.130249	4.568475	2.05124	-0.66902	2.341872	0.78
	CCB-Placebo	5.436714	2.128656	3.600421	2.495653	1.836293	3.558225	0.61
	CCB-Renin inhibitors	7.998312	4.262446	13.78184	4.73911	-5.78353	6.372505	0.36
	ALDO-Placebo	.	.	.	.	.	.	.
Diastolic blood pressure	ACEI-Placebo	0.848348	1.921043	2.544202	2.229023	-1.69585	2.942216	0.56
	ACEI-ARB	-0.40164	5.355629	-0.16529	3.119034	-0.23635	6.197074	0.97
	ACEI-β blockers	-1.70027	2.527595	-3.8482	2.427576	2.147928	3.504563	0.54
	ACEI-CCB	-0.80711	2.666879	-0.96117	3.055745	0.154064	4.049435	0.97
	ARB-Placebo	1.364134	3.55327	2.173941	3.828507	-0.80981	5.189358	0.88
	ARB-CCB	-1.8	5.34946	-0.24237	3.124403	-1.55762	6.195047	0.80
	ARB-Renin inhibitors	5.59959	2.847764	3.783104	5.155734	1.816486	5.889747	0.76

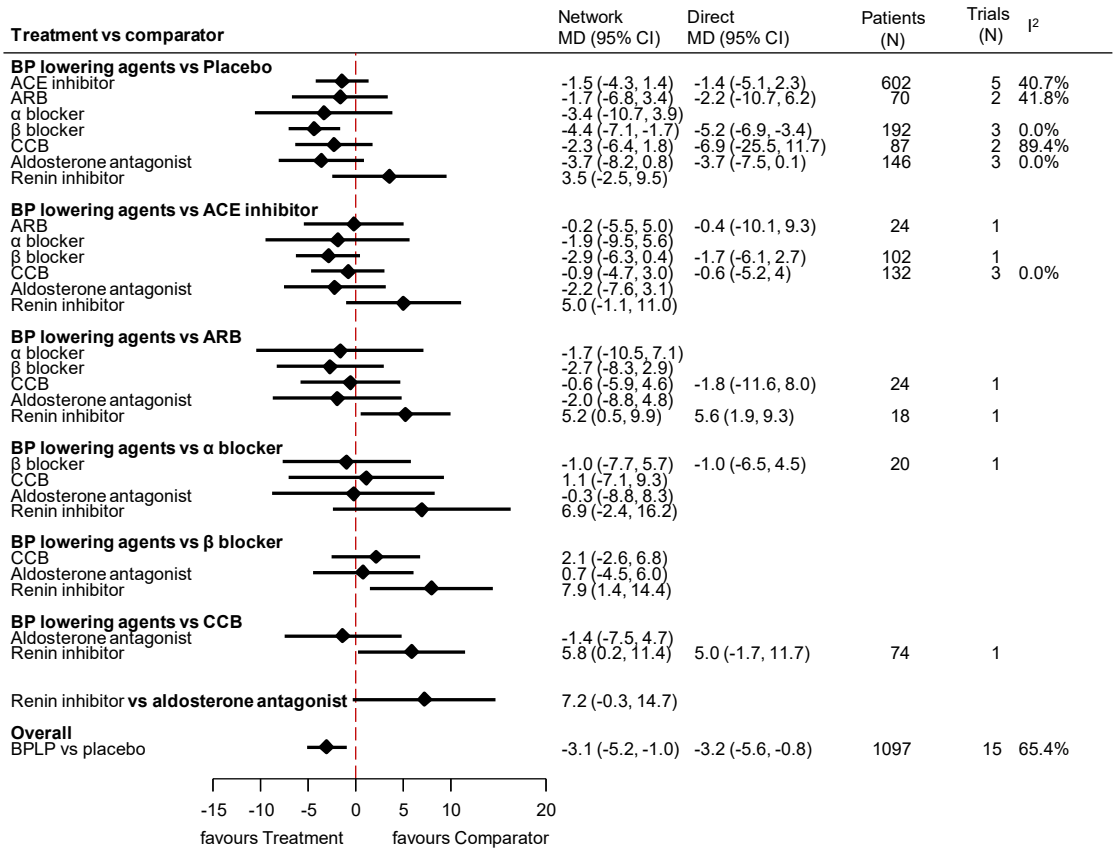
	α blockers-β blockers *	-1	3.441318	-7.80411	200.0688	6.80411	200.1383	0.97
	β blockers-Placebo	4.873786	1.555929	2.722145	3.090398	2.151641	3.501714	0.54
	CCB-Placebo	2.869727	3.102839	2.038153	2.770071	0.831574	4.024667	0.84
	CCB-Renin inhibitors	4.999044	3.977951	6.822081	4.343092	-1.82304	5.888967	0.76
	ALDO-Placebo	.	.	.	.	.	.	.
Heart rate	ACEI-Placebo	-5.88078	2.352137	0.651982	2.261786	-6.53277	3.263162	0.045
	ACEI-ARB	-2.09945	2.558684	-8.26061	2.219672	6.161154	3.38747	0.069
	ACEI-CCB	-0.66272	2.143051	-7.34159	3.911949	6.678876	4.47188	0.14
	ARB-Placebo	3.033585	1.952983	-0.53574	3.47376	3.569329	3.95103	0.37
	ARB-CCB	2.700005	3.589857	3.123915	3.677171	-0.42391	5.138935	0.93
	β blockers-Placebo	20.62708	2.892543	19.13711	6.629586	1.489967	7.15432	0.84
	β blockers-CCB	20.16617	6.206428	21.608	3.58629	-1.44183	7.168406	0.84
	CCB-Placebo	1	3.998048	-1.82377	2.884053	2.823767	4.929721	0.57
	CentralAct-Placebo	.	.	.	.	.	.	.
Discontinuation due to adverse events	ACEI-Control	-0.51677	0.250801	-2.45176	1.477647	1.934993	1.49878	0.20
	ACEI-ARB *	-1.94575	1.455656	-0.01038	0.357449	-1.93537	1.498901	0.20
	ACEI-ACEI+ARB *	-0.84725	0.886403	3.022737	2.993614	-3.86999	2.997559	0.20
	ARB-Control	-0.50638	0.254693	1.429147	1.477142	-1.93553	1.498939	0.20
	ARB-ACEI+ARB *	1.098612	1.581139	-2.77245	1.954636	3.871062	2.997877	0.20

*All evidence for these comparisons comes from trials that directly compare them. . = missing values indicate only direct evidence existed and inconsistency between direct and indirect evidence could not be assessed. ACEI = angiotensin-converting enzyme inhibitors. ALDO = aldosterone antagonists. ARB = angiotensin receptor blockers. CCB = calcium channel blockers. CentralAct = centrally acting vasodilators.



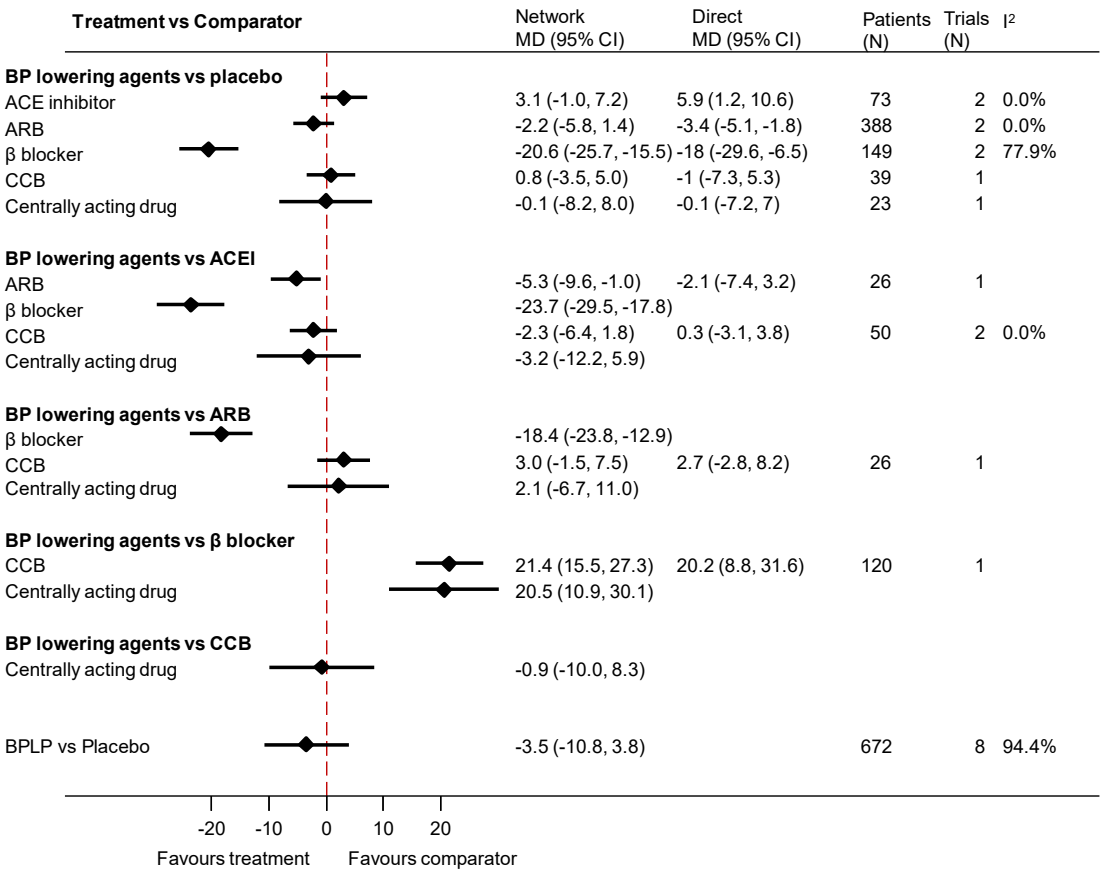
Supplemental Figure 4. Comparison-adjusted funnel plot of placebo-controlled trials (n=17) of blood pressure lowering drugs effect on systolic blood pressure in dialysis patients.

Each point represents the difference between the trial-specific effect size and its respective comparison-specific summary effect. ACEI= angiotensin converting enzyme inhibitors. ARB= angiotensin receptor blockers. βB= β blockers. CCB= calcium channel blockers. ALDO= aldosterone antagonists.



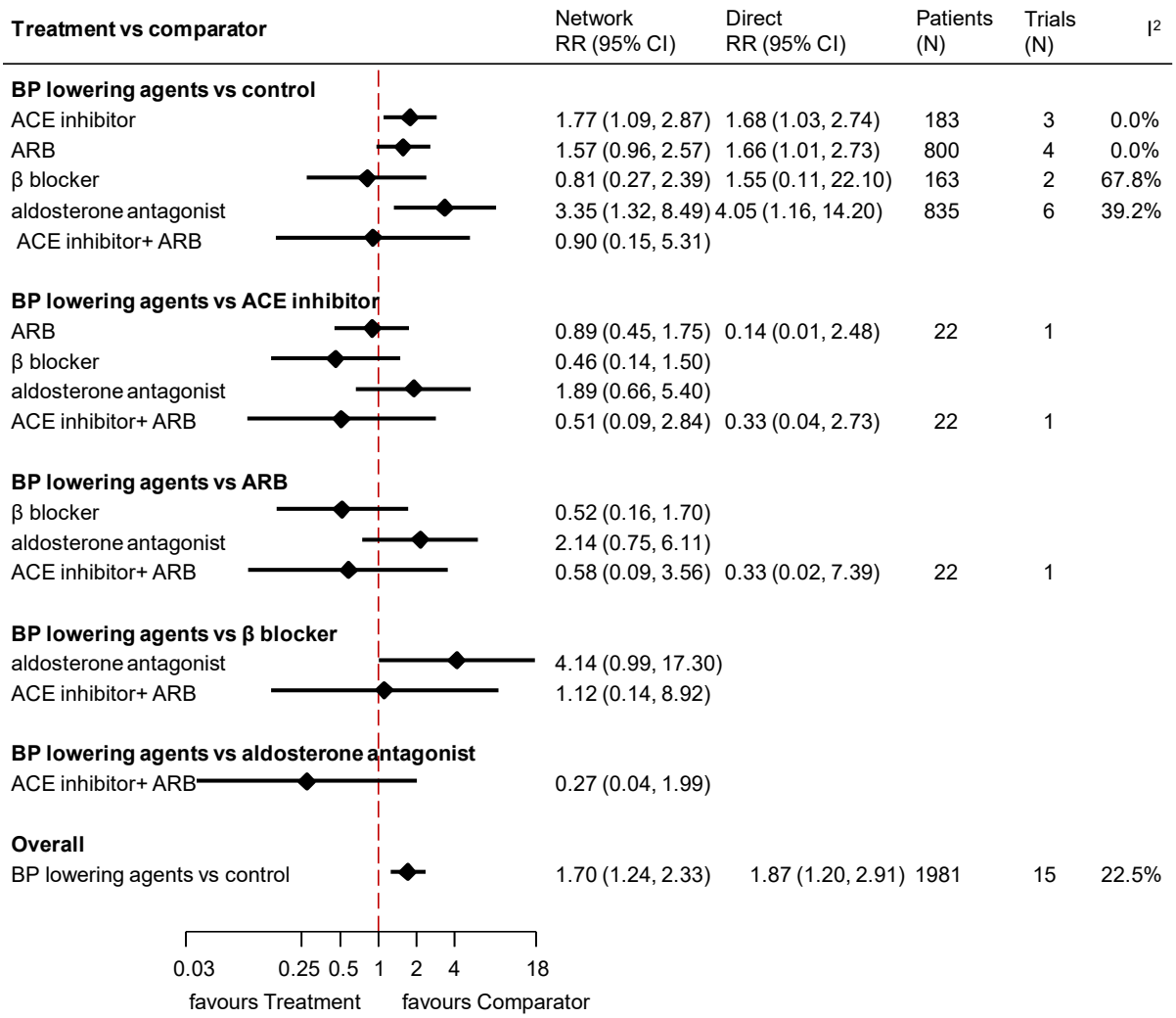
Supplemental Figure 5. Network estimates of blood pressure lowering drugs effects on diastolic blood pressure.

BP= blood pressure. ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. CCB= calcium-channel blockers. MD= mean difference (mmHg). BPLP= blood pressure lowering pharmacotherapy



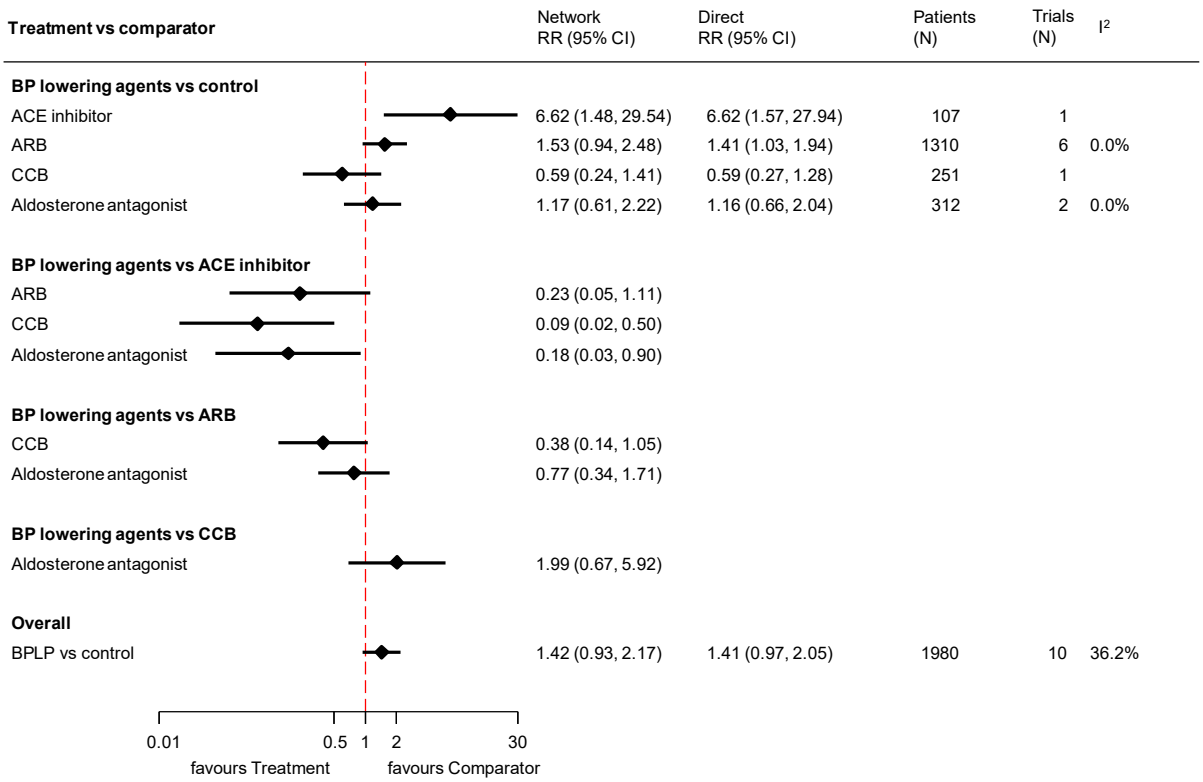
Supplemental Figure 6. Network estimates of blood pressure lowering drugs effects on heart rate.

BP= blood pressure. ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. CCB= calcium-channel blockers. MD= mean difference (beats per minute). BPLP= blood pressure lowering pharmacotherapy.



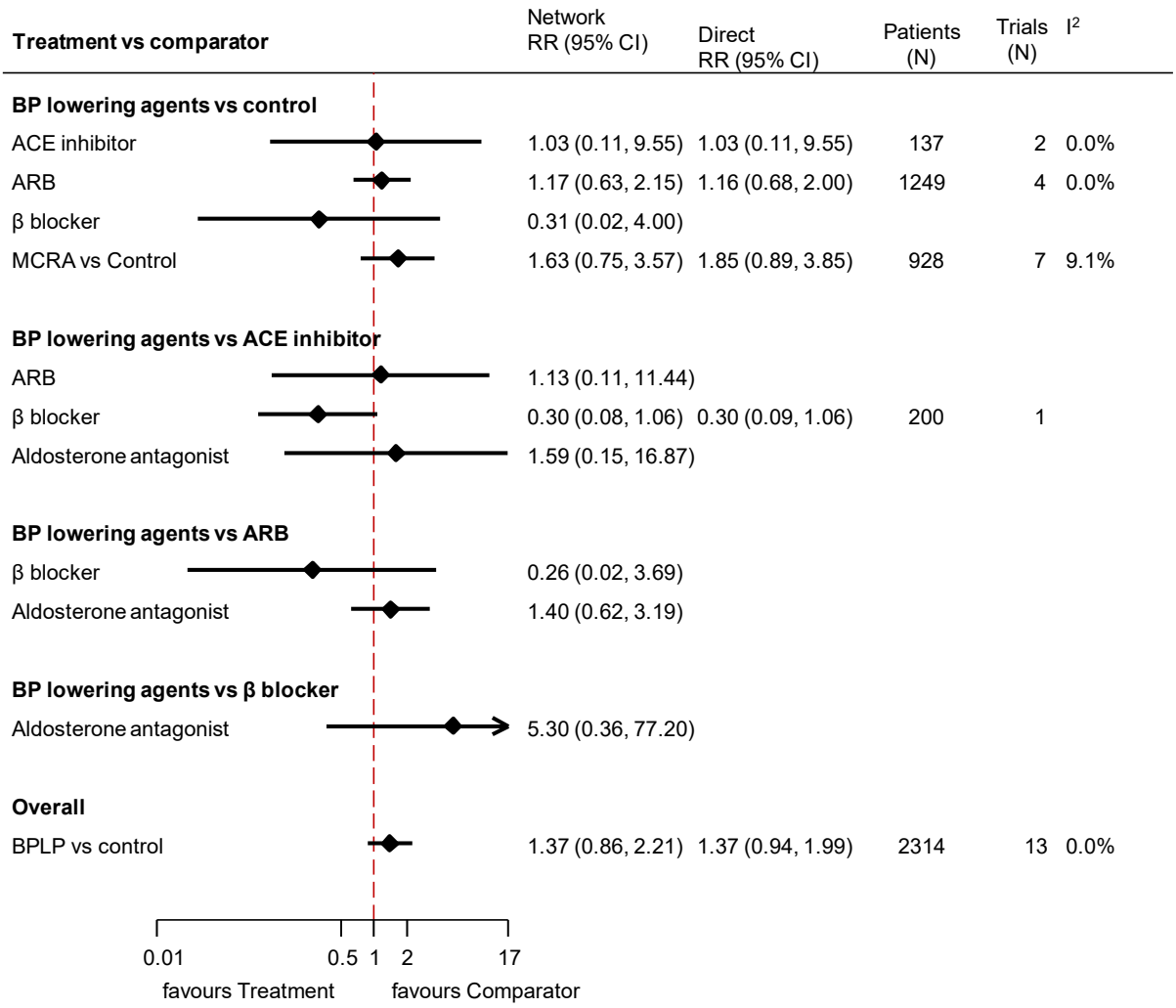
Supplemental Figure 7. Network estimates of blood pressure lowering drugs effects on discontinuation due to adverse events.

BP= blood pressure. ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. CCB= calcium-channel blockers. RR= relative risk.



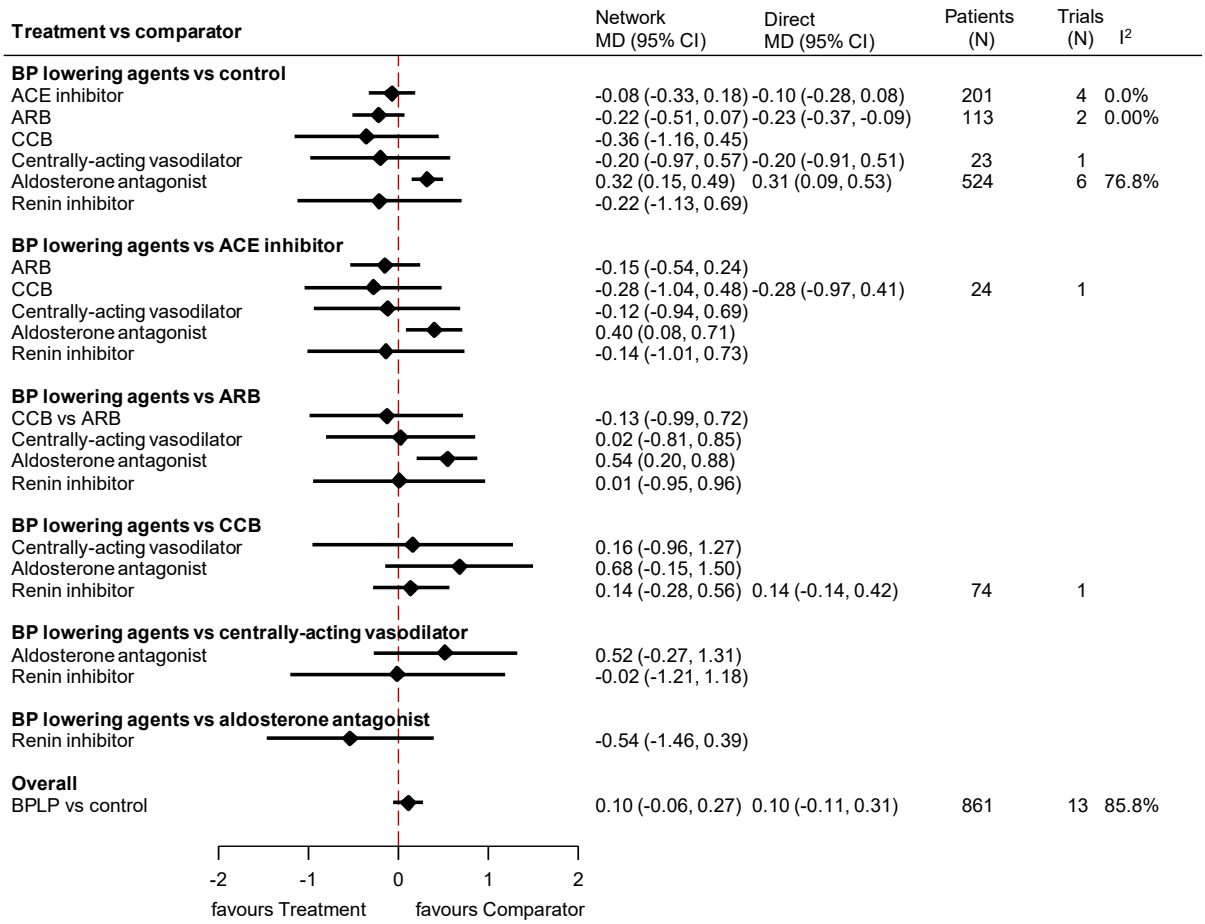
Supplemental Figure 8. Network estimates of blood pressure lowering drugs effects on risk of hypotension.

ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. BP= blood pressure. BPLP= blood pressure lowering pharmacotherapy. CCB= calcium-channel blockers. RR= relative risk.



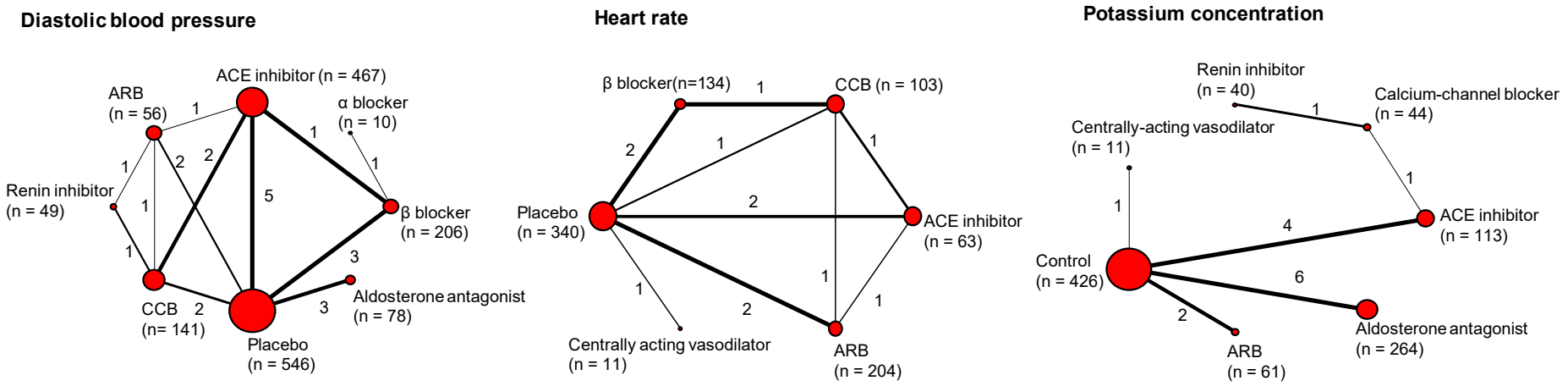
Supplemental Figure 9. Network estimates of blood pressure lowering drugs effects on the risk of hyperkalaemia.

ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. BP= blood pressure. BPLP= blood pressure lowering pharmacotherapy. CCB= calcium-channel blockers. RR= relative risk.



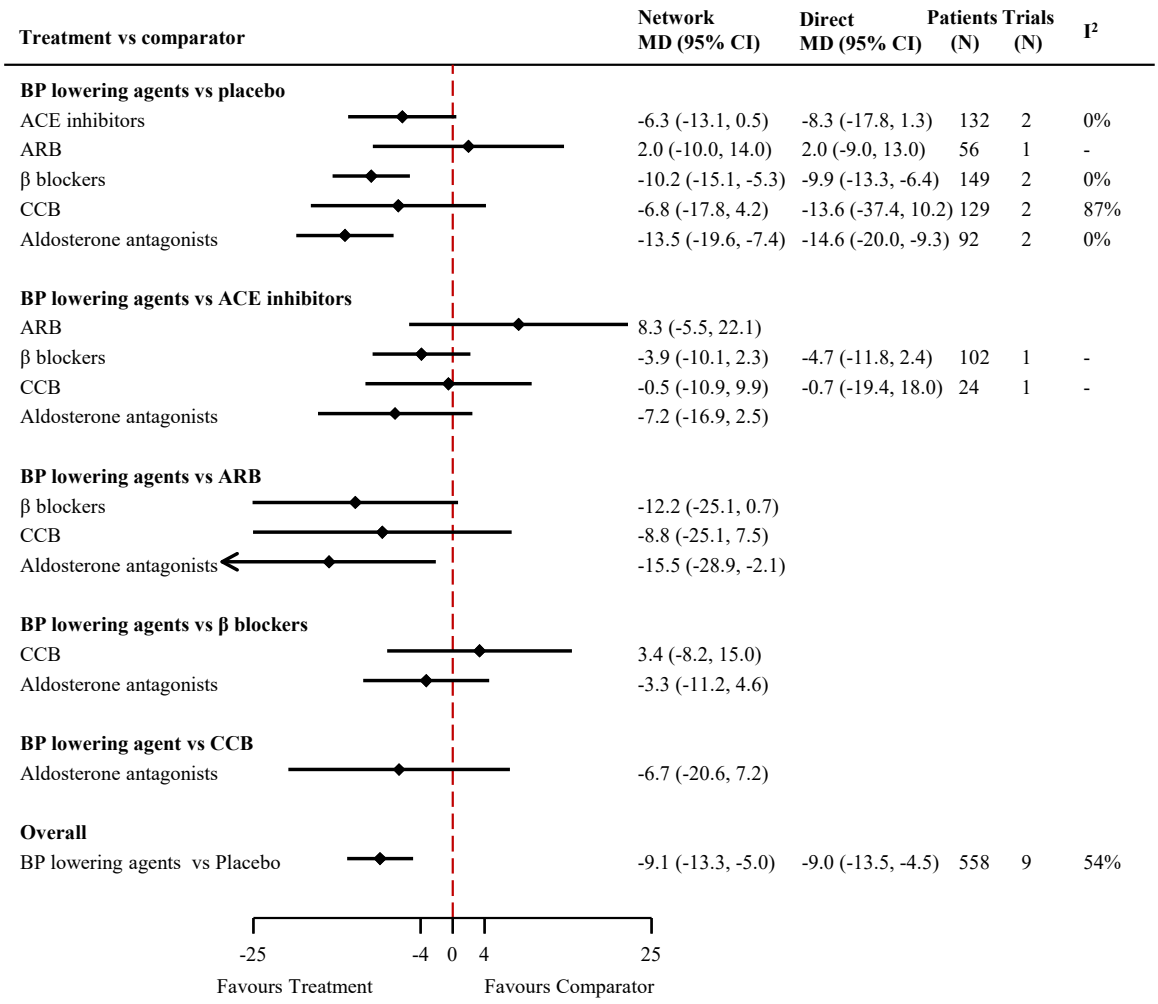
Supplemental Figure 10. Network estimates of blood pressure lowering drugs effects on serum potassium.

ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. BP= blood pressure. BPLP= blood pressure lowering pharmacotherapy. CCB= calcium-channel blockers. MD= mean difference (mEq/L).



Supplemental Figure 11. Network of treatment comparison of blood pressure lowering agents effects on diastolic blood pressure, heart rate and potassium concentration outcomes.

The size of the node corresponds to the number of trials. The thickness of the line connecting two treatments corresponds to the number of patients. Numbers next to each line represent the number of trials that compared the connected treatments. Numbers in brackets correspond to the number of patients. ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. CCB= calcium-channel blockers.



Supplemental Figure 12. Network estimates of blood pressure lowering drugs effects on systolic blood pressure in trials with low risk of bias (n=9).

BP= blood pressure. ACE= angiotensin converting enzyme. ARB= angiotensin receptor blockers. CCB= calcium-channel blockers. MD= mean difference (mmHg).

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